Challenges of the current medicine

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Medicine is of all the Arts the most noble;
but, owing to the ignorance of those who practice it, and of those who, inconsiderately, form a judgment of them, it is at present behind all the arts.
Hipocrates

Dear Colleagues

The monograph "*Challenges of the Current Medicine-4 Edition"* is a collection of works written by authors from many different medical centers.

The chapters concentrate on some problems of therapeutic and interdisciplinary care in patient care and improving the quality of life, or the role of medical personnel in health promotion and health education. We believe that the reader will trigger the conviction, expressed words of Gordon Thomas: "In order to understand the other person, you need to understand it as if to be in its interior. You should look at his eyes, so as to see how the world is and how it sees itself. Instead of watching him from the outside, as if it were a scientific specimen should be able to stay in his world, to go into it in order to feel from the inside, as it looks for life. "

For thus we should treat our patient. We should cure him, not the disease. The members of the therapeutic team must move concentration point from physical or mental symptoms of what is happening in the life of a sick person, also asking ourselves questions: whether the patient is carried out in different spheres of life? What is his attitude towards yourself and others? How to respond to their complaints? Is full of optimism and faith take the effort to recover health or reveals discouragement, sadness, mental suffering? According to Albert Camus - The disease is a monastery, which has its own rule, his asceticism, his silence and his inspiration.

We hope that all readers of this monograph will find interesting topics on 'Medical Problems in Palliative Care', 'Problems of Social Medicine', 'Threats in Workplace' and Health Education'.

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Contens

MEDICAL PROBLEMS OF PALLIATIVE CARE

THREATS IN THE WORKPLACE

PROBLEMS OF SOCIAL MEDICINE

HEALTH EDUCATION

MEDICAL PROBLEMS OF PALLIATIVE CARE

Chmielewska-Ignatowicz Tomira

Is a patient's knowledge regarding cancer one of the most important conditions of a partner relationship with a doctor?

University of Cardinal Stefan Wyszynski in Warsaw

Introduction

Among all somatic illnesses cancer influences the personality structures the most and the consequences of such influence on the mental sphere are, before all, low self-esteem, disintegration of the patient's own image, disappearance of the meaning of life, no hope for a cure, depression, aggression [1]. The patient tries to gain control over his emotions e. g. by initiating deeper (deeper than with other illnesses) defense mechanisms depending on the personality characteristics of the patient, his life situation, the specificity of the disease, its course, length, severity and effectiveness of treatment. All those factors determine the process of adaptation to the situation resulting from cancer. An individual ability of coping with the illness itself and the life changes it creates both have an influence on this adaptation. Oncological patients create a unique adaptation style during the duration of the illness – the style is usually a constellation of cognitive functions, emotional reactions and a behavioral stereotype. The patients use it during all stages of the illness [2], although it's important to realize that the emotions of stress and fear are inherently connected with the course of the illness – what in turn can determine the way of communication between a patient and a doctor.

As Juczyński [3] notices, it's possible in almost every case to bring a patient's stress connected with cancer to:

- stress connected with diagnosis (stress beginning at the stage of suspecting the illness as a result of certain symptoms) through a stage of diagnostics all the way to a stage of confrontation with a cancer diagnosis.
- stress connected with treatment (stress regarding the entire treatment procedure and side effects of the treatment. In case of oncological patients the treatment usually renders the patient merely a passive "subject" to therapy, what in turn intensifies the feeling of helplessness. Additionally, there is stress connected with the hospital stay, which is both a physical and social aspect of adapting to the hospital institution and therapy: surgery, radiotherapy, chemotherapy).

- stress showing in the period after treatment (coping with stress connected with hearing the diagnosis and treatment does not usually result in experience connected with feelings typical for recovery. For many people after cancer stress never ends. Almost 2/3 of the recovered (even in remission with no signs of recurrence) still feel great stress connected with the illness.

It is very important to notice that the patient's level of diagnosis acceptance usually depends on the level of anxiety connected with the illness, yet at the same time anxiety is an important factor influencing the fact which level of illness experience the patient is on. The MAC questionnaire (Mental Adjustment to Cancer) created by Watson and collaborated by Juczyński [3], which was adapted to Polish conditions, allows the identification of five ways a patient copes with an illness: denial, fighting spirit attitude, stoic acceptance, helplessness and anxious preoccupation. This kind of identification is in many ways similar to a suggestion by Elisabeth Kübler-Ross [4], the author of the model of five phases of mourning (describing people's reactions regarding the information of an incurable illness and approaching death (their own or someone's close). These are: denial, anger, negotiations, depression, and acceptance.

The stage of cancer diagnosis acceptance by a patient and how the stress and anxiety are present in this stage of illness seem to be the factors influencing the quality of communication with a doctor. In the opinions of both Kübler-Ross and Watson, not every patient goes through every stage of an illness and they do not always appear in the same order and intensity. Nevertheless some regularities can be observed in the behaviors of some patients and it allows an assumption that despite individual styles of coping with the news regarding cancer and stress, oncological patients in some stressful situations regarding the illness act similarly, share similar emotional needs and pay attention to similar informative aspects (in regard to doctors).

The complexity of the role of doctors, who accompany oncological patients during the therapeutic period, is usually reduced to the desire and ability of decoding a phase where the patient is experiencing the illness, as well as decoding the type of patient's personality and his way of coping (based on tasks or emotions) with stress [5] and adapting the way of communicating with a patient to those factors.

Without a doubt the consultation during which a patient receives a cancer diagnosis is at the same time the hardest communication situation between a patient and a doctor. Strong emotions of fear, shock and disbelief from the patient's side not once make verbal communication with a doctor impossible, yet the doctor (who has not known the patient beforehand) either directs the patient to a specialist consultation and examination without trying

to explain all details connected with the illness to the patient, or the other way around – feeling obligated to explain all medical details regarding the patient's illness, the doctor does not take into consideration the patient's mental state and using medical terminology unknown to the patient informs him about all details regarding the illness.

In both of those situations it's therefore hard to speak about possibilities of creating a partner relationship between a doctor and a patient. Therefore, is it possible for such a relationship to exist between a patient and a doctor, at the same time assuming that on every stage of patient's experience with the illness very strong emotions of stress and anxiety accompany him every day and a doctor is the only person in touch with the patient who has both the medical knowledge and the ability to help, yet the doctor can still treat the illness as a specific medical case, not an individual tragedy?

Assumptions and purpose of the article:

Considering the facts that:

- cancer is treated like a 21st century pandemic,
- cancer always involves social and individual fears regarding therapy and prognosis,
- the quality of communication between doctors and oncological patients (on every stage of the illness) is one of the most important factors of therapy and a patient's motivation to fight the illness, it is of utmost importance to know opinions of oncological patients and oncologists regarding the fact what factors or circumstances determine the possibility of a partner relationship between a doctor and an oncological patient being created.

Methods

In order to know the opinions of oncologists and oncological patients regarding the factors and circumstances determining creation of a partner relationship between an oncologist and an oncological patient, in 2013 12 in-depth interviews have been conducted with oncologists in Warsaw (6 men, 6 women) and 12 in-depth interviews have been conducted with oncological patients as well (adults from Warsaw and the region, 6 men, 6 women). Based on the fact that the group of doctors consists of people with higher education, the group of oncological patients also includes people with higher education only to minimize the risk of discrepancies between interpretations of different problems with interpersonal doctor-patient communication, resulting from differences in education of those examined.

Results and conclusions:

Based on an analysis of the answers of the respondent oncological patients and

oncologists it can be stated that:

- in the opinion of doctors and patients, a patients' knowledge helps to forge a partner relationship with a doctor
- for patients, the main source of knowledge about an illness is Internet
- social authority of a doctor is, in the perception of both patients and doctors, strong enough to determine a choice of a paternalistic relationship model between a doctor and a patient
- in the opinion of doctors, the patients themselves choose a paternalistic cooperation and communication model in regard to a doctor.

Discussion

It's important to notice that difficulties in communication with a patient on a certain level of adaptation to illness can be an indication of the fact that the patients subjected to the study (those who agreed to talk about the illness and communication with doctors) were only in a so-called "acceptance phase". Even though going through every single phase is not typical to every patient (some phases do not appear with certain patients, whereas some apply all the time, e. g. denial) and the illness phases usually stay unconscious in a patient's perception, it has proven impossible to talk to patients in a phase different than acceptance. The author has faced rejection of invitations to talk about the illness both from men and women who claimed that they were unable to talk about the illness, think about it and, naturally, speak about the subject (behavior typical for the phases of denial, anger and depression). Those patients have also been diagnosed with cancer in a period not longer than a year, what allows an assumption that those patients were still in the stage of not coming to terms (acceptance) with an illness and did not express readiness to talk about the subject as well as about communication with doctors. Patients in a terminal stage of illness were also not included in the study (not only based on poor health, but also on an attitude of reconciliation with fate and all actions of people surrounding the patient).

These types of attitudes of oncological patients that have refused to take part in the study can serve as a proof that the stage of patient's cancer experience influences communication with the outside world as well as the existence of difficulties doctors can experience in communication with patients suffering from depression, not believing the diagnosis or those who have reconciled with their fate (terminal phase). However, since the leading part in the patient-doctor communication set is always a doctor, more efficiency in the area of perception and interpretation of patient's behavior is expected of him and he should be the one to create

(from a psychological point of view) an atmosphere to confide in during a medical consult – what has repeatedly been pointed out by the patients who took part in the study in regard to the way a diagnosis has been communicated to them (patients who have heard a cancer diagnosis for the first time in their lives also expected the doctor to create an atmosphere allowing them to name their feelings of shock, anxiety, disbelief and communicate their informational and emotional needs).

It is important to point out that the complex statements coming from patients and regarding emotions describing the moment they have heard a diagnosis and numerous phases of coming to terms with the illness are also a proof that the patients participating in the study have been in the stage of diagnosis acceptance.

What Kübler-Ross has observed shows that not only patients in the stage of illness (acceptance) are willing to openly talk about the illness and all actions associated with it. Moreover, as professor de Walden-Gałuszko notices, patients who have not come to terms with the illness rarely speak about it directly – they use many demonstrative pronouns, such as "IT", "HIM". All patients taking part in the study have directly called their illness "cancer", "tumor", although they have never used the word "malignant" (nevertheless, all patients knew that they were suffering from cancer, which is a malignant tumor).

The analysis of the study results shows that a strong emotional charge that appears right after a patient hears the diagnose influences his way of communicating with the doctor. Firstly it creates a communication blockade, which – according to the patients – should be destroyed by a doctor based on his occupation, experience and knowledge. Patients have also admitted that time to "do research" on the illness and the knowledge about the illness itself, usually taken from the Internet (as a source of knowledge that satisfied the informative needs of a patient that have not been satisfied by a doctor communicating a cancer diagnosis), are factors that influence the communication with a doctor in later stages of the illness (also with their leading doctor).

At this point it's important to point out the specific features of contact/communication with an oncologist based on a patient who has received a cancer diagnosis from a non-oncologist.

The consult with an oncologist is a very special kind of medical communication – a patient usually visits a specialist to confirm a diagnosis given by a non-oncologist (the patient is advised to consult an oncologist by a doctor who informed the patient about the illness to verify the diagnosis). The patient consulting an oncologist already has basic knowledge about

the probability of an oncological problem and the characteristics of the illness and therapy (knowledge taken mostly from the Internet, from other people suffering from cancer, or from family, who often take the weight off a patient's shoulders and take the task to do research about cancer upon themselves).

The first emotions of anxiety and shock that appear during the first time a patient hears a diagnosis become naturally muted. The fact that the diagnosis is confirmed by an oncologist makes the consultation very different – especially confronted with a diagnosis given by a non-oncologist. It is important to notice that the patient's knowledge about the oncological specialty of a doctor can generate different expectations and emotions on the patient's side (because it is common to believe that if a diagnosis is stated by an oncologist, the information will regard the presence or absence of oncological problems, detailed information about the cancer type (malignant, non-malignant, cancer), severity, therapy, targeted research). Based on this point of view, phases of usual medical consults (July 2014) should be, if the consult is an oncological one, expanded to cover a so called verification phase (confirmation or exclusion of an oncological problem) and a correction phase (where, based on detailed research, experience and oncological knowledge, a doctor is able to give details to a patient regarding his own illness (cancer or non-malignant tumor), chances, prognosis or the best therapy, e. g. chemotherapy, radiotherapy).

Therefore, communication with a patient during an oncological consult refers to (July 2014):

- **informative phase**, where the doctor asks, and the patient talks about the reason for a visit;
- **research phase**, during which the illness status is confirmed and details are pointed out, going beyond experiential verification;
- **verification/correction phase**, where the doctor formulates an opinion about the patient's status (confirmation or exclusion of an oncological problem, details about what the patient already knows about the illness (cancer or a non-malignant tumor)
- **medical/prognosis phase**, during which the patient and the doctor talk about treatment effectiveness, side effects, prognosis.

All communication phases should be concluded with an „agreement" between the participants of the dialogue, what holds a great meaning especially for the patient. Understanding defines the appearance of trust and a possibility of creating a relationship (a doctor establishing confidence with both his verbal and non-verbal behavior usually becomes the patient's leading doctor). One of the conditions that have to be fulfilled for a so called

"agreement" between a patient and a doctor to be created is – according to the respondent patients – fulfilling the emotional needs of a patient by a doctor (even if it is connected with receiving a certain amount of information regarding the illness, an amount defined by the patient). The respondent oncologists criticize the way non-oncologists communicate information about cancer to the patients (both in the area of the way of communicating the information and the lack of content a patient receives (informative aspect)). It has been emphasized many times that the range of knowledge a patient has determines his attitude towards the illness, therefore – according to the respondent oncologists – only an oncologist should inform a patient whether he has cancer or not, as his knowledge in the matter is much more detailed and his specialty in the matter allows him to provide a patient with more information on the therapy, prognosis etc. It also influences the quality of communication with a specialist that is supposed to verify the diagnosis and information received by a patient from a doctor communicating the diagnosis. Meanwhile, in many places, the respondent oncologists deny the allegations towards non-oncologists in their statements in the area of information about the illness communicated by them:

- *„(...)in a moment like this a patient should not be burdened with too much information"* (Andrzej, 40 years old)
- *„(...) information should be given gradually"* (Leszek, 60 years old),
- „*(...) information should be limited – a patient suppressed by the situation and emotions will not remember the most important information* (Jakub, 39 years old).

It is concluded that lack of legal or in-occupational regulations concerning the issue who should deliver cancer news to a patient (an oncologist or a doctor performing diagnostic tests) also finds its implications in the lack of the oncologists' belief regarding what and how much information should be delivered to a patient during a consultation connected with giving a cancer diagnosis.

Oncologists' insufficient belief regarding the scope of information that should be delivered to a patient with a diagnosis, at the same time emphasizing (by the respondent doctors) the importance of delivering comprehensive information to a patient regarding his health, therapy etc. and the importance of patient's knowledge regarding the illness so that the course of next specialist consults is not disrupted – emphasizes individual and intuitive belief of the oncologists regarding the content delivered to patients at the moment they are delivered a diagnosis. It is important to emphasize that among patients (not only those participating in the study) it is common that they want to receive the fullest possible information regarding their

illness and all matters connected to it. Based on J. S. Doge's research [6] it can, however, be concluded that doctors do indeed pay close attention to what information they deliver to a patient, yet they do not honor the patients' needs in the subject. Meanwhile, inadequate information given to a patient by a doctor is one of the most common reasons for patient's complaints (Burling T, Dodge, 1963) and not only regarding diagnosis as specific as cancer, but illnesses in general. For example, in M. Motyka's Polish study [cited by 6] only 44% of patients found themselves sufficiently informed regarding their illness, and even less (33%) regarding treatment. Furthermore, among all patients who had doubts regarding their illness 43,5% didn't even try to contact a doctor about it. We should look for reasons for this kind of problems in the fact that – in the opinions of respondent oncologists and oncological patients – a patient does not usually ask questions regarding an illness or therapy. It is connected with emotions (cancer, terminal illness), but also with doctor's authority that is always present in a patient's perception (power, patient's dependence on doctor's decisions), what can also imply thoughtless acceptance of a paternalistic model of communication with a doctor and a feeling of anxiety in a patient.

The opinions of respondent oncologists show that they are aware of perception limitations of a patient who is being delivered a diagnosis (emotions), yet still they do not ask open questions to patients to check their level of knowledge about the illness during their first specialist consult (oncological) where they come to receive a diagnosis verification. Meanwhile, statements of the respondent patients lead to a conclusion that the scope of information they receive from doctors is significantly smaller than their needs in the matter. Many patients do not receive important information that condition their right contribution to the treatment process because doctors do not ask open questions aimed at knowing their needs (informational and emotional). This kind of observation was also crucial to determine reasons for dissatisfaction with patient-doctor communication while delivering a cancer diagnosis (what has been discussed in the previous chapter). The situation is made worse by the fact that approximately half of the information delivered to the patients – based on the dissatisfaction with fulfillment of the emotional aspect of communication during a medical consult – is incorrectly perceived and forgotten.

At this point we can clearly see the importance of educational and verification roles of oncologists. Despite the fact that article 13. of medical ethics shows that "it is a doctor's duty to respect a patient's right to consciously take part in making decisions regarding his own health. Information given to a patient should be fully understandable, a doctor should also inform him

about the level of possible risk of diagnostic and treatment procedures, as well as about all benefits connected with those procedures and possibilities of administering a different medical approach" [7], it is common that doctors do not undertake any verbal actions towards patients – in the opinion of respondent patients and based on previously quoted conclusions of other research of doctor-patient communication. It is one of the reasons of patients' dissatisfaction, feeling of chaos and conviction that it is essential to look for treatment, doctors and ways to cope with an illness on their own.

As mentioned before, one of the arguments given by doctors (oncologists) regarding the lack of undertaken verbal actions concerning knowing emotional and informational needs of patients who register for an oncological consult (using open questions) is very short time during patient's visit. At the same time research conducted by H. Watzskin and J. B. Stoeckle regarding time spent by doctors on informing patients about illness and treatment shows that during a consult a doctor, who usually spends around 20 minutes with a patient on average, uses 1 minute to give him information. Doctors participating in Watzskin and Stoeckle's research asked to define how much time they spend on giving information to patients stated it was between 10-15 minutes [8].

A conclusion comes to mind that doctors' misconception regarding patient's informational needs and their perception capabilities, and also regarding time necessary to talk to a patient and fulfill his emotional and informational needs, limits the doctors in undertaking verbal actions to create good communication with a patient. It is, at the same time, the reason why patients are prone to looking for information about illnesses from many different sources, mostly from the Internet (what has been confirmed in patients' statements mentioned in the previous chapter where the patients, dissatisfied with communication with a doctor delivering the diagnosis of cancer, turned to the Internet for knowledge about their illness and possible treatment).

In the opinion of oncologists participating in the study, finding information about cancer on the Internet is a way of getting accustomed with the diagnosis and is understandable – it also influences subsequent (better) communication with doctors as specialists who confirm or verify the first cancer diagnosis. Patient's knowledge then becomes the basis for creating a relationship and a dialogue with a patient:

- *„Even a few, or a dozen years ago patients had no access to as much medical knowledge as they do now. Dr. Google works and works well, even if not everything a patient finds there is true. But there is something to talk about, the doctor knows that he does not*

have to explain everything from the very beginning… besides, if a patient already knows something he has a different approach to the conversation… there is no sudden surprise. That is why it's better to talk to a patient when he's already been through all the information. They know what they want to know. There is no wandering. The time during a visit is well used. It's a good situation that patients know more about their illness either from the Internet or other patients... they can talk about it with a specialist in more details." /oncologist, 60 years old/

- *„(...)first of all, every patient has to digest the issue of an illness, get accustomed to the thought. After that the Internet search begins – it is a standard that does not surprise me. When the patient knows something about the illness, he keeps asking additional questions about unclear issues, he takes notes, asks some more, calls. When he has come to terms with the fact that he is sick or after he has undergone a procedure, for example after chemotherapy, he asks less, but his questions are very concrete, he is a conversation partner. Sometimes patients ask questions so hard that it's necessary to spend some time digging – especially men, who keep looking for medical news and modern therapies not available in Poland online."* /oncologist, 39 years old/
- *„A patient turns to the internet when he finds out about cancer. He comes with different, sometimes mutually exclusive information and asks for help. Sometimes he already has a treatment scheme planned in his head…"* /oncologist, 66 years old/

Therefore, the Internet seems to be – in the opinion of oncologists – a source of knowledge about an illness for patients, but sometimes it is just a way to fulfill emotional needs of a patient:

- *„Patients look for such advice and such people on the Internet mostly because they usually find what they want to hear there... that it's possible to cure it."* /oncologist, 40 years old/
- *„After a patient has gone through the phase of an emotional breakdown he probably looks for information out of curiosity, mostly to find something that would deny the diagnosis… he looks for different specialists, maybe for other patients on forums to ask them for recommendation… or for someone to tell them that it's not cancer."* /oncologist, 44 years old/
- *„ (...) it has to be said that some patients tend to be very well educated when it comes to their cancer. However, their knowledge mostly concerns the positive aspects, because for example a patient has read somewhere that there is ongoing research on a certain*

drug, that a specific medicine is better to ease the side effects of chemotherapy. These are always conversations or information for the doctor to say: amazing! It's kind of like asking a doctor for confirmation of things that give hope for the better, for greater comfort, for a recovery." /oncologist, 39 years old/

Doctors also see danger resulting from the fact that a patient is able to get too many information from the Internet regarding his illness and ways of treatment, therefore they emphasize the importance of verifying all information gathered on the Internet with their leading doctor:

- *„ (...) let's hope there's not too much of this knowledge, because it produces greater anxiety. A patient usually reads about negative effects of therapy, about hard-to-cure cases, he reaches the statistics and is very scared… yet his case does not need to look like most of those described on the Internet. A leading doctor, a specialist, is supposed to be the patient's guide."* /doctor, 39 years old/
- *„ (...) yet patients usually find so many information on the Internet that they have too much and they become even more scared of what might happen to them, they feel lost. And yet every case can be different and it's important to talk to one's doctor about all doubts one might have."* /doctor, 41 years old/
- *„ (...) knowledge helps with communication with a doctor, but it's important that the patient can verify all gathered information with a doctor, since without such verification he usually adds unnecessary stress or false hope… Internet knowledge is important, but it should only be a starting point for a conversation with a leading doctor."* /doctor, 40 years old/

They do, however, appreciate gaining self-knowledge regarding an illness by patients, since a patient's knowledge – according to the respondent oncologists – conditions better communication with a doctor. Patients know what to ask for, they verbalize their needs to a doctor, and what's more – they start cooperation with a doctor. Patient's knowledge about an illness is, additionally, a factor influencing emotional stabilization of the patient:

- *„Before all it's an entirely different level of conversation. One doesn't have to explain everything from the very beginning…"* /doctor, 40 years old/

A patient with knowledge about his illness makes it easier for a doctor to carry out a conversation:

- *"Such a patient is more aware, he does not ignore particular ailments, symptoms.* /doctor, 48 years old/

- *"He allows himself to be transferred to another conversation level, a higher one… the patient is not so stressed anymore, he has read something about this particular type of cancer, he becomes like a partner to a doctor."* /doctor, 44 years old/
- *„It is just so much easier to talk to a patient who already knows something… but he knows something only if he has already worked the topic of the illness inside of him…"* /doctor, 35 years old/
- *„You don't need to explain everything from the very beginning to the patient, you just explain the news and answer their questions..."* /doctor, 39 years old/

The quoted statements of respondent oncologists show that the knowledge of a patient seems to be of crucial importance when it comes to building a partner relationship (in the opinions where vast knowledge of patients has been emphasized it has also been pointed out that this knowledge can exceed a doctor's, which proves to be a challenge of sorts to the specialists, yet at the same time it distorts the relation in which a doctor is the dominant conversation partner). Despite the oncologists' belief that sometimes a patient should subject the information he has to a doctor's verification, it is clearly visible that doctors care that patients have knowledge regarding the illness (it takes the obligation to explain basic information about the illness off their shoulders and makes their educational effort smaller, which makes leading a dialogue easier), and the source the patients use to find that information is of secondary importance.

In the doctors' opinions regarding reasons why, according to them, patients turn to the internet to find information regarding their illness, no excerpts have been found that would blame looking for knowledge on the Internet for dissatisfaction with communication with a doctor delivering a cancer diagnosis (in the scope of information and the way of delivering a diagnosis). The main reasons why patients turn to the Internet to find answers to their doubts concerning the illness are:

- fear
- the need to dispel doubts
- curiosity
- the need to feel that one is taking care of one's health on one's own
- lack of time to ask questions to a doctor during the first consult

It is important to point out that the need to find information about the illness on the Internet that appears after hearing a diagnosis is – in the opinion of the respondent patients – mostly an answer to paucity of information that appears during communication with a doctor.

After that, these are actions to satisfy curiosity and to reduce the chaos of thoughts. According to the respondent oncologists patients look for knowledge regarding the illness on the Internet to calm their emotions and satisfy curiosity. Therefore, sometimes they seem not to notice the dissatisfaction of patient's emotional needs by the doctor delivering a cancer diagnosis.

Patients in their statements confirm the opinion of the oncologists regarding the fact that knowledge gained by the patients regarding an illness makes communication with a doctor easier when a patient arrives on a meeting to verify a diagnosis, since the knowledge a patient has channels the conversation with a doctor and the patient becomes a dominant side in the way of communicating during a medical consult:

- *„Knowledge helps with understanding the jargon, asking the right question and getting ready for future events. It is also easier for a doctor to talk to a patient aware of his illness."* /patient, 45 years old, esophageal cancer/
- *„(...) it seems to me that if it's noticeable that a patient does not know anything about his illness there is now way to have a discussion, is there? The patient needs to know what information he wants to receive... the doctor doesn't have time to tell him everything."* /patient, 37 years old, testicular cancer/
- *„Knowledge definitely helps... then the patient knows what to ask about..."* /patient, 42 years old, sarcoma/
- *„The more knowledge a patient has about his illness, the more fruitful the conversation becomes. Before all, a conscious patient understands what the doctor says to him. He can ask precise questions. He has more peace of mind if he consciously starts the treatment, because he knows what he can expect during the course of it."* /patient, 28 years old, testicular cancer/

Therefore, it is concluded that the knowledge of a patient allows better patient-doctor communication, influences the feeling of patient's security and can condition the fact that a patient can become a doctor's partner. Additionally patients confirm that even though the usual time of a medical consult does not help a conversation with a doctor, the knowledge a patient possesses regarding the illness does allow intensification of the conversation time spent talking to a doctor during a consult.

It is, however, worth noticing that a patient's need to receive information about an illness from a doctor delivering a diagnosis, and after that from an oncologist who verifies the diagnosis – is not a one-time need of a patient. The specificity of a chronic illness such as cancer influences the fact that – depending on the stage of an illness and the information a patient has

on the subject – the need to deepen the knowledge a patient has is a constant need addressed towards a doctor. It is confirmed by statements of oncologists, who during their practice often face situations such as patients having well defined needs regarding deepening their knowledge of their state of health, illness, therapy or verification of information they already have and coming to a medical consult with their questions written down:

- *„(...) yet patients are thinking about their illness all the time, receive all kinds of information from other patients, from family, find it on the Internet. They write their doubts down on a piece of paper to not forget them."* /oncologist, 60 years old/
- *„Of course, they do not bring pieces of paper to their first consults* [author's note]*... but after that or during their hospital stay, it happens. Not often, but it does."* /oncologist, 40 years old/
- do patients come to a consult with questions written down on a piece of paper? [author's note] *(...) Of course, very often! They want to use the time they have scheduled for themselves to the maximum, because we don't have too much time with so many patients per one doctor in a hospital."* /oncologist, 39 years old/
- they come with pieces of paper [author's note] *"Very often and it's understandable, it's not easy to remember all doubts one might have."* /oncologist, 66 years old/
- *„Yes, they do* [come with pieces of paper – author's note] *and I understand it perfectly."* /oncologist, 48 years old/
- „ *(...) even patients staying in the hospital write their doubts down on a piece of paper not to forget to use the short time they have to talk to a doctor to the maximum."* /oncologist, 42 years old/

This kind of experience doctors have with cooperation with patients can serve as proof that patients at different stages of adaptation to their illness, who have vast knowledge about cancer gained from different non-doctor sources, still show a great need to broaden and verify their knowledge regarding the illness with a doctor.

According to the answers of respondent patients, both the way an oncologist fulfills the patient's needs regarding the scope of delivered information about the illness and the way of communicating this information (which is equivalent to fulfilling emotional needs of a patient by a doctor) repeatedly determine the choice of a doctor to become the leading doctor of a patient. Patients dissatisfied with communication with a doctor who delivered a cancer diagnosis gathered detailed information not only on the Internet, but also by visiting online message boards and blogs written by oncological patients they also received information about

doctors who are not only good specialists in their field of study, but also empathetic doctors. In the moment of being delivered a diagnosis, under the influence of emotions, patients are looking for help in a chaotic and fretful way. They consult their results with a few specialists (not necessarily practicing in a medical center closest to the patient's home). There are people in the group of respondent patients who chose their leading doctor (from a group of many visited oncologists) based on the way of communication that suited their individual communication (especially emotional) needs best. There have also been people among the respondent patients whose leading doctor was the one who performed their surgery and knew their case best. Those patients admitted that they have worked out a precise communication style with their doctor that fulfilled their needs best. It is also important to mention patients who, despite being submitted to constant oncologist care, consider a non-oncologist to be their leading doctor based on trust and advice they care about and on the fact that the doctor is able to fulfill their emotional needs.

It turns out that a doctor's specialization is not the only determinant of the fact who patients are going to choose to be their leading doctor, and both the will and ability to communicate according to patient's expectations remain a very important issue. Undoubtedly the respondent patient's education (higher) could influence the choice of a leading doctor by particular patients (based on awareness of their needs, the belief that a doctor's authority is not determined by his education and specialization), yet noting the pro-active attitude of patients in the choice of a doctor is a kind of *novum* in forging relationships between a patient suffering from chronic illness and the doctors accompanying the therapy, and it also determines the importance of communication actions in the doctor-patient relations.

Without a doubt the quality of relationship with a leading doctor depends on many personality factors of both the patient and the doctor, the frequency of mutual contact etc. Nevertheless the main reflection regarding patient-leading doctor communication usually comes down to analysis of needs, expectations and patient's satisfaction.

It is obvious that the way a patient adds meaning to his illness, his motivation to fight and his pace of adaptation to the illness greatly depend on time, holistic actions of a leading doctor and individual predispositions of a person, which, in theory of one of the most outstanding researchers of health and anxiety, Aaron Antonovsky [9], are called the "sense of coherence". Nevertheless, a question appears in this exact spot – does the knowledge a patient possess regarding his illness influence the increase of patient satisfaction with communication with his leading doctor and creation of partner models of relationship between a doctor and a

patient?

Regarding a question asked to the respondent group of oncologists about the fact whether patients want to co-decide about the choice of therapy or rather prefer to adapt to the doctor's recommendations, the answers have shown that even though many patients prove to be ready to realize a model of partner relationship with the leading doctor, patients usually adapt to the doctor's recommendations. Although many statements show the will to undertake a partner cooperation with a patient by a doctor, despite having many therapeutic scenarios delivered, the patient is still subject to the doctor's suggestions:

- *„I always deliver a few solutions to the problem to the patients. I talk about side effects of every scenario. The patients surprised by a diagnosis are not really able to decide on a treatment. It's important that they receive clear, simple guidelines… basic ones. The ones who are somewhat prepared to hear the maybe not so nice news, who have already done some reading… they want to have a discussion more, because, for instance, they might have heard about other therapies… then, I suggest that they think about it… when they come back, they usually decide on what I have suggested… but then it's true that they have a feeling that they actively take part in the choice of the best treatment."* /oncologist, 60 years old/
- *„They usually rely on my experience and knowledge."* /oncologist, 40 years old/
- *„I cannot remember if any patient ever questioned a treatment model I suggested. Of course patients ask about side effects, they verify information gathered on the Internet regarding certain therapies, but they usually rely on my suggestions, experience."* /oncologist, 39 years old/
- *„As I said, they usually agree to my suggestions."* /oncologist, 41 years old/
- *„They usually agree to my treatment suggestions because they want to get through with it as soon as possible."* /oncologist, 33 years old/

An additional reason why patients agree for a doctor to realize a paternalistic model is – according to the respondent oncologists – fear of the illness and the belief that this is an illness with a sentence written into it (cancerophobia):

- *„They usually adapt because cancer is a very serious illness and patients still think that it's incurable. I think this is why they are afraid to question the doctor's decisions or discuss them. They are afraid… They want to feel good as soon as possible…"* /oncologist, 48 years old/

Therefore a conclusion comes to mind that patients gather information about their illness

mostly to be sure that their actions influence their illness, they want to become partners in a conversation with a doctor (not to remain laics) in their medical case. However, the social authority of a doctor (and trust in the leading doctor) causes them to ultimately rely on knowledge and experience of a doctor; they give up the possibility to negotiate with a doctor regarding chosen type of therapy, they do not want to be responsible for the choice. Independent research on the topic of an illness satisfies the patient's need for knowledge, reduces the distance during a conversation with a doctor (specialist (doctor) – laic (patient)) and levels the asymmetry of roles during an act of communication happening during a medical consult. It rarely involves a patient discussing the choice of certain treatments, procedures or pharmacology with a doctor.

Coming back to the determinants of satisfactory patient - leading doctor communication in the perception of a patient it is important to notice that the matter of "personality compatibility" between a leading doctor and a patient is present very often in the statements of oncologists, as well as the aspect of trust in the doctor, what in turn determines the quality of communication. For a patient, the appearance of trust is inherently connected with satisfying his emotional needs (even if the emotions concern hearing certain essential information not connected to particular emotions). Satisfying the emotional needs of patients during a medical consult is a very peculiar element of communication that causes patients to give up a part of their autonomy freely (the part that is crucial for the model of a paternalistic relation) and to consciously subject themselves to a doctor's paternalism:

- *„I don't know if it's the matter of trust, if my patients are people who, as I said, nourish themselves on good words and expect good news from me… therefore they do not want any other information except for what is necessary and also delivered in a good, fairly optimistic form… The vast majority of my patients listens to my suggestions and trusts that the route of treatment I have chosen for them is correct."* /oncologist, 39 years old/
- *„In my opinion the treatment is more effective if a doctor and a patient have a relationship based on trust. The doctor and the patient need to have compatible personalities, need to like each other to make this cooperation work. The ones who trust me agree to my methods… the ones who don't usually look for other guides through an illness, for different specialists."* /oncologist, 39 years old/

Based on the statements of doctors above it can be concluded that many words confirming the doctors' will and readiness to realize a partner relationship model with a patient during therapy can be found on the side of those doctors who are already specialists in the field

of oncology and then become leading doctors to patients for many years of the course of an illness. As it has been noticed before, even though at the very moment when a patient receives a diagnosis, the communication with him is extremely hard (a monologue on the side of a doctor, patient has no knowledge of the illness whatsoever) and a doctor becomes the verbally dominant side during a consult (a paternalistic relationship dictated by the specificity of a situation, not intention or deliberate actions of the doctor), in the situation where a patient has some knowledge about the illness, an openness when it comes to asking questions, familiarity with a diagnosis – doctors see a huge potential in the possibility of forging *stricte* partner relationships with patients.

However, it appears that even with the actions of doctors who initiate the realization of a partner model of cooperation, patients who trust a doctor consciously subject themselves to the suggestions, choices and recommendations of a doctor, at the same time forcing the doctor to realize a paternalistic model of ongoing cooperation, although it is, by all means, a different model of paternalism than in a case where the paternalistic doctor – patient relationship arises during delivery of a cancer diagnosis. Per interpretation of the respondent patients, the relationship with a leading doctor is a voluntary paternalism that a patient agrees to, even one that he himself initiates.

The doctors' awareness regarding this type of behavior among patients can indeed indicate the fact that in regard to serious illnesses such as cancer one cannot simply talk about a *stricte* partner doctor-patient relationship based on co-deciding on the scope and form of therapy. Partnership can only apply to conversations about the specificity of an illness, the needs and feelings of a patient, yet the medical decisions remain the domain of a doctor (which is understandable in the opinions of respondent patients and doctors). Because of the chronicity of cancer, the need to rely on medical opinions of a few doctors (mainly the leading one), trust in the leading doctor is the most important element of a leading doctor – oncological patient relation.

The statements of patients bring attention to the fact that in the conditions of Polish medical care communication (all the more a partner one) with any other doctor (except the leading one), especially in a hospital environment, is not possible, mostly because of the number of patients, short time per patient and a negative communication attitude (in the opinions of patients) of doctors towards patients, who – for many reasons – will not be subject to their care afterwards. These observations seem to be similar to those of the oncologists, who – by criticizing the attitude of non-oncologists delivering cancer diagnosis to patients – also bring

attention to the fact that lack of empathy and care represented by a doctor giving information about an illness to patients comes from a belief that they will never meet them on their professional path again and that the fact how a patient will cope with his emotions depends on a doctor who will be later leading his case.

Therefore, a conclusion comes to mind that the opinions about communication competence of Polish doctors are not positive neither in the patient nor the doctor group. Specific doctors, usually leading doctors that a patient meets often or who were chosen to be leading doctors deliberately based on one's own preferences, are evaluated very highly, yet doctors as representatives of a medical institution (hospital) are evaluated poorly. Those opinions overlap conclusions drawn based on a study performed by prof. Olędzki in 2013 on the topic of patients' opinion regarding doctors' image in the medical care system [10]. It seems that "*clear disproportions are showing in the public opinion, we see only negative opinions while huge subjects generally associated with medical care, hospitals or professional medical environment are being evaluated holistically, yet we can also see a change of attitude regarding evaluation of individual medical specializations. The organization of health care received the lowest note in the study and the most critical opinions are associated with it. Unlike health care, doctors received relatively positive notes for their professional abilities, yet patients spoke very poorly of their communication abilities in relationships with patients and their interest in not too ethical enrichment at the expense of greater engagement in helping people in need*" [10].

As Olędzki [10] notices, the level of social expectations is understandably high and one should not expect the expectations toward doctors to become lower (especially regarding the area of communication with a patient). "*Those expectations are the consequence of more common access patients have to all media (also Internet and cellular services), which e. g. by advertising and promoting "miraculous" medicaments of pharmaceutic companies or noble, intelligent and professional doctors and their assistants starring in different TV series set the requirements bar very high*" [10]. Unfortunately unless doctors will be able to appreciate the perception abilities of patients in the area of received information and their actual information needs, it will be very hard to positively evaluate the medical environment by patients [11,12].

Other important items in the matter are also statements of psychologists [13] from the Institute of Organization and Management, Institute of Management Psychology and Consumer Behavior of the Wrocław Polytechnic, which in the year 2010 conducted research on a group of doctors as the representatives of an occupation with a so-called "mission", at the same time creating a psychological profile of a doctor (Borkowska, Czerw – *an unpublished article, sent*

by the authors on request of the author of this dissertation. The article is a collection of research results concerning the occupation of a doctor as an occupation with a mission). The conclusions of this research show that doctors can clearly see their social role, yet it's not the role of a partner for others, but rather a role of an authority and a specialist dominating others with knowledge.

A patient's level of knowledge regarding cancer proves to be a very important element initiating the possibility of creating a partner relationship with a doctor, yet a strong social authority of a doctor in the perception of both patients and doctors themselves (as well as an open desire to subject patients to doctors' decisions, trust in their medical knowledge and experience) is still so strong that it prevents creation of a true partner relationship between a doctor and a patient.

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The relation of students of medical high schools and medical attendant to the euthanizing problem

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Introduction

Ambiguity of medico-social aspect of euthanizing as one of the major and the bioethics most discussed problems in medicine, the estimation of the moral equipments of medical workers in a society and in medical medium is shown not only in the form of categorical aversion of active and passive forms, but also in a recognition of legitimacy of carrying out by its physicians [1 - 5].

The human rights for a life and health protection are one of Constitution substantive provisions. Concept health protection means set of measures of the political, economic, social, legal, sanitary-and-hygienic and antiepidemic character referred on conservation and strengthening of physical and mental health of each person, maintenance of an active long life and granting in case of loss of health of necessary medical aid [6-8]. The church completely condemns euthanizing in all its implications.

In a number of the countries euthanizing consider as human rights: between it and worthy leaving from a life the equal sign is put. At present this method of discontinuing of a life of remedilessly sick person is legalized in a number of the European countries (Holland, Belgium, Switzerland), also it is legalized in unique state of USA - Oregon [2,5]. According to sociological interrogation, supporters of euthanizing in the Netherlands make 92 %. The euthanizing practices many countries illegally at the tolerant relation of the authorities. On the statistics, every year in Switzerland about 100 seriously ill patients of patients leave a life at own will. Physicians, as a rule, aspire to keep the information on euthanizing a secret: admit it only 2,59 % of experts in the Netherlands, 0,3 % - in Belgium, 0,27 % - in Switzerland [1,3,4].

Research objective: studying of priority medico-social aspects of the relation of medical workers and studying youth to a problem of euthanizing and an estimation of the medico-social reasons of its existence.

Material and methods

By means of a sociological method 469 respondents, from them 110 pupils of medical college, 150 students of medical university have been interrogated, medical workers have made 209 persons is a doctor's assistant of first aid (22), the nurse of anesthesiology-resuscitation (27), bedside and procedural medical sisters (51), nurses of oncology (17), workers of the Red Cross (47), the main things and head nurses (45).

The general age structure of participants was the following: medical workers till 29 years have made 62,9 %, at the age of 30-49 years - 30,7 %, 50 years and are more senior - 6,4 %. The age of pupils of medical college and students medical university fluctuated from 18 till 25 years.

Results of research

Finding-out at respondents of representation about euthanizing in all survey samples has shown, that 69,7 % do not know, that means the given concept or have given the wrong answer. It is paradoxical, that the medical sisters having an operational experience with patients, gave wrong answers is more often or admitted the ignorance (62,2 %), than pupils and students (48,3 %) (Fig. 1).

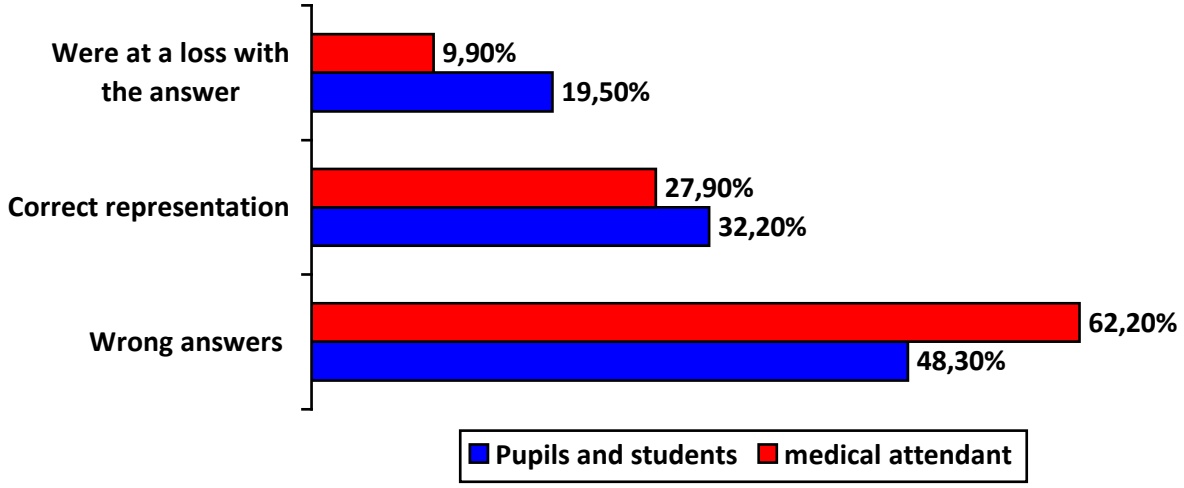

Fig. 1. Results of questioning of respondents on representation about euthanizing.

About a passive euthanizing 7,7 % of respondents in all groups, about an active euthanizing - 26,1 % of pupils and students and 38,9 % medical attendant have correct representation only. Among the medical attendant who have expressed the positive relation to euthanizing, employees of the Red Cross have made 68,9 %, medical sisters of anesthesiology and resuscitation - 49,7 %, medical sisters of oncology - 12,4 %. Have negatively concerned this problem of 43,8 % of all respondents.

Considering specificity of a medical trade, training in medical educational institutions should play the leading part in formation of the relation to euthanizing problem.

Unfortunately, while the majority of respondents receive the information on this problem from popular telecasts, magazines, newspapers, therefore their view on a problem is in many respects formed under the influence of mass media (Fig. 2).

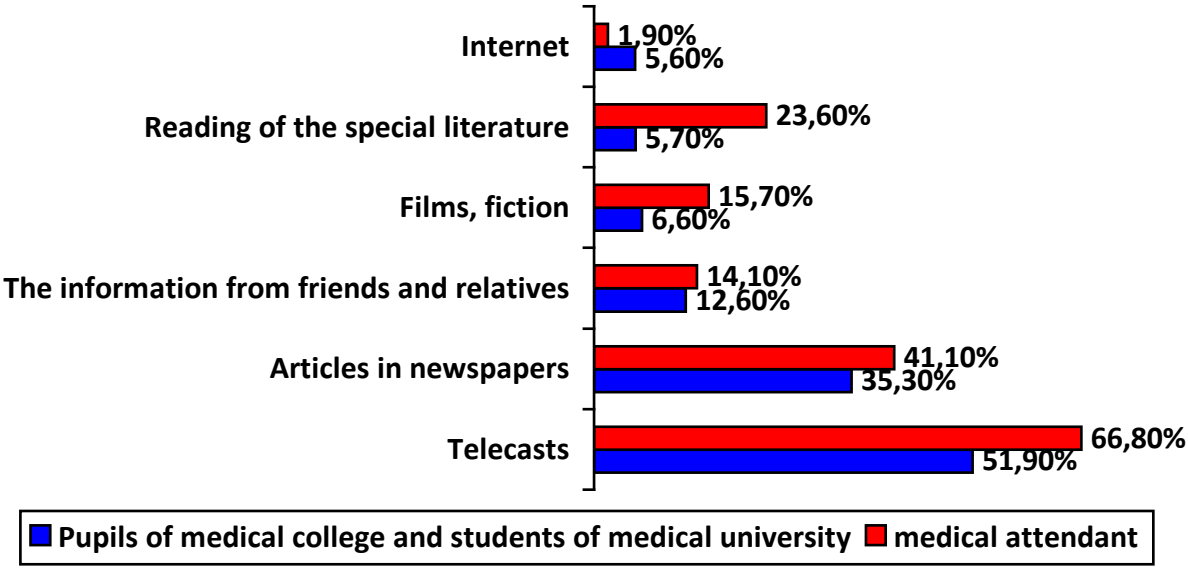

Fig. 2. The basic sources of reception of the information on euthanizing.

According to the majority of respondents, the euthanizing is not an actual problem for our society. On the importance, it does not maintain a competition to other, more "essential" questions. But this problem can be actual for each concrete person while for all society it is not priority.

However, medical workers even more often have a readiness to resort to euthanizing when the patient himself asks about mors. This criterion has appeared the main thing for medical workers (Fig. 3).

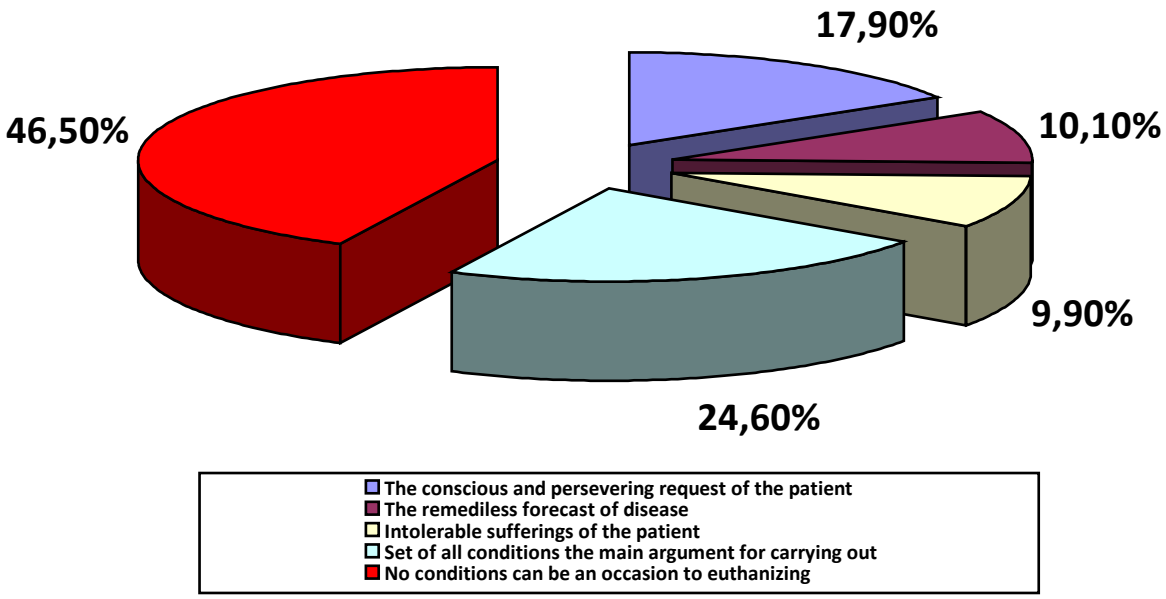

Fig. 3. Priorities of a choice of euthanizing at medical sisters.

For pupils and students the main medico biological precondition for euthanizing was presence of incurable, long disease (Fig. 4).

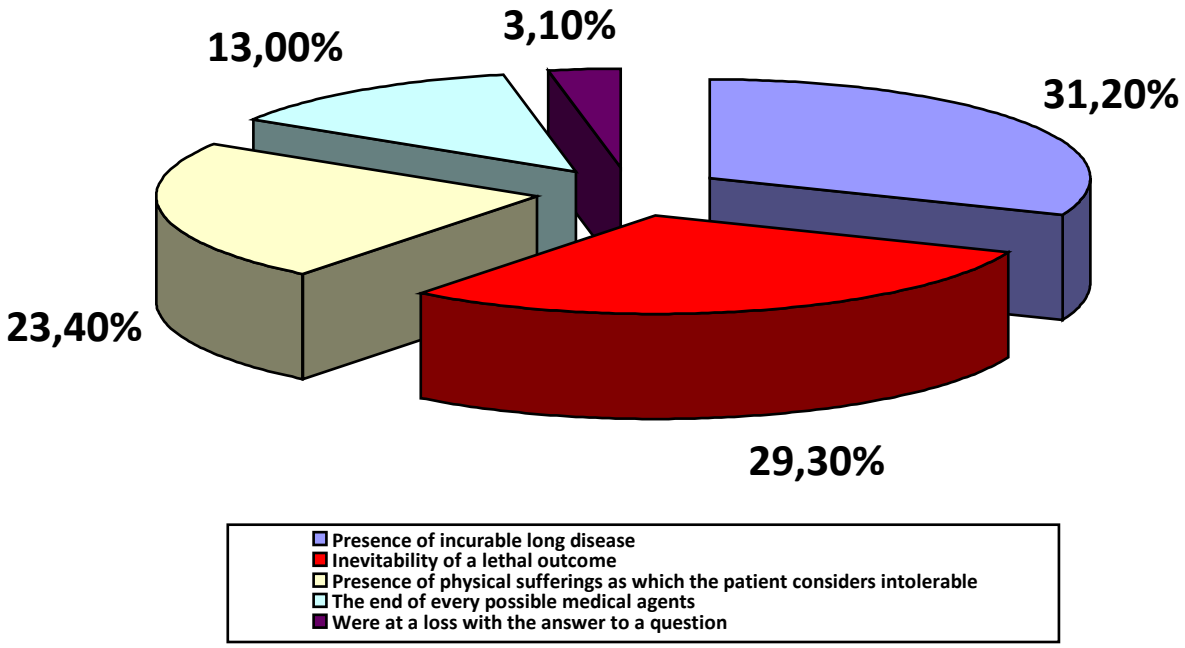

Fig. 4. Medico biological preconditions of euthanizing among pupils and students.

The majority of respondents noticed, that though the euthanizing in our country is forbidden legislatively, possibility of its realization is supposed by 5,1 %. Defining the rights of patients to voluntary leaving from a life, pupils and students could not give the unequivocal answer, and 9,1 % of pupils and students at all have not answered this question (Fig. 5).

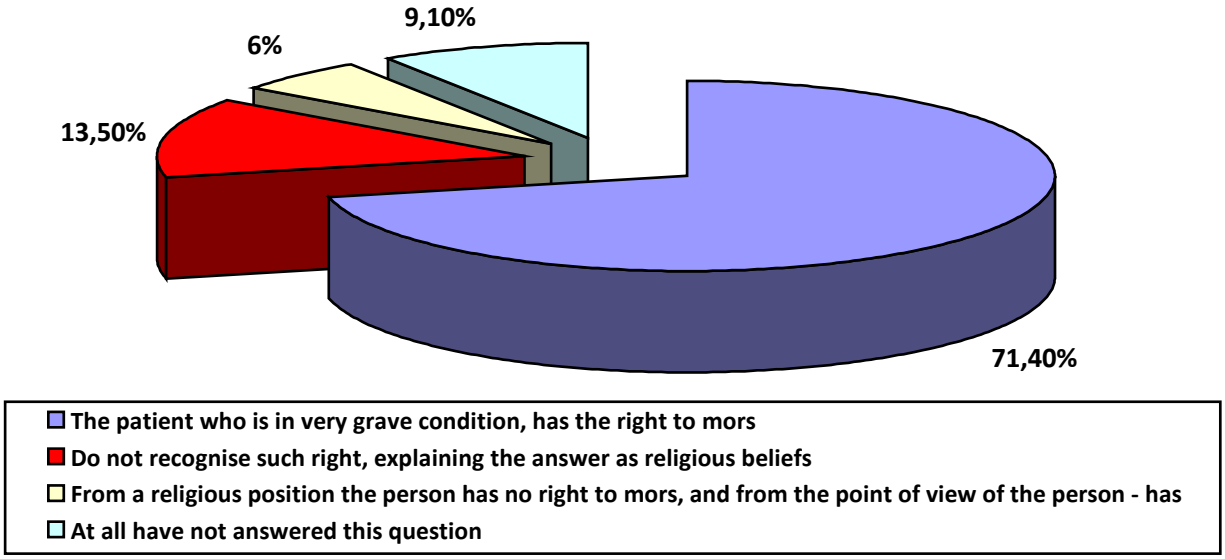

Fig. 5. The relation of pupils and students to the right of patients to voluntary leaving from a life.

Accept the right of the patient to worthy leaving from a life of 65,2 % medical attendant. However, all noticed, that the euthanizing can be applied only taking into account legal security of the patient. Have not defined the relation to euthanizing of 15,6 % medical attendant. Now the person receives increasing freedom in the relation to mors and consequently from the patient the euthanizing is not condemned almost. They suppose that the euthanizing is possible as an exception to the rules and only under condition of the rigid control over carrying out of this procedure.

Choosing the answer to a question: «What is an euthanizing: mercy or a crime?» - every fifth respondent (20,1 %) at all has not responded. 34,3 % - have given the uncertain answer, and every fifth (22,9 %), considering, that euthanizing in some cases is necessary, itself never on it would go. Recognized euthanizing as mercy of 25,5 % of respondents as thus the patient gets rid of sufferings, 35,7 % named euthanizing a crime, having regarded it as murder. A part of medical attendant considers that the euthanizing is a mercy in relation to the patient and a crime in relation to the God, that it contradicts religious and to ethical standards.

Discussion

The euthanizing does not admit any religion. Unacceptable under any conditions euthanizing carrying out is considered by respondents of Catholic creed in all groups.

Whether so similar actions by physicians should be made? Answering a concrete question of 73,4 % of all respondents consider, that medical attendant never should help to the patient to die; 14,5 % have responded, that medical attendant has the right to interrupt a life of the patient;

8,8 % were at a loss with the answer; according to 3,3 % the law solving a problem of euthanizing is necessary.

Conclusions

The received results have shown, that the relation to euthanizing is influenced an accessory to a medical trade, by age and education of the respondent.

The relation of medical sisters to euthanizing varies with the years in favor of opponents of euthanizing: the youngest to a thicket support euthanizing. In age group respondents are more senior 50 years more often its carrying out speak against. Though as a whole number supporting euthanizing a little above, than number of opponents. Moreover, it at the expense of prevalence of supporters of euthanizing in age group till 29 years.

Practically every fifth of respondents tried to leave from the answer to the majority of set questions, referring on insufficient level of readiness on this problem.

The request to distinguish a passive and active euthanizing at the majority of respondents caused difficulties.

Results of research, allow to say that the euthanizing has difficult and ambiguous representation in public consciousness. Therefore, it is necessary in the course of training in medical educational institutions of education to form at the future medical workers a civil liability and understanding of the high importance of a human life, ideologue-educational culture, motivation on a correct vital choice and the serious relation to the chosen trade medical attendant.

Because spirituality in a society revives, including of this problem in teaching programs in medical educational institutions and acceptance of corresponding laws in public health services is necessary.

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Janiak Agnieszka

Death education and the death of a child. How (not) to talk about the death. The communication recommendations in the case of the death of a newborn.

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There is no greater misfortune than the death of your own child. There is not a more devastating experience than the death of your own child. There is not a bigger drama than a death of a child. It always is premature, unexpected, and senseless. It always leaves the parents in a state of great shock and deep denial.

When euphoria of birthdays shows to be a drama, when a child is stillborn or premature, with perinatal trauma or serious defects, when it lives only several days or several hours, that shock and disbelief is especially intense.

In this moment huge, almost underestimated experience of the loss of a child, there is help, which doctors and medical staff who take care of the newborn can provide for parents.

Thoughts and conclusions I want to present are a result of my own experiences as well as a four year collaboration with a support group and an association focusing on, among others, parents, whose children died after birth and also interviews and polls, which I had with doctors and nurses from emergency care of six different hospitals in Wroclaw.

By surviving such a devastating loss that the death of a child is, it is necessary to carry out a mourning, that being grieving the child and eventually learn to live anew without it. The time duration of this cleansing and healing process is very individual and differential, and it is not possible to accurately identify; however, to psychotanatology this is known as an emotional pattern of the grieving process. It is sure that mourning has its own further specified stages, and in order to end it, they need to be lived through – the quicker, the better. Sequentially, the stages consist of shock, realization of the loss, withdrawal, return to health, and recovery [1].

When mourning is not ended, the process stops on one stage. The pain is repressed/subdued or forced out, resulting in a psychological and physical breakdown – depression, serious somatic diseases, and most of all – in case of a loss of a child – divorce (American statistics state 80 – 90%).

And so, the drama results in a tragedy that desolates the entire family.

To avoid this from happening, it is important the message the medical staff forwards to

the parents about the death of their child (expected or one that had happened) is delivered in an appropriate manner.

When a child is in a terminated state, the parents should be immediately called to the hospital. Because we're talking about a newborn, the mother is usually still there. It is also necessary to make sure whether or not the father will appear. Both parents deserve to say goodbye to their child. In order to accept the loss, they have to believe it is real. The fact that death is irreversible should be seen and felt. It is mandatory for both the mother and the father. When they watch over their dying child, the parents are supportive of each other. They make sure that both of them know what is happening with the child. It is easier to express their feelings to each other. This fact often determines the future of the marriage. In the further stage of grief, when anger and guilt arrive, this moment is able to turn a spouse into an enemy or a partner in compassion.

News about the child's expected death should be short and informative and delivered in a hearty manner near the child's incubator. Short because the parents are in shock. Informative because they should understand the cause of death and that it is inevitable - this medical information should be customized in accordance to the way the parents perceive the news. Hearty – one should introduce him or herself, shake a hand, keep eye contact, and should speak personally of the child. The doctor should tell the parents that he or she is trying to save the child, which is not always obvious for the shocked parents. He or she should show empathy as well as readiness to explain all doubts, which can arrive later.

Though in shock, all parents remember that conversation in details. Every inappropriate phrase or gesture can hurt eternally – cause permanent guilt, anger towards the doctor, whom they imaginatively blame for his or her mistake and carelessness. Parents can have a feeling that nobody cared for their child, etc.

To avoid all of the above, it would be good to create a specific procedure of informing parents for good of everyone. For a neonatologist, the moment in which he or she needs to inform the parents is very difficult. He or she is not only a messenger with the tragic news, but also this message proves that his or her skills and efforts were ineffective, that they were defeated.

In many countries (USA, England, Denmark, Sweden, Canada, Netherland), the doctors and the whole staff of emergency care have psychology workshops every six months where they learn how to cope with psychological costs and effects of burnout. They also have

longer vacations, and most of all, they have their own hospital psychologist, traumatologist, or special social worker who helps them during this difficult moment of delivering the harsh information and also helps parents. Polish doctors do not have such support. Nobody in Poland thinks that this kind of support is even necessary. Doctors are left alone; they try to cope with their emotions by keeping distance. They protect themselves by wearing a mask of unemotional professionalism, they are reserved, act in a hurry, which is seen by the family as a complete carelessness, and unwillingness to save the child.

The proper procedure of informing parents about the death of their child, formulated with a psychologist, makes this moment less traumatic for both sides. After conversing with the doctor, parents should be encouraged to be with the dying or already deceased child and to show the child affection. If the staff shows good will, it is possible to even do so if the child is connected to medical equipment.

"*Positive cease of grieving a loss requires us to acknowledge the death of a loved one as a fact, but this is something we do not want to do. (...) That is why it is so important to see the body. Confronted with reality, we usually acknowledge the evidence presented to us. Basically, in many cases, it is necessary, so we could start working on our emotions*" – says a clinical psychologist [1].

In the case of a death of a newborn, the presence of the parents is even more necessary. The child is being born in dramatic circumstances. The mother sees the child only shortly or nor even at all, whereas the father does not. In order to complete the grieving process, one has to understand the reality of death. To say goodbye to the lost child, one has to first welcome it. In those cases, such a contact, before or after the child's death, is the only chance to remember the child. Its fingers, resembling its father's, and its eyelashes same as the mother's, those memories are scarce. This is also the only chance to show one's own child love, tenderness, and adoration it deserves. The feeling of guilt and regret that they did not do those things can remain with them for years.

The medical staff should also make sure that child was given a name and propose baptism. The parents in a state of shock often do not think about it. Using a child's given name in conversation and remembering it by its name provides closure; it's an important element of making the child's short life real. It proves the child's uniqueness. After the death of an unbaptized child, the parents often feel that they cannot have the possibility of being with it after their death. They also feel they have prevented its salvation. Baptizing and/or naming are

only a few things the helpless parents can do for their child. Not doing those things can be a source of constant guilt, making the mourning process longer.

After the child's death is made official, the parents absolutely must be given the opportunity to say goodbye peacefully and for as long as they need. It is ideal for this to occur in a separate room. When there is no such opportunity (and it isn't existent in any of the hospitals in Wroclaw), it is necessary to at least have a curtain make an intimate corner and pull out a chair, and also make it clear for the parents that they are not intruders. It is crucial to allow and even encourage them to express, to externalize feelings, to cry, to scream, to manifest irrepressible grief. Psychotanatologists agree [2] that the most important component of learning life after the loss of a loved one is allowing the voice of one's own feelings to come out. It is also important to express those feelings verbally. The sooner and earlier those feelings are expressed, the better, quicker, and smoother the grieving process will proceed. Undisclosed, suppressed, fought back, and sometimes denied emotions turn against the person and destroy him or her. This is why every reaction and action is proper and the best because it flows from the heart, it is spontaneous, uncontrolled, undammed. The more powerful the despair, the more purifying it is.

It is also necessary to remember that parents cannot be given calming drugs directly after the death of their child. Dulling the realization of what is happening makes the fact of the death unreal, and in consequence, impossible to accept. Permanently stopping parents on the first stage of mourning: shock, disbelief, emotional "freezing", does not allow them to realize the loss, triggering the mechanism of escape and denial. It is possible to escape from pain only by living through it. Externalized pain heals and cleanses. Only full and conscious participation in the tragedy brings catharsis. In such a situation as the death of a child, there is no way to avoid suffering – it is a normal price we pay for love for another person. In order to get rid of pain, it is necessary to face it, to confront it. Let us repeat: the sooner, the better.

Though it is necessary to create the conditions for an intimate farewell with a child for parents, they should not feel alone. It would be really good if they stayed under the watch of a nurse or a midwife, which took care of their child. She should approach them, introduce herself, and tell them that she is there to serve them. This important help does not call for much; it requires only a discrete presence, eagerness to listen, and showing compassion. She feels sorry for them anyway.

When help, understanding, and warmth are shown to the parents, when they have a possibility to express their emotions, then their grief becomes easier to bear and it becomes shorter.

Parents should be encouraged to gather memorabilia – pictures, footprints or handprints, a lock of hair, hospital tag – and also to include the child in the family tree. It is not much, but it is priceless.

"*What to say about one day of life, one minute, one second?*" That is WAS. That our child was beautiful, unique, the only one, exceptional, and its existence was not in vain. That it wholly deserves love and fond memories.

Of course, it is not possible to forget the fact that the child was born and the fact of its loss. The fact that the parents were not able to get to know the child and that they were not able to gather family memories with it does not make this loss easy, but more difficult to accept.

This short life of the child should be acknowledged as real and tangible. It is mandatory to complete the grieving process to accommodate to new life without the child. Reminiscing about the child is always calming and therapeutic, and it is also a necessary fragment of the grieving process. It is important that the emptiness would not be the only thing that remains after the child's death. The child should not be thought of as absent, but should take new place in a life of abandoned parents. It becomes present in a different way. Memorabilia are necessary and important for it.

When parents said goodbye to the child, when they are ready to part ways, then a natural calmness and concentration come. It is an ideal and optimum moment to talk with the doctor again. The doctor should make certain that the parents understand and are aware of causes and inevitability of the deceased. It is necessary to repeat all explanations, emphasizing the fact that the death was not the parents' fault, and was inevitable. Parents should be also warned to not take calming drugs in the first two weeks.

Explaining what will happen with the child's body, giving formal instructions about the funeral procedures is also helpful.

Parents should be given fliers with phone numbers and addresses of support groups, the psychologist cooperating with the hospital, list of lectures helpful for those who were abandoned and are in grief. It would be perfect, of course, if the family were under psychologist's supervision given by the hospital during the mourning period.

In the first 72 hours after a traumatic experience, psychological aid should be provided.

Otherwise, the sufferer can fall into post-traumatic stress disorder. To those who are affected by the death of a close one, the help can be given by (besides the psychologist) medical staff if the death happened in the hospital, or by a positive surrounding and support from family and friends (similarly to that in traditional communities). Situation of the parents who lose a child or a newborn is special and practically the entire responsibility for the correct course of the family's mourning goes to the doctors and staff. When the infant dies, most parents are deprived of social support, their right to grieve the loss is denied, prevented from the full experience of grief, keeping a title of consolation: "*it is good that you did not manage to attach, to love; you won't remember this – it was, and then it passed, but it only lived a minute; what about those who have lived with this for decades; it is good that it had passed, it could have been sick or handicapped – then you would suffer*".

Recognition of the situation existent in some hospitals in Wroclaw, where local emergency care for newborns exist, interviews and polls taken among doctors, nurses, staff, as well as parents' relatives, show, however, that the medical staff is not knowledgeable about this immense responsibility that they're accountable for. Practices of informing the parents about the death of their child do not exist anywhere. Even doctors with years of experience admit that they feel as if it were their first time every time when put in that situation – lonely, very angered, concentrated mainly on what to say, but not on how to say it. Parents remembering every word and remembering them taken out of context feel deeply hurt by the misinterpreted message for years. If those who heard: "*According to our expectations, your child had died in the morning", interpret this as impatience of the emergency care staff, as "getting rid of" the patient. Some, after eight years, deeply angered, build a lawsuit solely on the basis of the sentence: "We waited only until the heart stopped*". The parents live with the conviction that there was no action of resuscitation attempted, that the child didn't mean anything to anyone. A mother who has lost her only son still bursts with terrible anger six years later, remembering the following sentence directed to her: "*she is really lucky the child died due to the severe malformations*". Parents of deceased girls often remember that they could not reconcile with their daughters' deaths because when they were informed about her death, the doctor used the pronoun "he" when referring to their daughter. This standard way of talking – "he" – represents a "newborn" (in Polish), which parents do not know. According to this, the parents were convinced there was a mistake, that their daughter is alive.

After seven years following her child's death, the mother still lives in constant shock because the doctor informed her about the passing of her child in a careless manner: "*Mrs. Malinowska, your daughter just died. Please step up later to fill out necessary papers*." All of this happened amongst happy mothers of healthy newborns.

Besides this one exception, the parents' presence by a dying child is not disallowed anywhere. At those places, this happens when parents want to be there.

One of the nurses spoke of a mother who, after eleven years following her child's death, came asking to show her the place where her baby's incubator was located, questioning whether or not someone remembers the color of its hair because she was annoyed due to the fact she was unable to recall it.

The presence of the mother by her dying child is accepted – the father needs permission from the doctor, and usually he gets it.

After official recognition of the child's death, it remains in the emergency care for four more hours. During this time, the parents can say their final goodbyes, but often they are under the impression that they are intruders because the staff makes them feel that their presence disturbs their work.

Only in one of the six hospitals, the staff acknowledges the fact the parents should express their grief, and that is relieving. In the other five, when the parents begin to cry, tranquilizers are immediately proposed. In two hospitals, before informing the parents about their child's passing, mothers are given tranquilizers routinely without their knowledge. Mothers are then given the drugs until they leave the hospital so they don't "get crazy". In four hospitals, the possibility of a brief farewell is given as a gesture of good will from the staff rather than as the parents' inviolable right.

Parents often feel ignored, if not punished, for their spontaneous behavior. For example, when one cries loudly, the staff advises them: "Please leave the room and try to calm down". They are not encouraged to collect memorabilia in any of the hospitals. The hospitals do not provide cameras. People usually think that taking pictures of a dead child is inappropriate, and parents who want to take photos are shown disapproval. In spite of what is accepted, the parents seek anything that could prove the child's existence. They often come back and ask for a copy of their child's USG, if there is any. Almost all parents leaving the emergency care after the loss of their child feel abandoned, lost, and are painfully aware that nobody cares about their loss.

At this moment, I wanted to emphasize that in every hospital I visited I initially explained that the questions I was asking were based on my personal negative experience and information gathered from those who went through similar experiences. I also said that my paper will be kept in a critical tone. Despite of that, I was welcomed, shown sincerity, and attention. The hospital staff was thankful that somebody noticed how difficult it is to deal with these traumatic experiences. All doctors and nurses I talked to declared that they would like to learn to improve relations with parents even if it meant more duties.

Those recommendations relating to the hospital staff dealing with difficult situations I tried to provide above are not difficult to apply. They do not require any additional costs, they can be adapted through good will, respect, and compassion. As I can tell, our doctors and hospital staff possess those qualities.

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Diversification of strategies of psychological adjustment to cancer among patients

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Used abbreviations:
Mini – MAC – the Mini-Mental Adjustment to Cancer scale
M - arithmetic mean
Me – median
SD – standard deviation

Introduction

A disease intrudes on human functioning to varying degrees by influencing their quality of life. It affects social roles and entails pain and suffering; it also disturbs the sense of security whereas hospitalization causes isolation. In the case of terminal disease, unfinished life issues have great impact on life quality. Moreover, the ill often must deal with the effects of therapy, for instance chemotherapy and high costs of medical treatment that worsen their financial situation and, as a result, cause depression [1,2]. In the face of cancer, people behave in a peculiar, individual manner which is defined as coping style. It is an individual variable which differentiates people in a similar situation. Among cancer patients, one may distinguish those who search information regarding their disease and those who avoid such information. Strategy, therefore, refers to specific behaviour which is largely situationally determined [3,4]. In literature of the subject two styles were distinguished: constructive style, which involves adaptive behaviour, undertaking various actions in order to deal with a situation, and destructive style, which includes non-adaptive behaviours, passive surrender to disease, anxious preoccupation and dominance of helplessness [3,4].

Constructive style assumes that a disease is perceived as a challenge which causes mobilization, stresses satisfaction with past life experience and brings reappraisal of one's life. Also, this style involves sweeping aside thoughts connected with the disease, understood as activity which allows dealing with difficult times. Therefore, it may be claimed that, in authors' view, constructive coping comprises undertaking various actions in the face of the disease, both instrumental and aimed at regulation of emotions [3,5,6]. Destructive style of coping with disease among patients with causative treatment and in palliative care correlates positively with cumulated tiredness, which can be observed in general fatigue, weaker vitality, psychological

overload, anxiety over one's capabilities and discouragement. Physiological symptoms of fatigue accompany destructive strategies among hospice patients [4,5]. To certain degree, perception of disease can be observed in the form of repression and denial. Nonetheless, it cannot be treated in pathological terms until such evaluation, due to mistaken perception of reality and disease, leads to disastrous treatment discontinuation or failure to undertake it at all [5,7].

In the present study, the major aim was to answer the following question: „*What is the degree of psychological adjustment to cancer and is there diversification in the ways of coping among cancer patients under palliative/hospice care?"*

The aim of the study was to evaluate the degree of psychological adjustment to cancer, determine the differences and dependencies in the ways of coping with cancer among patients under hospice care.

Material and methods

The study group were 100 patients under the care of stationary and domestic hospice due to advanced cancer in the Mazovia Province at the turn of 2013 and 2014. The patients were informed of the research aim and they could ask questions. The research was conducted with the use of a self-constructed questionnaire, which comprised questions concerning basic socio-demographic data, i.e. sex, age, marital status, place of residence, education. The patients were also queried about the length of disease, the occurrence of concomitant illnesses as well as received support. The degree of adjustment to cancer was measured with the Mini-Mental Adjustment to Cancer (Mini MAC) scale, created by *Maggie Watson, Matthew Law, Maria dos Santos, Steven Greer, John Baruch and Judith Blis* (Polish adaptation: Z. Juczyński). The Mini – MAC scale is a self-assessment tool and it measures four strategies of coping with a disease: anxious preoccupation, fighting spirit, helplessness-hopelessness and positive reappraisal. The strategies of fighting spirit and positive reappraisal represent constructive style while the strategies of anxious preoccupation and helplessness-hopelessness represent destructive style of coping with cancer. The questionnaire contains 29 statements, which can be answered with a 4-degree scale which measures the degree of severity of analysed parameters: "definitely not" (1), "rather not" (2), "rather yes" (3), "definitely yes" (4). The Mini-MAC scale has good psychometric properties. In the Polish research, high Cronbach's *alpha* coefficients for the strategies of helplessness-hopelessness (0,92) and fighting spirit (0,90) were obtained; they were insignificantly lower for the strategies of anxious preoccupation (0,89) and positive reappraisal (0,87) [8]. To analyse the results, a descriptive analysis was used – measurable parameters were characterized by estimating the mean value and standard deviation, whereas

non-measurable parameters were determined with the use of their number and turnover of patients in classes. To evaluate diversification of mean values of researched characteristics in class variables grouping the patients, the U – Mann – Whitney test and Kruskal – Walis One-Way ANOVA test were used. Collected material was analysed statistically with the use of statistical package Statistica 10 PL. 5% non sequitur and consequent significance level p<=0,05 pointing to the occurrence of statistically significant differences or dependencies were assumed in the research.

Results

Characteristics of the study sample

The study sample comprised of 100 patients, 51 female and 49 male, under palliative or hospice care. Their age ranged from 39 to 92, the mean was 65.3 years (±11.7) with median of 67 years. The majority of the participants was patients aged 70 and over, i.e. 32 people (32%); a little less numerous group were patients aged 51-60 (n = 27) and 61-70 (n = 30). Among the patients, 44% (n=44) were married, 39% (n=39) were widowed. Most patients declared vocational education 32 % (n=32) and secondary education 31 % (n=31) while 21% (n=21) had primary education. 56% (n=56) of patients were retired, 18% (n=18) were employed, 14% (n=14) lived on disability pension, 14% (n=14) had pension claimant status whereas 9% (n=9) of the subjects had their farm. 51% (n=51) of the patients lived in rural areas while 49% (n = 49) were inhabitants of cities with a population smaller than 50 000 people. The majority of the group, i.e. ¾, lived with a family, while the remaining 24% (n = 24) were single. As for financial situation, only 2% (n = 2) claimed to have a very good financial situation, 38 % (n = 38) claimed to have a good situation and 48 % (n = 48) sufficient. 11% (n = 11) of the subjects stated that their financial situation is bad. The most numerous group of patients declared the length of disease ranging from 13 to 36 months (i.e. 40 % (n = 40), 34% (n = 34) were ill for over 37 months, and 26 % (n = 26) for up to one year. The most frequently observed concomitant illnesses among patients were: arterial hypertension 33% (n=33), diabetes 29% (n=29), ischaemic heart disease 27% (n=27) and osteoporosis 16% (n=16).

Strategies of coping with cancer

Adjustment to cancer plays major role as cancer is considered to be the most stressful among all diseases, which has cognitive, emotional and behavioural consequences. The study was aimed at recognizing four strategies of coping with cancer which are usually regarded as ways of adjustment to cancer. The results were estimated separately for each strategy. The scope of possible results for each strategy ranges from 7 to 28 points. The higher the score, the higher the intensity of behaviour characteristic for a particular way of dealing with cancer is. The

summary of results obtained in the Mini-MAC is shown in Table I. They indicate that two strategies, i.e. fighting spirit and positive reappraisal, which represent constructive style, obtained higher scores (fighting spirit 19,33±3,28 and positive reappraisal 18,96±3,03) than other strategies which belong to destructive style.

Table I. Descriptive statistics for strategies of coping with cancer according to the Mini-MAC scale

Style of coping strategy	Coping strategy	M	SD	Min	Max	Percentile 10	Me	Percentile 90
Constructive style	Fighting spirit	19.33	3.28	12	26	15.0	19	24.0
	Positive reappraisal	18.96	3.03	13	26	15.0	19	23.0
Destructive style	Anxious preoccupation	17.86	3.18	11	28	13.5	19	21.0
	Helplessness- hopelessness	16.73	3.05	10	24	13.0	17	20.5

Strategy referred to as fighting spirit implies a patient's mobilization to undertake actions and fight the disease. In the strategy of positive reappraisal, the patient becomes keenly aware of the value of life and its experience. Therefore, hope and faith give them strength to cope with the disease.

The results of own research show that the strategies of anxious preoccupation (17.86±3.18) and helplessness-hopelessness (16.73±3.05), which represent destructive style, express a patient's distress caused by the disease, perceived mainly as danger evoking fear which cannot be controlled, and the feeling of helplessness and passive surrender to disease. Mean scores for destructive style amounted to 34.6±5.4, while constructive style of coping with cancer got higher scores, i.e. 38,3±5.8 (Table II).

Table II. Mean results for destructive and constructive style of coping with cancer (n =100)

No.	Styles of coping strategies	M	SD
1.	Destructive style (14 – 56)	34.6	5.4
2.	Constructive style (14 – 56)	38.3	5.8

In order to answer the question regarding the share of low, medium or high scores for particular styles of coping with cancer, indices were converted into an appropriate sten scale, which is a scale of psychological test normalized in such a way that the mean in a population is 5,5 whereas standard deviation 2,0. The scale contains 10 units, and the scale interval equals 1 sten [8]. Stens in the range of 1- 4 imply low scores while 7-10 are treated as high (Table III).

The following part of the study included the analysis of the impact of variables on particular coping strategies using the Kruskal-Wallis One-Way ANOVA test (for three groups) and Mann – Whitney U test (for both groups).

Table IV presents evaluation of the significance of diversification of mean indices for coping strategies including such determinants as: sex, age, marital status, education, social status, material situation, type of organizational unit providing medical care, period of palliative/hospice care, place of residence, length of disease and support received from the therapeutic team.

Table III. Sten distribution for destructive and constructive style of coping with cancer (n =100)

No.	Styles of coping with cancer	% of results		
		Low (1-4 sten)	Medium (5-6 sten)	High (7-10 sten)
1.	Destructive style (1-10 sten)	26	70	4
2.	Constructive style (1-10 sten)	27	56	17

Table IV. Statistical significance of the level of indices for coping strategies in the Mini-MAC scale for particular groups of independent variables

Kruskal –Wallis One-Way ANOVA test and Mann-Whitney U test	Strategies of coping with disease			
Variables	Anxious preoccupation	Fighting spirit	Helplessness-hopelessness	Positive reappraisal
Sex	0.91	0.91	0.58	0.72
Age	0.06	0.71	0.009*	0.39
Marital status	0,18	0.15	0.64	0.11
Education	0.53	0.93	0.80	0.66
Social/professional status	0.42	0.44	0.14	0.68
Evaluation of material/financial situation	0.68	0.65	0.50	0.69
Type of organizational unit providing care for the ill	0.00*	0.29	0.92	0.01*
Period of hospice/palliative care	0.07	0.44	0.78	0.65
Place of residence	0.56	0.44	0.58	0.72
Length of disease	0.69	0.63	0.47	0.78
Support from therapeutic team	0.46	0.61	0.48	0.42

*level of significance p<=0.05

The analysis of the results presented in Table IV shows that the age of patients and type of organizational unit providing care has a statistically significant impact on the level of indices of particular cancer coping strategies. It can be concluded that age is statistically significant (p=0.009) in reference to the index level of helplessness-hopelessness strategy, representing destructive-passive style. The lowest mean level of this index was observed in the age group under 40, with mean value of 12.00 points, whereas the highest (18.23) was observed in the age group of 61 - 70 years (Table V).

Table V. Comparison of mean levels of helplessness-hopelessness strategy index for age variable group

Age of subjects (class)	n=100	M	SD
40 and under	1	12.00	0.00
41 - 50	10	16.20	3.74
51- 60	27	16.22	3.18
61-70	30	18.23	2.74
71 and over	32	16.06	2.56

The variable of age was analysed in detail in order to verify which age groups have significant influence on the diversification of mean values of the helplessness-hopelessness index level. The results of estimated levels of significance are shown in Table VI.

Table VI. Significance of mean level of index of helplessness-hopelessness strategy in particular groups of age variable

Age of subjects (class)	40 and under	41 - 50	51- 60	61-70	71 and over
40 and under		1.00	1.00	0.44	1.00
41 - 50	1.00		1.00	0.66	1.00
51- 60	1.00	1.00		0.06	1.00
61-70	0.44	0.66	0.06		0.04
71 and over	1.00	1.00	1.00	0.04	

On the basis of the results of detailed analysis it was concluded that there are statistically significant differences between the level of mean value of helplessness-hopelessness index in the Mini-MAC scale for two groups: the age group of 61-70 years and the oldest age group (71 years and over). It was also observed that patients aged 61-70 have a statistically p=0.04 significantly higher level of mean value (18.23) of the helplessness-hopelessness index in the Mini-MAC scale than patients aged 71 and over with the index mean value of 16.06. It means that oncological patients in the age group of 61-70 years under the palliative/hospice care much

more often give up on fighting for health and life, feeling helpless, lost and passively surrendering to the disease.

Organizational unit providing palliative/hospice care has a statistically significant impact on the level of the following indices of strategies in the Mini-MAC scale: anxious preoccupation and positive reappraisal. Detailed results are shown in Table VII.

Table VII. Comparison of mean indices of strategies: anxious preoccupation and positive reappraisal due to a variable: organizational unit providing palliative/hospice care

Organizational unit providing palliative/hospice care	Anxious preoccupation		Positive reappraisal	
	M	SD	M	SD
Stationary hospice	16.98	2.66	18.18	2.67
Non-stationary/domestic hospice	18.74	3.42	19.74	3.20

Patients under the care of stationary hospice have a significantly statistically p=0.00 lower index level of anxious preoccupation strategy (16.98) than patients under the care of non-stationary/domestic hospice (18.74). Consequently, patients in a stationary hospice deal better with the symptoms of deteriorating health condition, observed mainly as danger and evoking fear in the patient. A detailed analysis also indicates that patients under the care of stationary hospice have a significantly statistically p=0.01 lower index level of coping strategy known as positive reappraisal (18.18) than patients under the care of non-stationary/domestic hospice (19.74). As a result, it may be stated that the ill remaining in home environment are able to deal with their cancer better and, consequently, think positively, find hope and satisfaction in their life experience.

Discussion

The results of own research allowed to present ways of psychological adjustment to cancer characteristic of cancer patients at the end of their lives. The most favourable strategy was the fighting spirit (19.33±3.28) and the strategy of stoic acceptance, which is also known as positive reappraisal (18.96±3.03). Both strategies fall within the constructive style of coping with cancer. For constructive style, the mean value for the whole study group according to the Mini-MAC scale reached 38.3±5.8. On the other hand, in studies of other authors one may observe certain range of mean values for constructive style of coping with cancer depending on the type of cancer, for instance: nipple 40.26±6.66; prostate 46.20±9.51; stomach 34.18±7.91; larynx 35.79±6.67 [9]. In own research, in evaluation of constructive style, 17% of the subjects got high scores, 56% average and 27% low. In similar research conducted by Szwat et al. in

2009 among 50 patients under palliative/hospice care, 76% obtained average scores [10]. Analysing the remaining two coping strategies, it ought to be stressed that they are unfavourable for further forecasting. The results of own research prove that the strategies of anxious preoccupation (17.86±3.18) and helplessness-hopelessness (16.73±3.05), which fall within destructive style, express a patient's distress caused by the disease which is perceived as danger and evokes fear that cannot be controlled. Moreover, they signal their helplessness and passive surrender to the disease. In studies of authors of the present paper, the mean value for destructive style in the Mini-MAC scale was 34.6±5.4. According to Juczyński, for destructive style (taking into consideration cancer type), the results reached the following level: for gynaecologic cancer 31.75±7.87; for stomach 43.57±7.81; for larynx 36.68±7.96 [9]. When evaluating destructive style in own research, as much as 70% of patients obtained average scores. However, the results obtained by Szwat et al. indicate that the share of patients who received average scores in destructive style was significantly lower (58%) [10]. The age of patients and type of organizational unit providing care turned to be variables diversifying cancer coping strategies. Age had a statistically significant (p=0.009) impact on the index level of helplessness-hopelessness strategy, which represents destructive, i.e. passive, style. Patients in the age group of 61-70 years had a significantly statistically p=0.04 higher level of mean value (18.23) of helplessness-hopelessness index in the Mini-MAC scale than patients from the age group of 71 years and over with the mean value of index amounting to 16.06. Fallow field aplly points that in elderly people, irrespectively of cancer, one needs to take into account the occurrence of other afflictions, such as fear and depression [11]. Evidence of other authors clearly indicate that in order to care for the quality of life among the ill, it is essential to provide psychological support and teach them coping strategies that help deal with cancer-related traumatic stress [12]. Hospices as institutions providing care to patients in terminal period of their disease have influence on durable elements of social order, i.e., family, which requires support not only in the disease, but also in grieving. All in all, it must be stated that it is justified to search varied predictors of coping with cancer.

Conclusions

1. The subjects more often used strategies (fighting spirit and positive reappraisal) falling within constructive style of coping with cancer, which mobilized them to undertake actions aimed at fighting the disease.
2. Variables that diversified cancer coping strategies were the age of subjects and the type of organizational unit providing palliative/hospice care.

3. Patients in the age group of 61-70 years were more helpless and powerless towards the cancer disease. Patients under the care of non-stationary/domestic hospice were able to deal with their cancer better and think more positively.

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THREATS
IN THE WORKPLACE

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The analysis of structure of primary and general case rate working women on chemical production

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Introduction

In modern conditions to a state of health of the women occupied on chemical production, the special attention is paid. It, first of all, is caused enough by high danger of initial products, and also education of toxic ingredients in a process of manufacture [1].

Now it is shown, that for the present stage of development of the chemical industry at constant perfection of technological processes characteristic action of factors of the small intensity, result in to augmentation of number of "nonspecific" polyetiological diseases [2], which arise not only at influence of harmful and dangerous factors directly in the course of industrial activity, but also as a whole under the influence of an adverse ecological situation, as in large industrial centers appreciable exhausts of chemical toxicants (further - ChT) in environment are registered [3]. However till now dynamics of a state of health of women-working women of chemical production still remains insufficiently studied, that does not allow to explain the basic patterns and the mechanism of influence of a different sort of the reasons on levels of a case rate, a mortality and reproduction processes, a parity and their interrelation among themselves and, finally, to develop necessary preventive actions that causes an urgency of the present research [4].

Research objective: to study structure primary and the general case rate working women on chemical production.

Materials and methods

In modern conditions to a state of health of the women occupied on chemical production, the special attention is paid. It, first, is caused enough by high danger of initial products, and education of toxic ingredients in a process of manufacture [1].

Working conditions of the women who were carrying out in 2008-2012 industrial activity in Open Society «Grodno Azot» (224 patients) are studied.

On the basis of results of periodic medical inspections and according to negotiability by working out «Statistical coupons for registration of the final (specified) diagnoses» indexes of

a case rate of working women of Open Society «Grodno Azot» at the age of 18-49 years and women in fertility age (15-49 years), living in Grodno in 2008-2012, but on a professional work sort not contacting with ChT are studied.

Indexes of a primary case rate have been calculated under the following formula:

$$\text{Primary case rate} = \frac{\text{Number of all acute and for the first time the arisen chronic diseases}}{\text{Average population}} * 10000$$

Prevalence indicators (the morbidities, the saved up case rate) are calculated as follows:

$$\text{Prevalence (morbidity)} = \frac{\text{Number of available diseases at the population for a year}}{\text{Average population}} * 10000$$

For distinction detection between averages of two independent groups t-criterion of Student is used.

Reliability of a difference of indicators has been defined under the following formula:

$t = \frac{|P_1 - P_2|}{\sqrt{m_1^2 + m_2^2}}$, were

P - an indicator; m - an indicator mistake.

The medium mistake of an indicator paid off under the formula:

$m = \pm\sqrt{\frac{pq}{n}}$, were

m - a medium mistake; p - statistical factor (relative size); q - the size equal 10000-p; n - number of supervision in a sample.

At value of criterion of Student $t \geq 2$ the difference of indicators admitted authentic.

Results of research and discussion

At carrying out of the analysis of primary disease it is established, that in structure of primary disease of working women of Open Society «Grodno Azot» in 2008-2012 the first rating place was occupied with diseases of bodies of breath - 53, 2%. The share of diseases of an eye and its additional device, and also diseases osteomuscular system and a connecting tissue has made on 6,2%. Relative density of diseases of a skin and hypodermic fat has reached 5,8%, and illnesses of a digestive tube - 5,1%. Among other diseases traumas, poisonings and some other consequences of the external reasons - 5,7 % prevailed (Fig. 1).

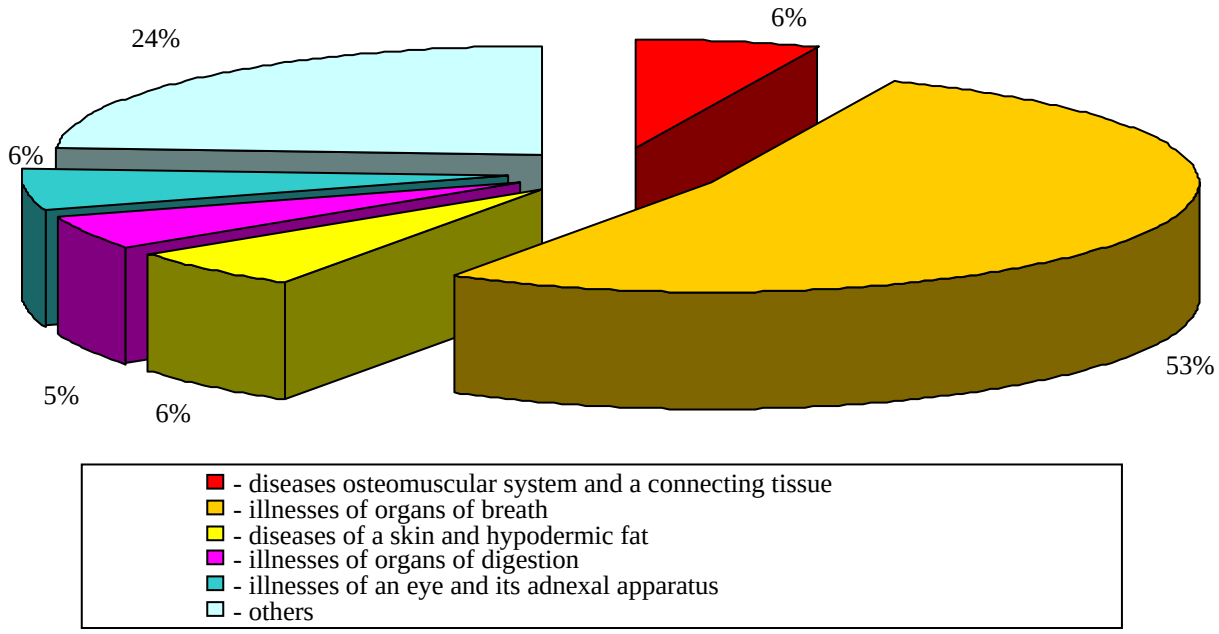

Fig. 1 - Structure of a primary case rate of working women of chemical production in 2008-2012

At a relative assessment of structure of a primary case rate for 2008-2012 it is positioned, that it differed on the basic classes of diseases with control bunch. So, in structure of a primary case rate of women in fertility age, living in Grodno, but on a sort of the professional work not contacting ChT, the first place was occupied also with diseases of a respiratory organs, however, their percentage lobe has appeared essentially smaller and has compounded only 39,8%. At the same time big there were percentage lobes of some infectious and parasitogenic diseases - 7,1%, diseases of osteomuscular system and a copulative tissue - 6,2%, diseases of genitourinary system - 6,2%, and also diseases of an ear and a mastoid - 5,1%, and smaller - a lobe of diseases of an eye and its adnexal apparatus - 5,2% (Fig. 2).

It is established, that the indicator of a primary case rate diseases of organs of women-working women of chemical effecting in 2008-2012 to the extremity of the surveyed season has compounded 4538 on 10 thousand populations. However, medium value of the given indicator for the fifth anniversary (4162±456,1 on 10 thousand population) almost in 3 times exceeded similar among women in fertility age, living in Grodno (Fig.3).

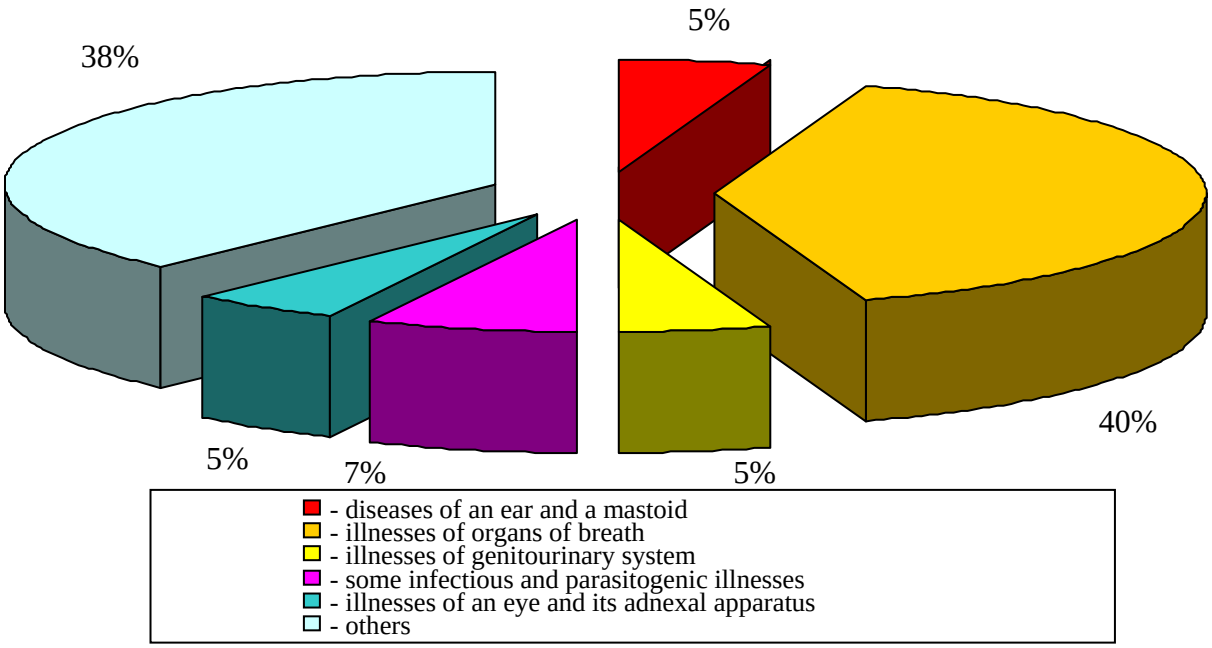

Fig. 2 - Structure of a primary case rate of women in fertility age living in Grodno in 2008-2012

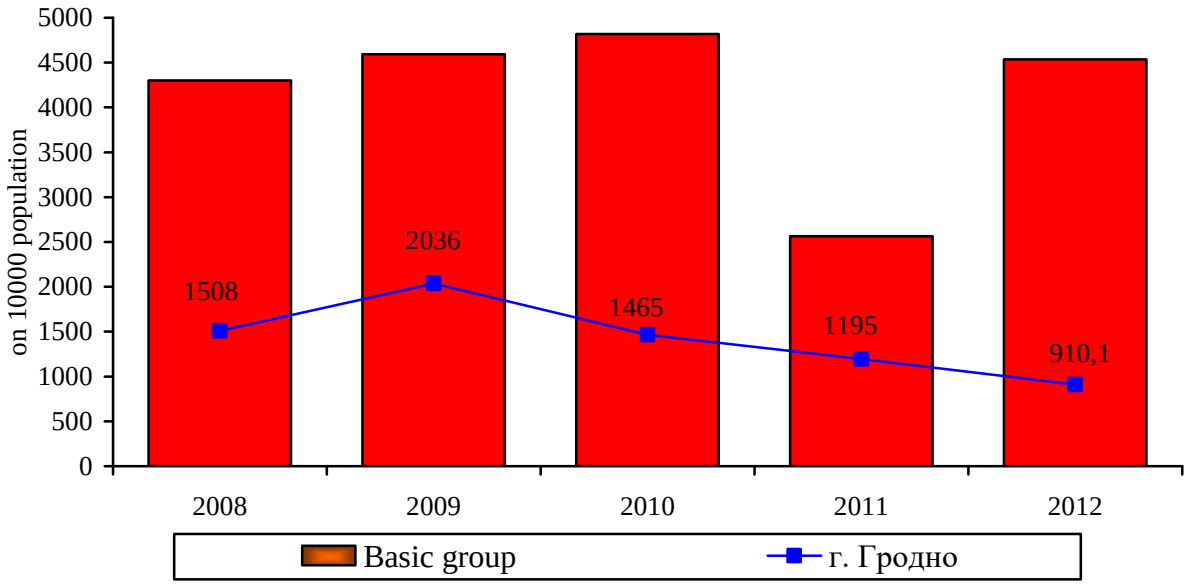

Fig. 3 - Dynamics of a primary case rate diseases of a respiratory organs in 2008-2012

The data obtained by us confirm data available in the literature that at the patients contacting to a complex of production factors of small intensity, including ChT, substantial growth of frequency of occurrence of diseases of a respiratory organs in comparison with other bunches of workers is registered [5].

It is expected throughout the surveyed season in structure of a primary case rate by diseases of a respiratory organs the first rating places have occupied acute respiratory infection contaminations of the top respiratory tracts and a flu. However levels of a primary case rate of the given sort pathology have appeared much higher, than among patients in fertility age, living in Grodno, except for 2012 when in connection with absence of epidemic cases of a flu among women of investigated bunch were not registered**.**

Higher levels of a primary case rate acute respiratory infection contaminations of the top respiratory tracts and a flu testify that working women of chemical effecting under the influence of multicomponent structure of the industrial aerosols including allergenic and toxic materials, in the conditions of the raised psycho-emotional pressure have weakening and failure of adaptic mechanisms, and also disturbance of an immune responsiveness of an organism. And, joint action of factors of small intensity can enhance and alter unfavorable consequences for an organism which it is possible to expect at influence of each of these factors separately [6].

It is established, that in structure of a primary case rate of working women significant there was a role of diseases of an eye and its adnexal apparatus. So, level of a primary case rate a pathology of the given class of diseases has reached to the extremity of the surveyed season 951,3 on 10 thousand population. Thus medium value of an indicator for the fifth anniversary has compounded 499,3±127,7 on 10 thousand population and was almost in 4 times big, than among women of bunch of the control (Fig. 4).

Index growth, apparently, has been caused by complex influence on an organ of sight of bonds of chlorine, sulphur and nitrogen, which in the form of a dust, steams and gases render not only irritating action at direct contact, causing conjunctivitis and keratitis development, but also the general toxic action with a lesion of visually nervous apparatus [4].

It is positioned, that, despite gradual depression throughout the surveyed period, level of a primary case rate illnesses of osteomuscular system and a connecting tissue among women-working women of chemical production nevertheless considerably exceeded that at women in fertility age, living in Grodno. The average value of an index for the fifth anniversary has made 497,1±88,07 on 10 thousand population and was more than in 2,5 times above, than among women of group of the control (Fig. 5).

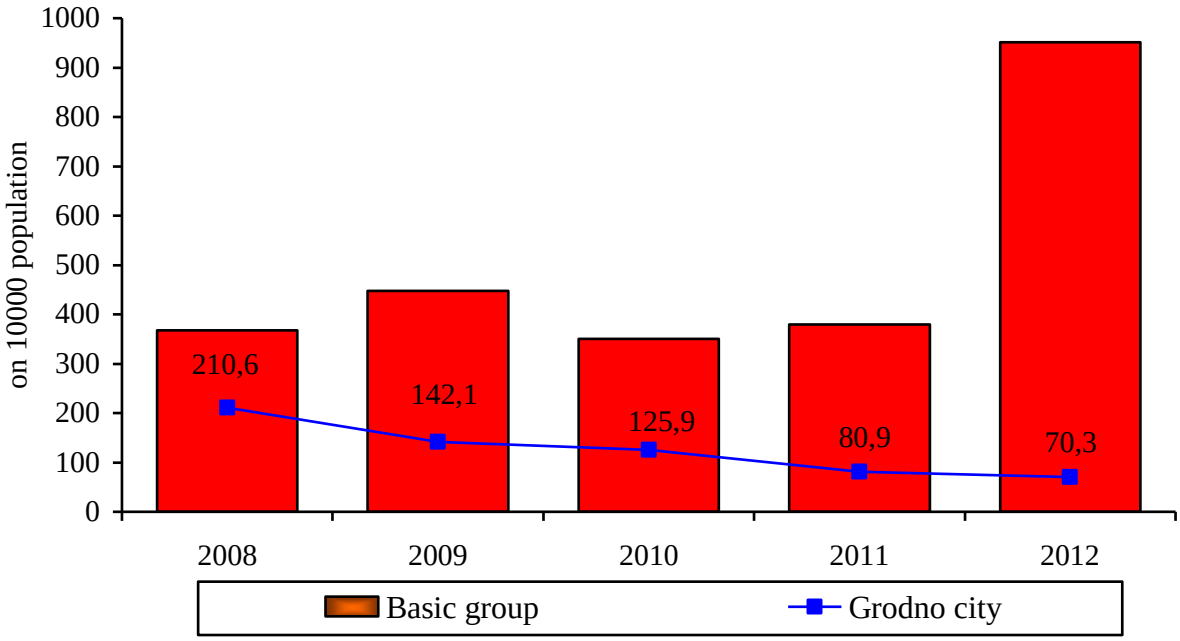

Fig. 4 – Dynamics of a primary case rate illnesses of an eye and its adnexal apparatus in 2008-2012

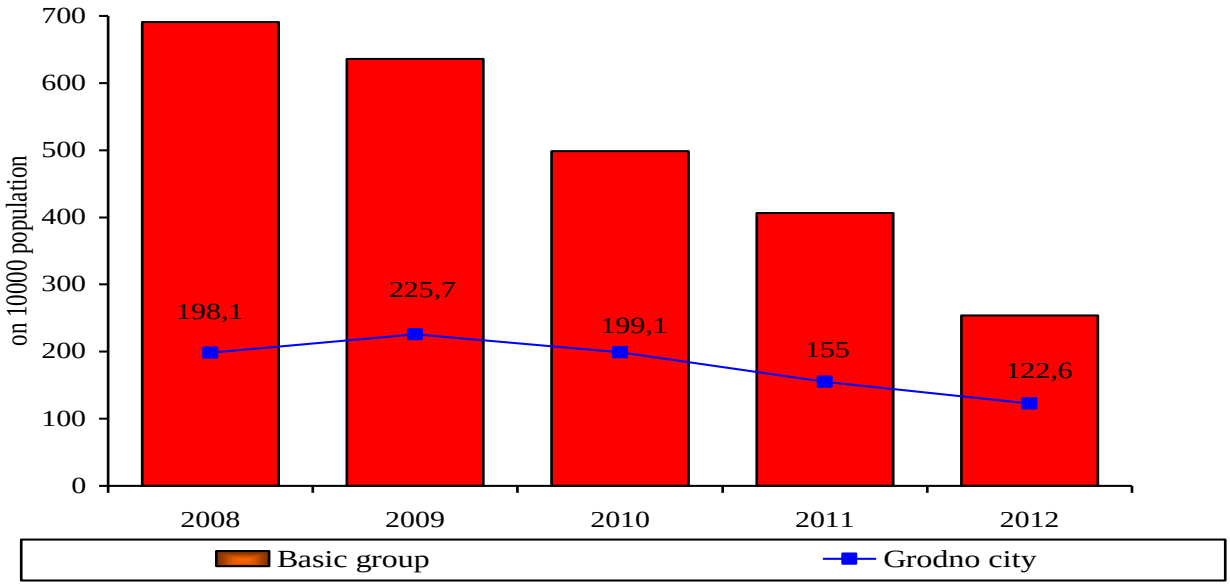

Fig.5 – Dynamics of a primary case rate illnesses of osteomuscular system and a copulative tissue in 2008-2012

The perverted hyperergyc allergic reaction, a connecting tissue developing in the basic substance can be the primary mechanism of influence ChT on organs of osteomuscular system**.** According to researchers, at the heart of development of this group of diseases hyperergy processes lay, and. The mechanism of these processes is caused by the autoimmune conflict, that is development organ specific tissue auto antibodies referred, in particular,

against nuclear structures of a cell - DNA, lysosomes, mitochondrions and so forth process of disorganization of tissue structures As a result develops, first of all in a connecting tissue [7].

In 2008-2012, the fourth rating place in structure of a primary case rate of women-working women of chemical production was occupied with illnesses of a skin and a hypodermic fat. Despite the fact that, during the surveyed fifth anniversary level of an index has not undergone essential changes, its average value was more than in 10 times above in comparison with a similar index at women of group of the control (Fig. 6).

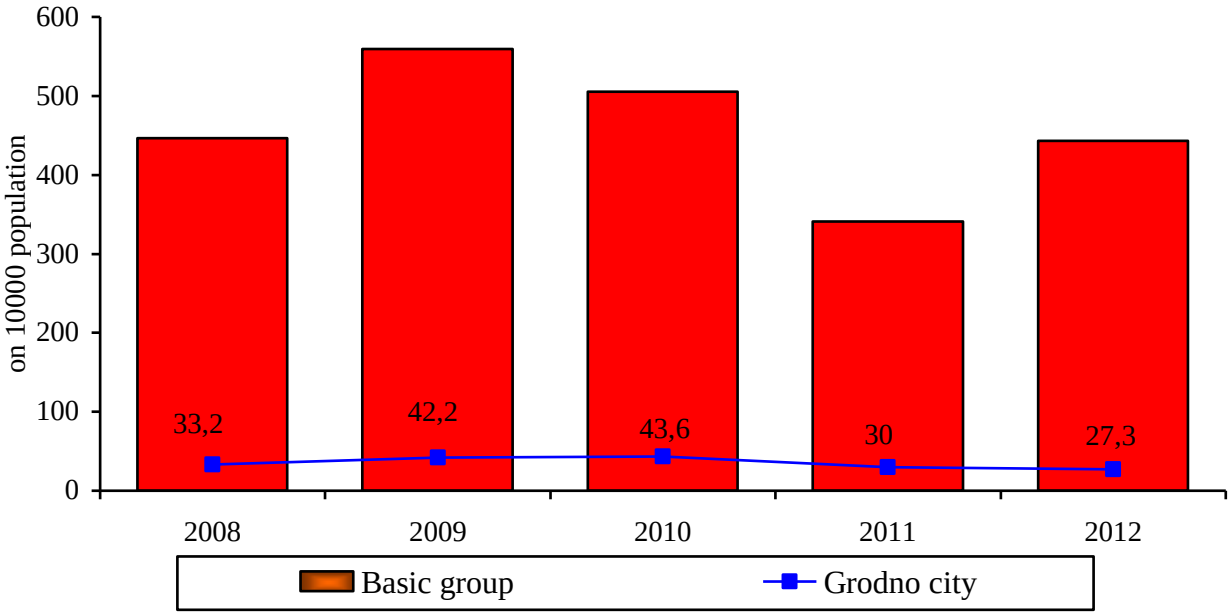

Fig. 6 - Dynamics of a primary case rate illnesses of a skin and a hypodermic fat 2008-2012

In structure of a primary case rate of the yielded class of diseases infectious lesions, and also other illnesses of a skin and a hypodermic fat, mainly, a different sort atrophic lesions prevailed.

As it is positioned, in development of infectious lesions of a skin results high general microbial dissemination of a skin at working at a factory caprolactam which authentically above, than at the persons who have been not bound on character of industrial activity with chemical production (control group), «that testifies to disturbance of barrier properties of a skin and mucosas at workers of chemical production». And, average values of bactericidal activity of a lysozyme (81,91±3,05%) and bactericidal activity of a saliva (68,6±1,67%), taped at patients of control group, were authentically more than at the working women occupied on production of ammonia and caprolactam, that «characterizes depression of natural nonspecific resistance of an organism» [8].

The fifth rating place in structure of a primary case rate of working women of chemical production was occupied with illnesses of organs of digestion. As it is positioned by Pomytkina T.N. (2010), at workers of productions of bonds of the azotic group, existing risk of a case rate by a pathology of a gastroenteric tract (further - GIT) above in 2,24 times, than at working on not chemical enterprises. And, connection degree between working conditions of workers of production of bonds of azotic group and illnesses of organs of digestion is estimated as high (an etiological share (ER) =53%), for a stomach and duodenum peptic ulcer as medium (EP=45%), for a gastritis and a duodenitis as high (EP=66%), and for diseases of a liver, a pancreas as very high (EP=71%). Hence, illnesses of organs of digestion can be surveyed as is industrial the caused diseases [9].

By us it is positioned, that the index of a primary case rate at working women of Open Society «Grodno Azot» in 2008-2012 has considerably increased and has reached 411,0 on 10 thousand population. Thus the average value of an index for the fifth anniversary has made 370,3±17,85 on 10 thousand population and was more than in 5 times above, than among women in fertility age, living in Grodno (Fig. 7).

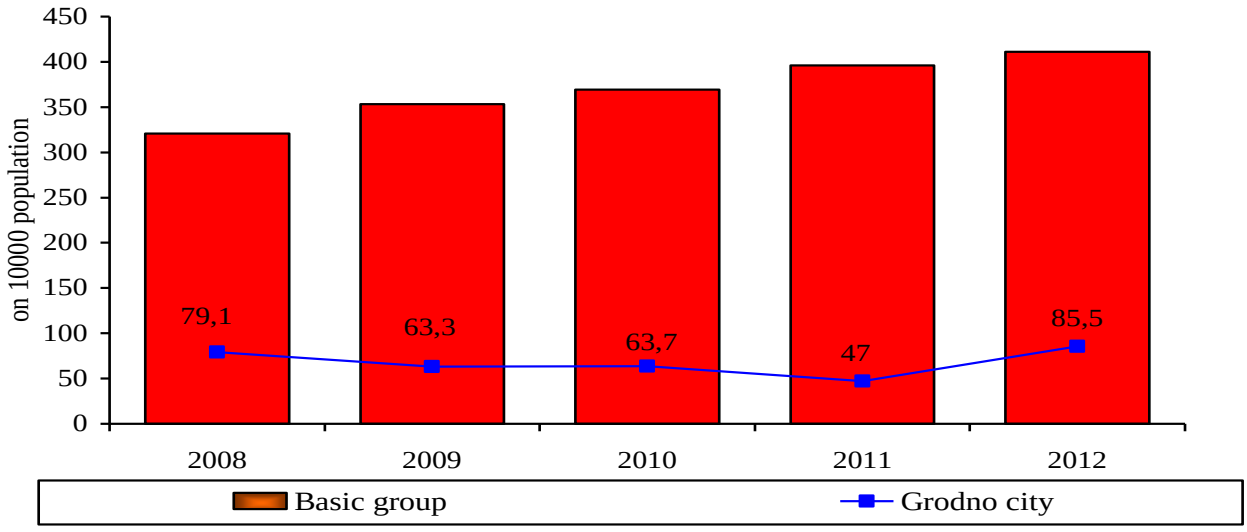

Fig. 7 – Dynamics of a primary case rate illnesses of organs of digestion in 2008-2012.

Action of professional factors at an appreciable part of women-working women of chemical production (32,7±1,78%) was accompanied by a number of the dyspeptic phenomena (the complaint to depression or appetite loss, taste change, a heartburn, an eructation, a nausea, pains in epigastric area). As follows from the data received by us and the literature analysis, these complaints were a consequence of deterioration of the general

condition and, in particular, disorder neurohumoral regulation at influence of adverse factors of industrial medium. So, it is known, that in a pathogenesis of changes GIT at chronic professional intoxications and diseases along with direct action of toxicants on a mucosa at their swallowing or allocation in a gastric cavity (through its mucosa) the important role disorders neurohumoral regulation as play implication of general toxic action ChT. Certain value shifts cholinergic mediation and adrenocortical activity have, the generalized vascular disorders, result in tissue hypoxias, disturbances of tissue metabolic processes, accumulation biologically active materials and the rising of permeability of cellular membranes bound to it and a number of other mechanisms. Prevalence of this or that mechanism in development of changes GIT defines features and an originality of these disturbances [10].

Structure of the general case rate of women-working women of chemical effecting in the first rating place have occupied illnesses of a respiratory organs - 25,3%. The lobe of illnesses of organs of digestion has compounded 20,9%, illnesses of system of a circulation - 10,1%, illnesses of an eye and its adnexal apparatus - 10,1%, illnesses of genitourinary system - 8,2%. Among other diseases illnesses of endocrine system - 7,1% prevailed (Fig. 8).

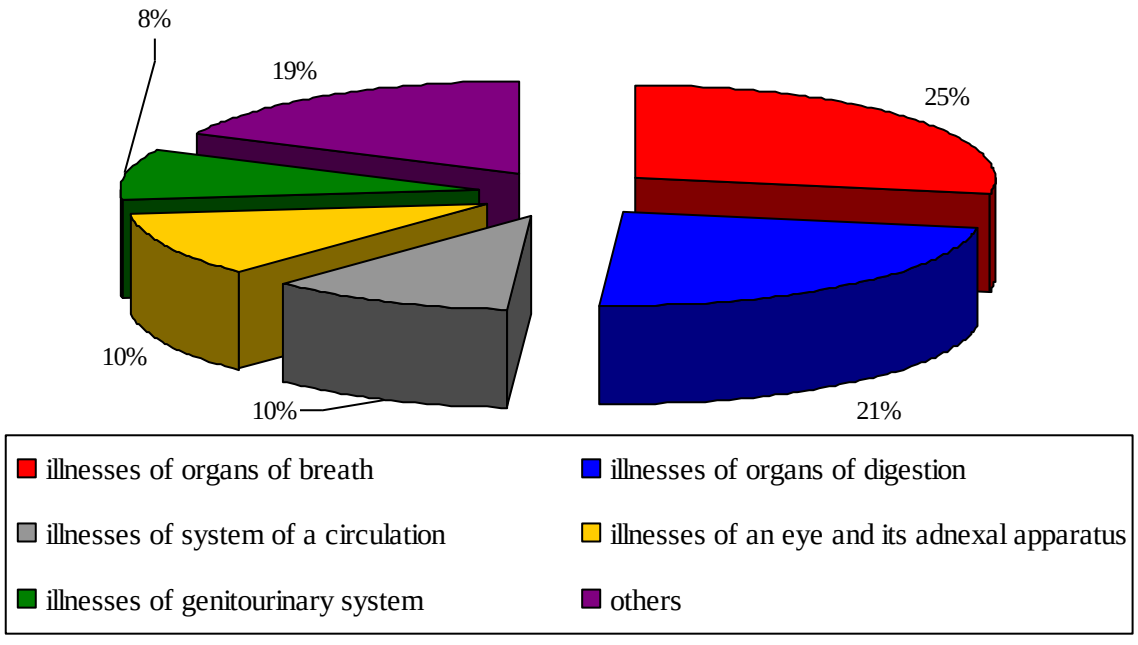

Fig. 8 - Structure of the general case rate of women-working women of chemical production in 2008-2012

At a comparative estimation of structure of the general case rate for 2008-2012 it is positioned, that it differed on the basic classes of diseases a moustache with control group. So,

in structure of the general case rate of women in fertility age, living in Grodno, the first place was occupied also with illnesses of organs of breath, their percentage share has made 24,3%. At the same time essentially larger there was a percentage share of illnesses of system of the circulation, the made 14,4%, On the third place there were illnesses of organs of digestion - 9,1%. The Specific gravity of illnesses of genitourinary system has made 8,3%. The percentage share of illnesses of an eye and its adnexal apparatus and some infectious and parasitogenic illnesses did not exceed 5%. Among other diseases traumas prevailed, poisonings and some other consequences of the external reasons, which share in comparison with an index of women-working women of Open Society «Grodno Nitrogen» it has appeared essentially larger and has reached 14,1% (Fig. 9).

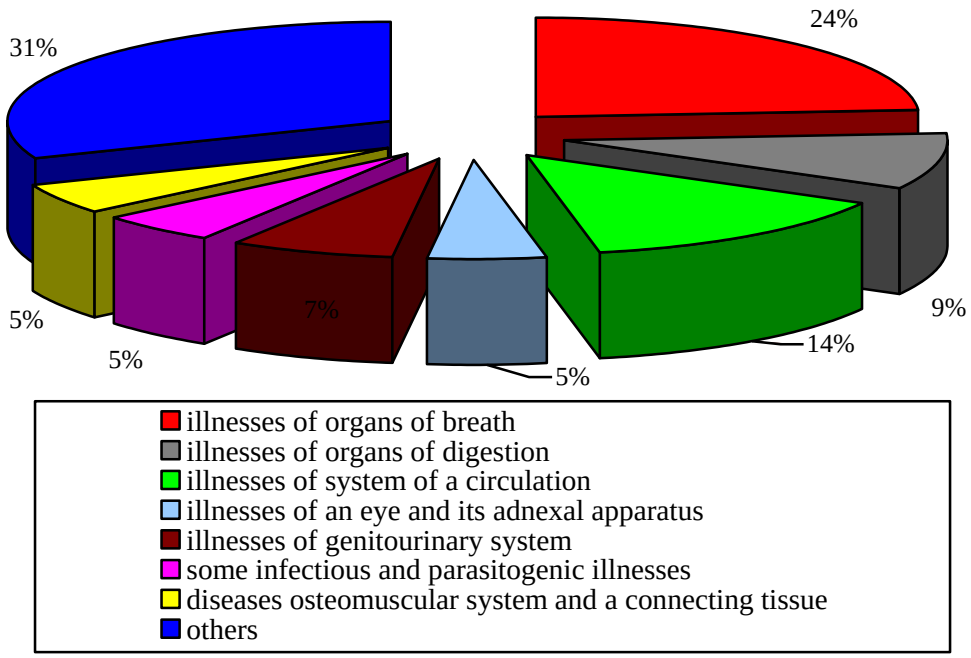

Fig. 9 - Structure of the general case rate of women in fertility age, living in Grodno, in 2008-2012

It is positioned, that in 2008-2012 the index of the general case rate of women-working women of chemical production by illnesses of organs of breath essentially has not changed and to the extremity of the surveyed period has made 5374 on 10 thousand population. However the average value of the yielded index for the fifth anniversary (5454±188,6 on 10 thousand population) more than in 3,5 times exceeded similar among women in fertility age, living in Grodno (Fig. 10).

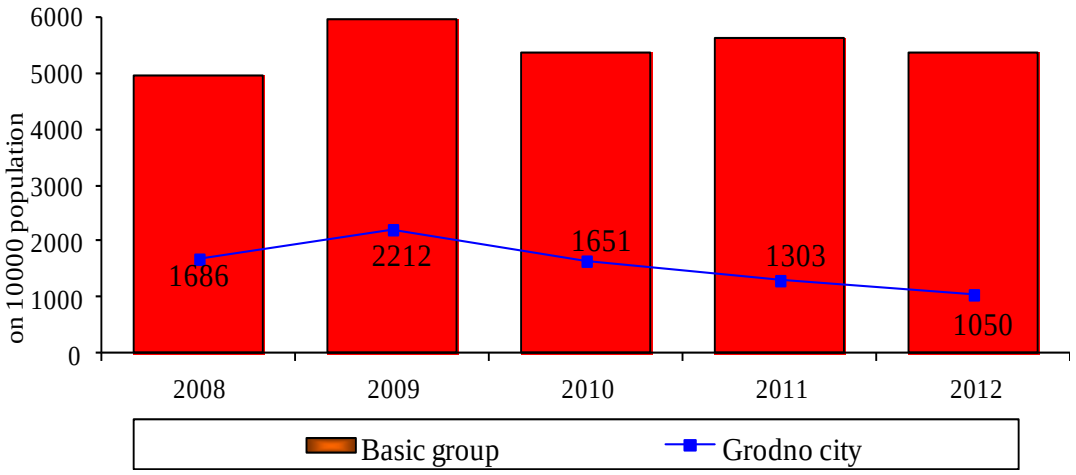

Fig. 10 – Dynamics of the general case rate illnesses of organs of breath in 2008-2012

It is necessary to notice, that an acute pathology of the top respiratory tracts, more often taped at the surveyed contingent of women with the experience of work till 10 years, possibly, testifies to influence of substances of irritating action on mucosas of a trachea and bronchuses [11]. At a lesion of the top respiratory tracts at women-working women chronic rhinitis, pharyngitis and a laryngitis is more often developed, but the combined lesions of a mucosa of a nose, a pharynx and a larynx were most often observed. Character of changes of a mucosa was both catarral, and subatrophic, atrophic, is more rare - hypertrophic.

The second rating place in structure of the general case rate of working women was occupied with illnesses of organs of digestion. Throughout 2008-2012 of value of an index has a little decreased, having reached level 4517 on 10 thousand population in 2012. Thus the average value of an index for the fifth anniversary has made 4683±639,5 on 10 thousand population and was almost in 8 times above, than among women of group of the control (Fig. 11).

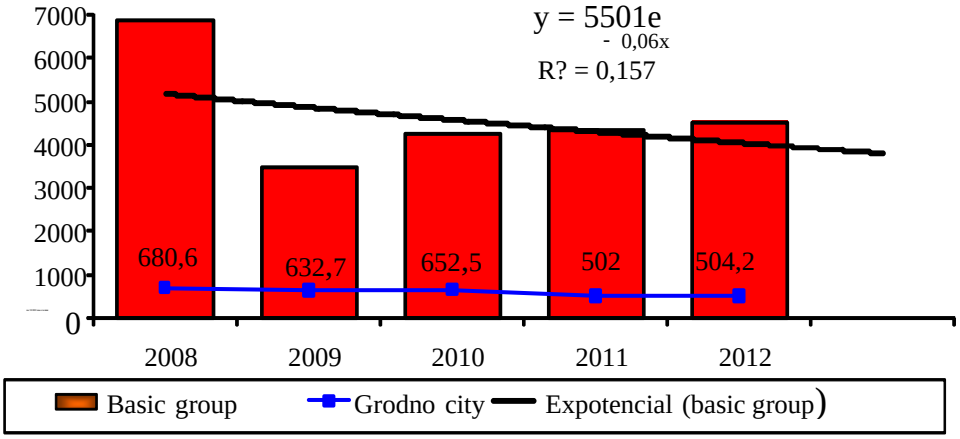

Fig. 11 – Dynamics of the general case rate illnesses of organs of digestion in 2008-2012

The results received by us are confirmed with data of researches T.E. Pomytkina and A.N. Pershin (2010) which at studying of working conditions and prevalence of diseases of organs of digestion at 4120 workers of chemical productions of bonds of azotic group of Western Siberia of the Russian Federation have positioned, that at the surveyed patients exposed to isolated action of harmful substances, registers the raised levels of the general case rate by chronic illnesses GIT. So, at the isolated action of harmful substances the case rate of organs of digestion has appeared above on the average on 35% (p <0,05), than at the persons who have been not exposed by them. At the combined action of harmful substances levels of a case rate of organs of digestion were in 1,7 times more (p <0,05), than at the patients who have been not exposed to them, and in 1,2 times above (p <0,05), than at the isolated action. To authors also it is positioned, that relations of chances to be ill with illnesses of organs of digestion and relative risk of occurrence by the yielded pathology at the harmful substances exposed by combined action accordingly above in 4,0-11,1 and 3,5-10,7 times (p <0,05), than at not exposed patients [12].

The third rating place in 2008-2012 in structure of the general case rate of working women of Open Society «Grodno Azot» was occupied with illnesses of system of a circulation. Index level in the surveyed fifth anniversary was characterized by some negative dynamics, having reached 2256 on 10 thousand population in 2012 the Average value of an index for the fifth anniversary (2111±81,25 on 10 thousand population) was more than in 2 times above, than among women of control group (Fig. 12).

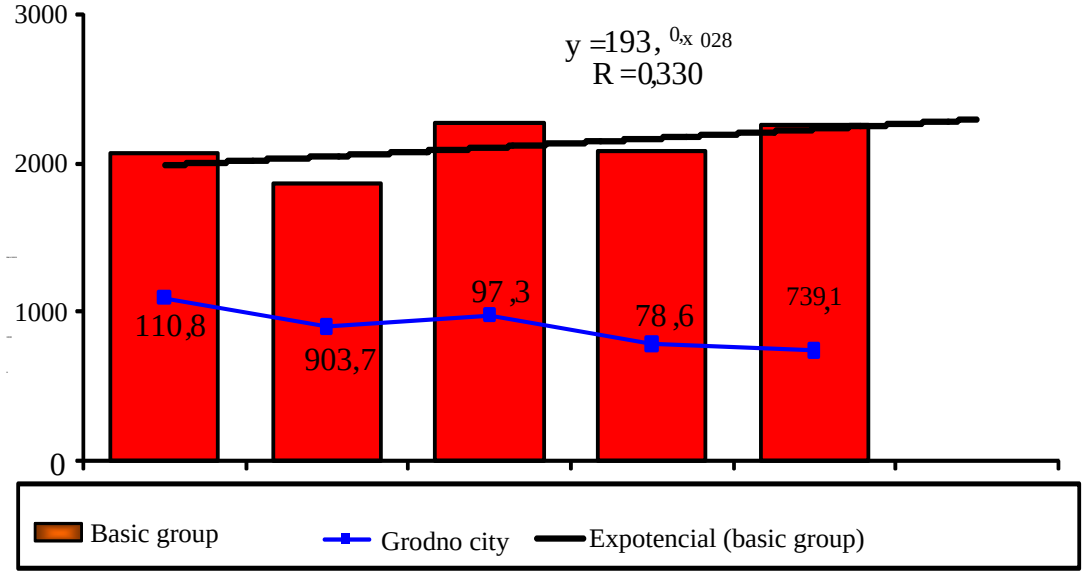

Fig. 12 - Dynamics of the general case rate illnesses of system of a circulation in 2008-2012

In structure of the general case rate illnesses of system of a circulation women-working women of Open Society «Grodno Azot» significant had a share of an arterial hypertension. It could be caused disorder neurohumoral regulation and metabolic disturbances as a result of complex influence of production factors on an organism of women-working women among which significant was not only presence in air of working zone ChT, but also gravity, and intensity of work, and also nonspecific noise influence to which throughout a labor shift patients in the surveyed shops were exposed. So, according to epidemiological studying of prevalence of basic diseases of system of a circulation at the women working in the conditions of influence of constant industrial hum in a range from 90 dBA to 110 dBA, it is shown, that its combination at least with one of risk factors result ins to augmentation of frequency of revealing of an arterial hypertension at 15%. And, the most adverse from the point of view of development of hypertensive conditions is broadband hum with prevalence of high-pitched components and level from above 90 dBA, especially impulsive hum [13].

In the course of researches by us it is positioned, that at women-working women of chemical production under the influence of a complex of harmful volumetric factors, first of all, bonds containing nitrogen, there was a process of synchronization of inflammatory diseases of an organ of sight and its appendages. So, in 2008-2012 the index of the general case rate the yielded pathology had the expressed tendency to growth, having reached to the extremity of the surveyed period 2195 on 10 thousand population. Thus the average value of an index for the fifth anniversary has made 2111±97,38 on 10 thousand population and was more than in 6 times above, than among women of Grodno (Fig. 13).

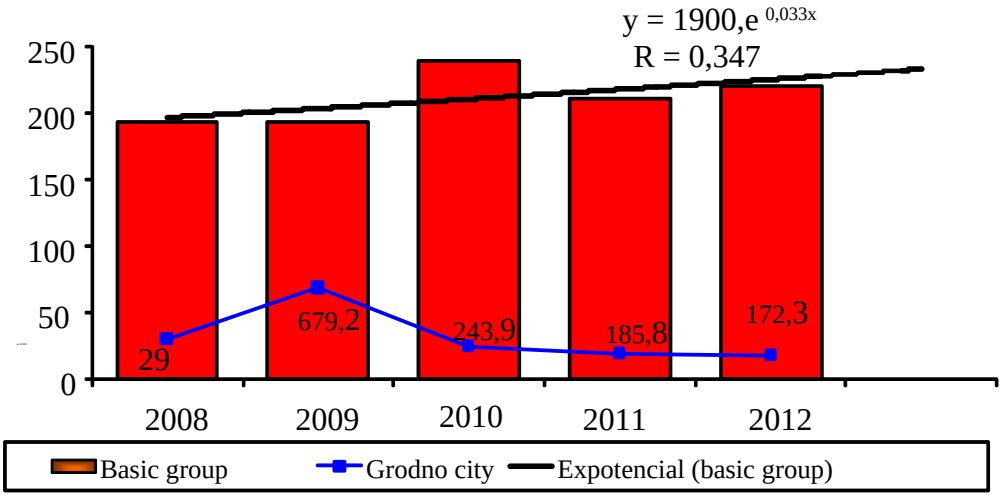

Fig. 13 – Dynamics of the general case rate illnesses of an eye and its adnexal apparatus in 2008-2012

Similar sort the tendency has been registered by us and at studying of the general case rate caused by illnesses of a skin and a hypodermic fat. So, in 2008-2012 at working women of Open Society «Grodno Azot» the yielded index more than in 10 times exceeded similar among women of group of the control (Fig. 14).

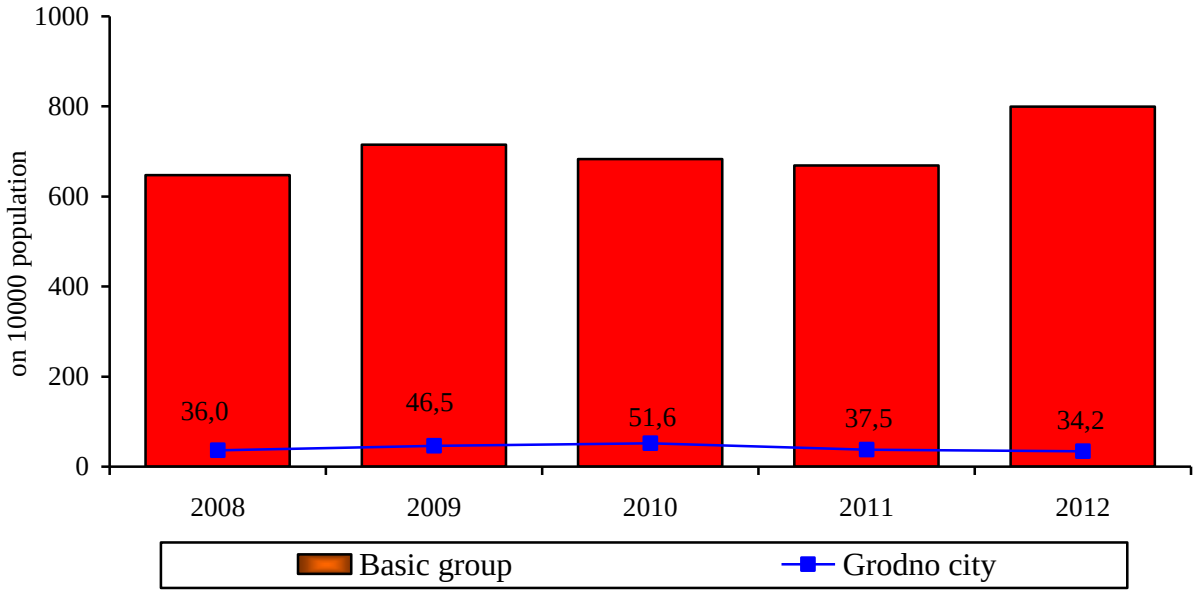

Fig. 14 – Dynamics of the general case rate illnesses of a skin and a hypodermic fat in 2008-2012

In 2008-2012 at women-working women of chemical synthesis of change of value of indexes of the general case rate caused by illnesses of an ear and a mastoid, was insignificant. However, the average level of a case rate more than in 5 times exceeded a similar index among women of group of the control, that, possibly, has been caused by influence of intensive industrial hum and adverse parameters of an industrial microclimate (Fig.15). Prevalence of diseases of this class presented mainly by a hearing disorder, corresponds to the tendency which have been tracked by G.E. Kosjachenko and co-workers (2005) which at an estimation of working conditions on Open Society «Grodno Azot» has positioned, that physical factors of production were characterized by presence on workplaces of the intensive hum, which levels exceeded marginal levels (further - EML) on 13-15 dBA, the general vibration with excess EML to 7 times and more, and also the intensive infrared rays exceeding EML on 1800 W/m^2 [14].

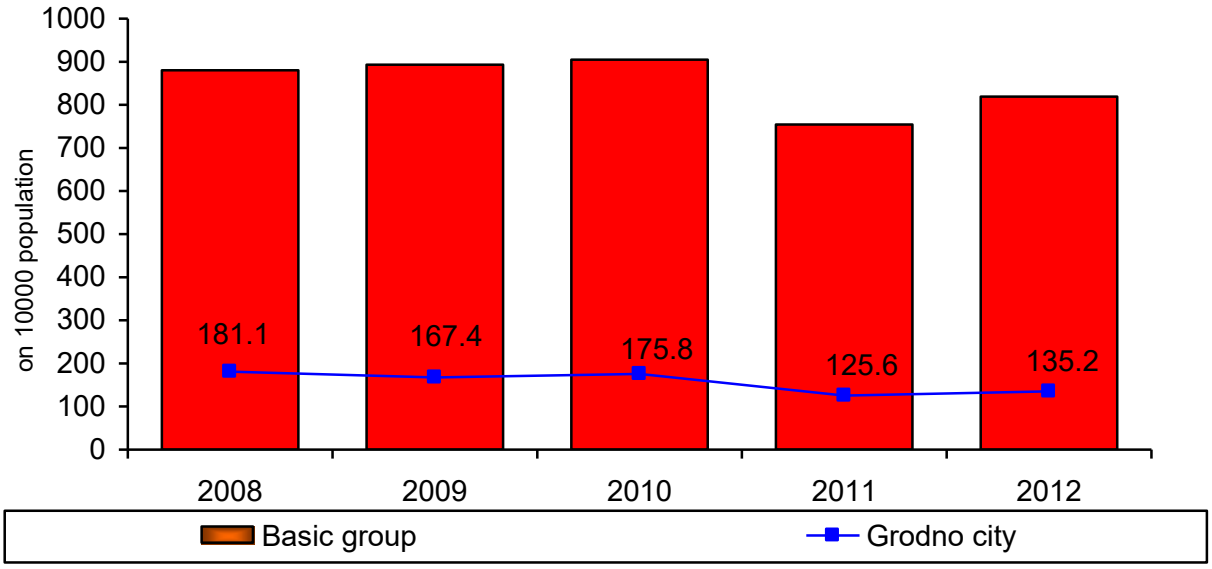

Fig. 15 – Dynamics of the general case rate illnesses of an ear and a mastoid in 2008-2012

Conclusions

Thus, in 2008-2012 at women-working women of chemical production essentially lower indexes of a state of health characterized by much higher by levels of a primary and general case rate in comparison with women in fertility age, living in of Grodno, but on a sort of the professional work, not contacting with ChT are taped.

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Broken Heart Syndrome – mourning as an etiologic agent

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Introduction

"Give sorrow words: the grief that does not speak
Whispers the o'erfraught heart and bids it break."
Shakespeare, *Macbeth*

The expression "broken heart" is used when a romantic relationship ends. This phraseme is most often understood as "disappointment in love" and "disillusionment," and it indicates a strong emotional state [1,2].

Specialists in the fields of medicine and psychology have long been interested in the effect of stress on the development of ischemic heart disease and its acute manifestation - acute coronary syndrome (ACS). The common phrase “broken heart” has been used to describe the disease referred to as stress-induced cardiomyopathy, also known as broken heart syndrome or tako-tsubo syndrome. Other names in the literature include apical ballooning syndrome, transient left ventricular apical ballooning syndrome, transient catecholaminergic cardiomyopathy, ampulla cardiomyopathy, and neurogenic myocardial stunning [3]. The disease was first described in 1990 [4,5]. Currently, the pathology is included in the group of acquired cardiomyopathies [6,7].

Symptoms of broken heart syndrome are similar to the symptoms of acute coronary syndrome. Electrocardiographic features of acute myocardial ischemia (Pardee wave) are most frequently described in leads V3–V6, less frequently in leads V1, I, aVL, and the least frequently in leads II, III, aVF [6]. Over 90% of ST segment changes on the ECG curve for stress-induced cardiomyopathy are associated with the anterior wall (Fig.1) [8].

Additionally, patients experience acute chest pain similar to myocardial infarction. However, the difference between broken heart syndrome and acute coronary syndrome is that no significant changes are observed in the angiographic picture of the coronary arteries [9,10, 11]. Left ventriculography and echocardiography show apical hypo- or dyskinesia with hyperkinesia of the parabasal segment of the lower and anterior wall (Fig.2). Left

ventriculography during systole, which shows a characteristic shape resembling a pot used by Japanese fishermen to trap octopuses, is described in 75% of stress-induced cardiomyopathy cases [12].

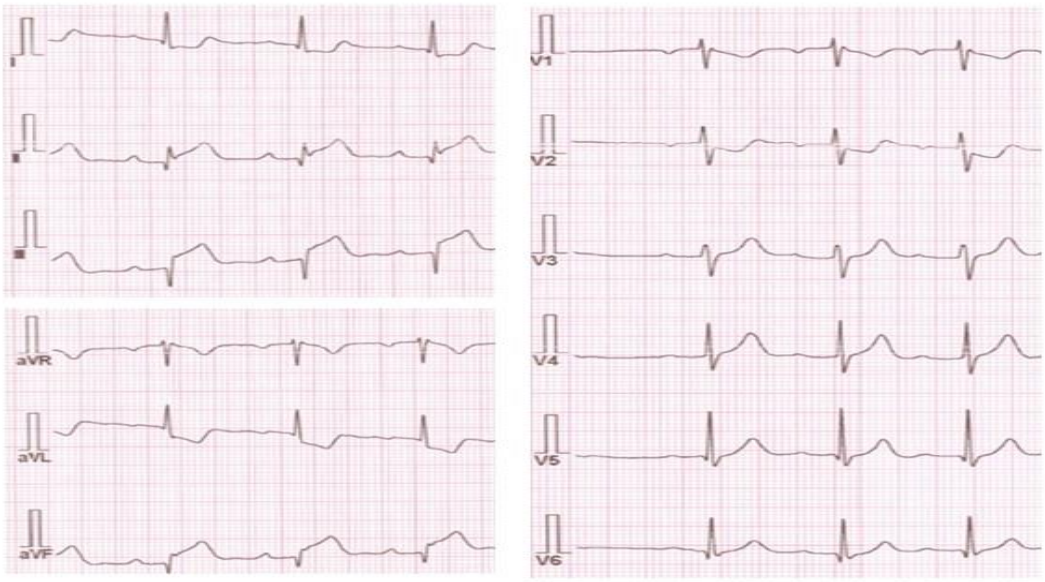

Fig. 1. The 12-lead ECG in patient with symptoms of ACS in the anterior wall

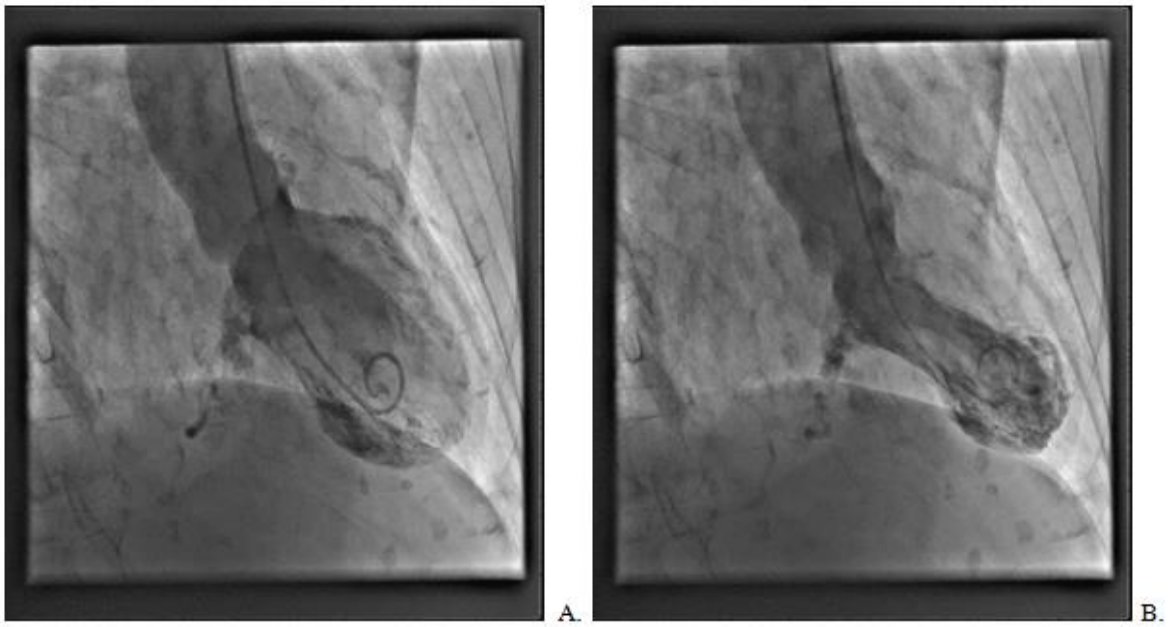

Fig. 2. Left ventriculography performed on a patient with symptoms of ACS on ECG. A - diastole phase of the left ventricle. B - systole phase of the left ventricle, severe akinesis of the cardiac apex and periapical segments of the anterior and inferior walls - shape resembling a pot used to trap octopuses

ECG signs of acute ischemia (ST elevation) persist for about 3 days and are followed by deep negative T waves with QT prolongation, as shown by ECG, which disappear after 7-10 days, and then occur again after 2-3 weeks. Significant or complete regression of changes in contractility is observed after approximately 4 weeks [13,14].

It is assumed that the pathogenesis of broken heart syndrome is associated with the effects of catecholamines, which are secreted in excess during severe mental and physical stress. Table I shows examples of stressors [12-13, 15-17].

Table I. Groups of stressors predisposing to the occurrence of broken heart syndrome

Family, home and work	Health
Death of a spouse/child	Cancer
Serious illness of a loved one	Chemotherapy
Divorce/separation	Femoral neck fracture
Child marriage	Cerebral abscess
Child leaving family home	Ruptured cerebral aneurysm
Mental ill a spouse/child	Pulmonary embolism
Alcoholism a spouse/child	Rejection of transplanted kidney
Death of pet	Allergic drug reaction
Loss of property	Vasculitis
New job/sudden job loss	Urosepsis
Stress during meeting with work manager	Hypertensive crisis
Anxiety regarding a public speaking event	Accidental excessive insulin dose

A relationship between the symptoms of tako-tsubo syndrome and surgeries under general anesthesia, gastroscopy as well as ablation in the course of atrial fibrillation has been shown [18]. Catecholamines induce coronary vasospasm, which results in a characteristic ECG pattern in the absence of abnormalities in coronary blood flow [6].

Broken heart syndrome accounts for approximately 2% of initially diagnosed acute coronary syndromes (ACS). It mainly affects postmenopausal women (80-100 of diagnosed cases) [11,18,19].

The aim of this paper was to discuss the effects of severe and chronic emotional stress associated with bereavement and mourning as etiological factors of myocardial dysfunction.

Discussion

It is currently believed that traumatic stress is an etiological factor in ACS [20,21]. A study on the incidence of acute coronary episodes, conducted in the U.S. immediately after the terrorist attacks on the World Trade Center, showed an increase in hospitalizations compared with previous years in the absence of seasonality or demographic differences [22, 23]. Miric et

al. showed a higher risk of myocardial infarction and death in civilians exposed to military action [24].

The loss of a close and important person is one of the strongest stressors. The experienced bodily dysfunctions seem a "natural" symptom of mourning; however, it can be assumed that the mourning fulfills all the criteria of disease (somatic, mental, and social disorders) [25]. Scientific research in the fields of psychology and medicine increasingly shows a growth in the number of coronary incidents and mortality among mourners [26,27, 28]. Analysis of the literature shows that the risk of death during the first six weeks following the loss of a spouse is significantly higher in the elderly compared with young people; and in the case of females, the risk of death may persist for up to two years [29,30].

Therefore, support for a grieving person, which is so important in overcoming stress, should last longer than the period immediately after the loss (which is the most common practice). The support and commitment of others should last longer. Kawczyńska-Butrym distinguishes three dimensions in the support given to mourners: informative, emotional, and material (financial) [31]. The choice of form and type of support should be adjusted to the needs of the affected person, including personality as well as the extent of somatic and psychosocial disorders. According to the concept by M. Keirse, the support of a mourner should involve helping the person to adapt to the new reality and new roles (e.g. a widow/widower), as well as to release negative emotions [32]. Unfortunately, Guzowski et al. showed that 35% of mourners consider the support they receive as insufficient [33].

Authors in the field of psychosomatics show that not as much the stress factor, i.e. the death of a close person, as the ability to overcome difficulties and personality (e.g. scrupulosity, proneness to anxiety, and a high level of intelligence) are crucial for the development of cardiovascular disorders [34,35]. Mourning should be understood as a multidimensional, dynamic process of expression of a human who experienced a loss. One of its aspects is somatic symptoms, such as chest pains, shortness of breath, dry throat, and abdominal discomfort, experienced by the mourner [36]. Erich Lindemann points out that mourning is always accompanied by psychosomatic symptoms, which are typical of the “normal mourning process” [37]. It should be noted that an increase in somatic problems may result from an increased severity of already existing symptoms.

Therefore, mourners at an increased risk of cardiovascular disorders should be provided with the possibility to regularly receive medications, access to medical care, appropriate sleep duration, as well as regular and balanced meals [27]. It is important to motivate mourners to

seek help as well as to initiate treatment if symptoms become more severe [38]. The loss of a loved one, such as a parent, child or spouse, is one of the most difficult life situations, which may be defined as a traumatic crisis situation. The occurrence of acute clinical symptoms, such as arrhythmias or myocardial ischemia, should be regarded as consequences of post-traumatic stress disorder (PTSD) [39,40,41]. The increased risk of cardiovascular diseases in patients with PTSD is also associated with increased smoking [42,43].

Death of a spouse is rated first on the Holmes and Rahe stress scale, which is used to link the strength of a stressor with health status [36]. According to the concept of death as the loss of resources, a widowed person loses a sense of closeness, security, family cohesion, and often financial stability. Inadequate reactions to posttraumatic stress are a risk factor for mental and physical disorders. Grief should be a process involving the reorganization of emotional bonds with the person who passed away in order to regain mental balance [25,44]. However, grief over the loss of a loved one can persist for many years; the literature refers to such a state as complicated grief.

Complicated grief (CG) is a state in which the mourner cannot cope with the feelings of sadness and grief, leading to depression. Complicated grief may affect those who experience sudden and unexpected death of a loved one or those who had spent every day of the last weeks of their loved one's life with them [45]. CG, as a chronic mental disorder, significantly increases the risk of ischemic heart disease [46]. Shear et al. proved that complicated grief had negative effects on prognosis in patients with heart disease who had undergone coronary artery bypass grafting [47]. Bonanno et al. showed a correlation between the severity of CG and reduced heart rate, as opposed to increased heart rate correlated with PTSD [48].

Conclusion

Modern medicine promotes a holistic approach to health care with the patient’s emotional needs taken into account. Patients diagnosed with broken heart syndrome should receive therapy due to somatic disorders. Furthermore, it is important to determine the forms and terms of support associated with the release of strong emotions that may cause or increase the severity of heart disease.

Health care personnel should be able to recognize the emotional needs of patients and take the appropriate measures to encourage family and friends to organize help and care. Additionally, we may inform the patient about alternative forms of support, e.g. support groups, assistance of a psychologist or a priest.

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Selected pathologies of the thyroid gland

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Introduction

The thyroid gland (łac. *Glandula thyroidea*) is an impaired gland of internal secretion weighting 20 – 30 g. *Glandula thyroidea* is placed on the anterior 2-4 tracheal wall [1-6].

Physiologically the organ's size may change depending on the menstrual cycle phase and during pregnancy [7]. The thyroid gland is composed of two lobes (łac. *Lobus dexter et sinister*) connected by a thin belt of thyroid tissue (łac. *Isthmus*).

The thyroid is very good vascularized by the thyroid arteries – the superior ones deriving symmetrically from the internal cervical artery, and the inferior ones deriving from the thyrocervical trunk. Besides that, the thyroid gland is sometimes vascularized by the most inferior thyroid artery, derived from the aortal arch, the common cervical artery or the brachyocephalic trunk [1,4,8,9]. The thyroid is innervated by the caecum nerve that constitutes a part of the parasympathetic system and the cervical ganglia deriving from the sympathetic system [2,12-15].

The thyroid gland tissue, besides the normal localization, may be localized ectopic. The most frequent localization of it is the mediastinum. Ectopic thyroid gland localization is the result of deregulations of the embryologic thyroid genesis [2].

The thyroid produces and secrets into the blond some hormones, such as: thyroxin (T4- in the first particle of thyroxin there are four iodine atoms) and triiodothyronin (T3- in the first particle of thyroxin there are three iodine atoms). Another hormone produced by the thyroid is calcitonin [1,12-15]. The thyroid gland performs very important functions in human body, such as the metabolic control, the development and functioning of the brain and the central nervous system, calcium-phosphate balance, the adequate fetal development, hidric balance, development of the osteoarticular system, proteic, lipidic and glucidic metabolism, energetic

metabolism and temperature producing, and the muscular strength regulation. The calcitonin produced by the thyroid, regulates calcium level in the blood [12,15].

Thyroid function regulation

The thyroid isn't an autonomic isolated organ. It is supposed to the organ centres, such as.: brain hypophisis and hypothalamus, that are located in the central nervous system. In healthy people the normal hormone level in the blood is regulated by thyreotropin – TSH. That hormone is secreted by the specialized cells of the anterior of the brain hypophysis lamella, located interior towards the brain and the sella turcica. In case of a too low TSH level, forem. In different nosology units of the cerebral hypophysis, the thyroid gland isn't able to produce the T3 and T4 in the quantity that is necessary for the peripheral cells. Therefore there is deficiency syndrome of the thyroid hormones in the blond plasma, and such a deficiency is called hypothyreosis. The cells of the anterior lamina of the hypophysis remain in a thier dependence of the thyreoliberin hormone - TRH, which is produced by hypothalamus. The hypothalamic thyreoliberine production stimulates the secretion of thyreotropine, which stimulated the thyroid to produce thyroxin and triiodothyronin. High level of T3 in the blond plasma also influences the brain hypophysis inducing its secretion functions inhibition. The mechanism of keeping the normal thyroid hormone level is called the negative return-feedback between the hypothalamus, the hypophysis and the thyroid. Mechanizm utrzymywania prawidłowego poziomu hormonów tarczycy nazywany jest ujemnym sprzężeniem zwrotnym pomiędzy podwzgórzem, przysadką a tarczycą. His is the most important mechanism regulating thyroid hormones level [1,2,12,13,14].

Thyroid gland pathologies

HYPERTHYREISIS

Etiology and frequency

The hyperthyreosis is a clinical syndrome that develops as a result of increased synthesizing and thyroid gland hormones' release. It comes up to the increasing of the free thyroid hormones that influence the cellular receptors in the tissues and in the aimed cells [1, 16-19].

It depends on the age, the genetic factor and the iodine supply. The main reason for hyperthyreosis in children is Graves – Basedov's pathology, or rarely TSH receptor's or mutation or that one of the protein G, increased thyroxin administration, the lymphocytic and subacute thyroid gland inflammation. In adults thyroid pathologies are dependent on the iodine supply. In the countries with an adequate iodine supply the main reason for hyperthyreosis are

the autoimmune diseases, as for example Graves – Basedov's or Hashimoto's diseases are. In the territories with a significant iodine lack, a great number of hyperthyreosis cases are induced by the autonomic tissue presence, which gives an image of a hyperfunctional goiter in the character of anatomical multiple nodules – Plummer's disease, a single autonomic nodule – Goetsch's disease, or the autonomic tissue spread throughout the thyroid gland. Rarely hyperthyreosis may be induced by a hypophysis nodule or the hyperproduction of hCG during pregnancy. Incidentally hyperthyreosis may lead to thyroid cancer. Thyrotoxycosis may also occur in a sub acute or post-radiative thyroid inflammation. Hyperthyreosis may also be induced by the administrated medicine's side effects and the treatment Edith radioiodine [16].

Abort 2% of adults suffer from hyperthyreosis, in children that percentage is 10 – 15 times lower. Among newborns, hyperthyroidises constitutes 1/50000 birth cases. Among newborns and small children this syndrome occurs sporadic, whereas in the maturation period the risk of pathology occurrence significantly grows. During this period hyperthyreosis comes to evidence among female sex patients [16].

The symptoms of hyperthyreosis in tissues and organs' area

A thyroid hormones excess leads to functional and structural changes of organs and systems, beginning with the skin aspect, the respiratory tract functioning, the blood-circulation system, the reproductive and the nervous system, ending with renal and suprarenal functioning. The symptoms of hyperthyreosis are not directly connected with the thyroxin and triiodothyronin concentration level in the blood, but they depend on the patient's age and the length of the deregulation period. The majority of people suffering from thyreotoxycosis complain on an increased nervousness, increased sweating, tachycardia, shortness of breath, feeling of tiredness, disaffection for a physical effort, loss of weight despite an increased appetite, hand and body tremor, warm and wet skin, irregular menstrual cycles, sleeplessness, growth inhibition, although in children it can be manifested by an increased growth speed. The symptoms of hyperthyreosis in patients suffering from Graves-Basedov's disease are a bit variable. Those people may often notice a characteristic bulging eyes, increased-size nodules and a leg edema. On its turn, in case of a nodular goiter the above-mentioned symptoms are not fund, but the single or multiple nodules can be palpated in the thyroid region [2,16,17,19, 20,21,22].

The clinical picture of hyperthyreosis

In all the circumstances, not depending on its reason, the clinical picture of hyperthyreosis would be always similar. It depends on the organs' reactions to the hormonal concentration

increase and also the patient's age. It can be manifested as a symptomatic hyperthyreosis or, rarely, as a cardiovascular manifestation, for example. In the majority of cases hyperthyreosis occurs together with a metabolic increase and a thermal energy increase, that in consequence leads to hunger increase, loss of weight, thermal tolerance decrease and an increased sweetness. The stimulating of the nervous system may lead to sleeplessness, hand tremor, emotional lability, and also muscular strength decrease. The increased thyroid hormones level has a negative influence on the cardiovascular system and the heart leading to an increased heartbeating, a supraventricular cardiac rhythm deregulation and the systolic blood pressure growth. The other symptoms manifested in course of a hyperthyreosis are diarrhea, hair loss, nails' fragility, ginecomasty in men and oligomennorhea. A lasting hormonal increase may lead to osteoporosis. It is actually considered, that in course of pathologies that lead to hyperthyreosis, there may appear a phase of latent hyperthyreosis, a symptomatic one and an increase of hyperthyreosis's symptoms called the thyroid hormone breakthrough. Latent hyperthyreosis is a state with no symptoms manifested, or a rare symptoms' manifestation. It can be discovered in a hypertoxic nodular goiter or in Graves-Basedov's pathology [16,21,22].

HYPOTHYREOSIS

Etiology and occurrence frequency

In case of hypothyreosis, the thyroid gland produces a level of hormones insufficient for the metabolic needs of an organism.

Some of the reasons of this state are:

- Chronic autoimmune thyroid inflammation (Hashimoto's disease). In course of his pathology of the thyroid there occurs an indoloros, chronic inflammatory state, that persists for a longer period of time (years). A chronic inflammatory state leads to thyroid gland pulp degradation, which is followed by a decrease of hormones secreted.
- Total thyroidectomy, for ex. In case of a nodular goiter, Graves-Basedov's disease or thyroid cancer. The thyroid gland extraction leads to a permanent hypothyreosis. In case of one lobe's extraction, the level of hypothyreosis would depend on course of the operation. The treatment with the use of radioactive iodine (usually ^{131}I) of pathologic states, such as: the Graves-Basedov's disease or a nodular hyperfunctional goiter.
- Subacute, postpartum thyroiditis.
- Secondary hypothyroidism in case of a hypophysis hypofunction.

- Postmedicamentos one occurred as a result of iodine-containing medicine. Some of pharmacological substances are: antyarythmic medicine- Amiodaron, iodine contrast substances.

The thyroid gland hypofunction is more frequently detected in the female population et (5 women vs. 1% men). Patients older than 60 ys.. become ill with his pathology more often than young people.

Syndroms

The main symptoms of thyroid gland hypofunction are: the feeling of coldness, tiredness and sleeplessness, and also weight decrease, memory deregulations, that could be followed by depression states. The other symptoms are chronic constipations, skin coating dryness, and menstrual deregulations (sterility).

In blood laboratory analyses an increased level of cholesterol or anemia may be observed.

The above-mentioned symptoms may be manifested by a different decrease level, beginning from a mild state (often even with no evident symptoms) to a serious condition (that leads to cardiovascular diseases or coma).

The diagnostics is bases on the laboratory TSH and fT4 hormonal examination. In case of an increased TSH level with fT4 concentration level increase established At the same time, the primary hypothyreosis should be diagnosed. After the diagnosis being established based on laboratory analyses, the ultrasonography examination of the thyroid gland Gould be an absolutely necessary examination.

Clinical picture

The treatment consists of a persisting levothyroxine administration and the periodic laboratory examinations. In cases such as postpartum thyroiditis, postmedicamentos hypothyreosis there may occur a recovery without the disease being actually treated, and the hypothyreosis may dissipate.

GRAVES-BASEDOV'S DISEASE

Grave-Basedov's disease is the most frequently occurring autoimmune pathology of the thyroid gland. The main symptom of it is the increase of the thyroid gland size together with the manifestation of the vascular murmur, ophtalmopathy – bulging eyeballs, dermopathy – antecruris edem, and also thyroid function deregulations. It occurs as a result of the presence of autoimmune globulins that activate or inhibit thyroid gland's function, thyroid growth, and block the TSH receptor. In the clinical picture there is probably a hypertireosis, a hypothyreosis or a normalized thyroid function. An increase of the thyroid gland's size may also occur. There

are three absolutely necessary factors in diagnostics of the pathology: the environmental, the genetic and the internal of the thyroid one. Among the first symptoms of the pathology are the hyperthyreosis with a goiter, then ophftalmopathy, after that comes dermopathy and acropachy. The typical manifestations of the disease are: the nodules, the orbitopathy and tachycardia. In about 70% patients a nodule of pulpy character is being established, it is a thyroid gland growth without local changes in the organ, that is characterized by a significant vascularization. However, the newest examinations show a more often possibility of the local changes manifestation in the thyroid gland. There can be an adenoma or a malignant tumor that Leeds an accurate examination. The mild character oftalmopathy refers to more than 90% of patients, the malignant one only to 2 – 3 %. Dermopathy is diagnosed in 0.5 – 4.3% of patients having hyperthyreosis and in just 15% of patients with a significant eye bulging. Akropachy consists o fan edem of fingers or sometimes toes, that is induced by the conjunctive tissue proliferation, accompanied by the subperiosteal bone compact substance growth. This is a very rare, but a characteristic picture of Graves-Basedov's disease. It is an autoimmune disease with hyperthyreosis, having a possibility of an independent remission and with a sporadic transformation of hyperthyreosis into a hypothyreosis with the thyreoiditis symptomatic. W obrazie scyntygraficznym tarczycy występuje równomierny rozkład znacznika. The escapement is significantly increased, and the metabolism is fastened. This state is characterized by an accumulation of the marker in the thyroid gland. There may be visualized some single cold nodule in the thyroid. Usually the pyramidal lamina is also Visual [2,16,23,24,25,26].

MULTINODULAR GOITER

Multinodular goiter are called the Plummer's disease, characterized by single autonomic nodule. In the scyntigraphy picture there is a multinodular marker escapement. The escapement however is lower than the one in the Gravesa-Basedov's disease. A multinodular goiter symptoms are also similar to the ones in the Gravesa-Basedowa's disease. There are also connected with the effect of hyper production oh T3 i T4 on the organism. There is no ventricular murmur neither orbitopathy. The thyroid size can vary depending on the nodules. In case of big nodules the thyroid may come through a deformation process. The onset of the disease may pass unnoticed, but with time there may occur the following symptoms: nervousness, loss of weight, sensibility, febrility sense, heat feeling, hand tremor, constipation, increased sweatiness and menstrual deregulations. Sometimes cardiac rhythm deregulations and muscular strength decrease may also occur, determining the hormonal nodules activity. It can also be accompanied by the neighbor organs pressing such as trachea and esophagus. Also

a retrosternal node may be present, or there may be an impaired superior vein cava outflow [2,16,23-7].

SIMPLE GOITER

The third place according to the occurrence frequency of hyperthyreosis is autonomous simple goiter (Goetsch's disease). In its clinical Picture we can observe the presence of single thyroid nodes. The symptoms may be characterized by an oligosymptomatic hyperthyreosis that may be transformed into a serious hyperthyreosis condition. Clinical symptoms of a uninodule goiter are similar to the Gravesa-Basedov's disease manifestations and also to to the one of the Plummer's disease. In a subjective examination no presence of ventricular murmur or of an orbitopathy is being detected [16,23-26,28]. In case of an accompanied pathology presence, such as Goetsch's disease or Gravesa-Basedov's disease, such oncological unit is called Marine-Lenharta syndrome, that is a very rare condition.

ACUTE INFECTIOUS THYREOSIS

The acute infectious thyreosis is a bacterial, acute inflammatory disease of the thyroid gland. Among the pathogens inducing this disease there are Streptococcus pyogenes, Streptococcus pneumoniae, Escherichia coli, Pseudomonas aeruginosa, Salmonella typhi and the oral cavity's anaerobes. Those pathogens reach the thyroid gland through the blood or lymph.

That disease occurs very rarely, mostly in children and young people population. Some of the main symptoms are the thyroid ache, swallowing difficulties, fever, chills. The skin tissue of the thyroid gland often go through reddening. The local lymphatic ganglia increase in its size, sometimes an abscess a may be formed. The examination enabling the differentiation between the infectious bacterial thyroiditis and the post-radioiodine treatment thyroiditis is the blood OB and CRP parameters analyses. In case of an acute bacterial thyroiditis the thyroid go through its position changing. In the thyroid biopsy made by the USG control, we find an image of abscess exudate. A correct step would be the treatment of the bacterial thyroiditis. The first choice medicine are antibiotics and antifebrile ones. The treatment of a patient with acute bacterial inflammation of the thyroid need a hospitalization. The abscess formed needs a drainage. In case all the treatment methods fail, the extraction of the whole thyroid or of a part of it must be performed.

RARE REASONS OF HYPERTHYREOSIS

Among the most frequently described reasons of hyperthyreosis are the previously discussed Gravesa-Basedov's disease, multinodular goiter – Plummer's disease, and the simple

goiter –Goetsch's disease. Among the rarely occurring diseases can be named: the subacute thyroid inflammation - de Quervain's disease, the postpartum autoimmunologic thyroiditis, rarely indolor autoimmune thyroiditis, chronic autoimmune thyroiditis –Hashimoto's disease, TSH hormone increased secretion through the hypothalamic-hypophysic nodes,Jod-Basedov's disease, an increases thyreotrop factor secretion through the trophoblast nodes, thyroid cancer and also the intoxications resulted from thyroid hormones excessive administration [12,16,25,28, 31-36].

Summary

The thyroid gland pathologies in our country occurs frequently. Being non-diagnosed, as well as insufficiently treated, it may lead to many dangerous for the patients complications. Thanks to the modern imagistic techniques (especially to ultrasonography and isotopic examinations) a praecox pathologic modifications' detection and an adequate therapeutic treatment are possible.

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Imagistic methods' review in thyroid gland diagnostics

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Introduction

The thyroid gland consists of two lobes connected by the isthmus. It is an unpaired gland of exocrine secretion, which is regulated by the centers of control such as hypophysis and hypothalamus. The thyroid produces and eliminates into the blood the following hormones: thyroxin and triiodothyronine. In all the periods of human life thyroid hormones are responsible for the normal functioning and the development of the organism. In a healthy human the normal level of blood hormones is regulated by the thyrotrophin. The mechanism of keeping a normal hormone level is called negative feedback. The most common causes of hyperthyreosis are: Graves-Basedow disease, multitumoral and unitumoral goiter. The diagnostics of hyperthyreosis implicates biochemical examinations appreciating the thyreometabolic state of the gland, and also imagistic examinations such as the USG and the scintygraphic examinations with the use of different radioisotopes.

Imagistical examination of the thyroid gland

The thyroid iodine uptake

The Basic examination method that uses radioisotopes is the examination of the thyroid iodine uptake. Initially the basement of the examination was marking the quantity of ^{131}I captured by the thyroid gland. It is a quantity scintygraphic examination. In the aim of performing the examination the radioiod. In the form of natrium iodide is applied to the patient. The activity of natrium iodide given in a capsule is oscillated between 185 and 370 kBq. The first stage of the examination is the radioactivity measurement of the capsules' number. Next the gland radioactivity is measured (count measurement) after 6, 24 and 48 h. It is made from above the thyroid gland. The iodine uptake of the thyroid is the relation from over the thyroid to the capsules' count, taking into consideration the ^{131}I decay time. The iodine uptake of the thyroid is estimated in percents. The indications for the examination are close to the indications for scintygraphic thyroid examination. Some risk factors that may influence the iodine uptake

results are the supply of iodine on the territory, the diet kept, and also the medicine used. Before the examination the detailed interview with the patient has to be performed. It refers particularly to the recently performed examinations (i.e. angiographic examinations and tomographic examinations with contrast containing iodine) and also the medicine taken (such as Amiodaron), than can considerably decrease the iodine uptake f the thyroid gland [1-4].

Ultrasonography examination of the thyroid gland

The ultrasonography examination (USG) nowadays has the fundamental role in thyroid diagnostics. Among the main advantages of this examination are the comparatively easy access, the easiness of performing, the repeating and also the absence of risk of the ion radiation expose for the patient. Ultrasonography examination is featured by a great sensitivity, the possibility of examination performing near the patient's bad, and the possibility of a fast examination results achievement. Another advantage of this examination method is the possibility of getting the morphological picture at the real time. [1-10]. The thyroid examination is performed by the use of linear transducers of a high resolution and frequency. The choice of the wide bandwidth transducers of 5 – 14 MHz is highly recommended. Mostly commonly the transducers of 7.5 MHz frequency are used. The length of the transducer's forehead shouldn't be less then 4 cm. The transducer must de able to work In the Doppler Color technique and Power Doppler. During USG examination a set of transverse image is being performed. The thyroid isthmus is being imaged only in transverse scans. During the examination the measurements of the width, length and the thickness of both thyroid lobs and the isthmus should be made. Besides that the localization and the echogenicity of the organ should be appreciated. In case of a pathology the presence and the sort of the calcification (micro-, macrocalcification), the local changes morphology, the echogenicity (hipo-, hyper- , normoechogenic, o mixed changes) and the changes' border, the blood vessels' model (Color Doppler, Power Doppler) should be made. Regional lymphatic nodes are also supposed to being evaluated [1,5,8,11]. It is thought that the measurement in the model cross-section, both transverse and oblique USG examination, gives the most accurate values and the possibility of he repeated results [12].

In normal conditions thyroid gland shows a homogenous and clear character of the echo. It is definitely distinguished on the surrounding tissues' background. The thyroid echogenicity depends on the intensity of the acoustic signal. The acoustic signal comes from the superior boarding surfaces of the specific centers having different acoustic resistance. [5, 11]. Among the new ultrasonography methods the more and more important meaning goes to electrography. That examination consists of the appreciation of the elasticity/thickness of the local change

compared with the surrounded tissues. The thickness is being represented in the color scale, which shows the tissue's deformation ability influenced by the external pressure intensity. In the result, after the computer processing the image In the color scale from blue to red is being get [8,10]. Assuming the role of ultrasonography in the thyroid gland imaging, besides the appreciation of the thyroid volume and the local pathology changes finding, we have to pay attention to the use of this method during fine needle aspiration (FNA). USG enables an accurate control of the fine biopsy needle localization [1,8,10,13,14] In some cases of thyrotoxicosis USG together with Doppler examination makes the examination far more easier [1]. This is the method enabling to increase the detection of thyroid cancer, and also the post-surgery local recurrence of cancer [15].

Scintygraphic thyroid examination

Scintygraphy examination is a method serving for morphological and functional thyroid evaluation (directly). Scintygraphy makes possible the evaluation of the thyroid tissue localization, and the radioisotope's size, shape and distribution in the thyroid pulp [1,2,15, 17].

The gammacammera structure

For thyroid examination the gamma camera is used. That apparatus is built from single elements, such as: collimator, scintillation crystal, photomultipliers, electronic and computer system. The collimator is also called the lead shield. It consists of the lead sheets with parallel holes. The collimator's function is to limit the radiation that reaches the transductor, to the parallel quanta going in the same direction. Thanks to that limitation the radiation reaches the image detector being scattered. Depending on the kind of the radioisotope used (radiation energy) and the image resolution, an adequate collimator should be chosen. We distinguish collimators of low energy, which are used in case of having radioisotopes emitting 140-180 keV radiation, and also collimators of high energy, used for 200-400 keV energy radioisotopes. We can also distinguish high-resolution and low-resolution collimators. The choice is based on the adequate matching the radioactivity given to the patent and the conditions of the examination. The next element of the gamma camera, which lies behind the collimator, is the scintillation crystal. This is a natrium iodide crystal activated by the thallium. The scintillation process is being achieved in the result of the reaction between γ radiation and crystal atoms. It is a transformation of gamma radiation into the flash of light, which is called a photoelectric reaction. After that the flash of light is converted in the photomultiplier into an electric impulse. The electronic system enables the scintillation and the radiation energy localization detection. Registration of the single scintillations, the computer system processes and analyzes the data,

enabling the scintigraphic image creation. In the gamma cameras' structure different constructional solutions where applied. We can distinguish apparatus', in which the table remains stationary, as the transductor mows along its side or in the opposite direction. Gamma cameras may have a different quantity of transductors: one, two or three, the fact that enables a significant decrease of time estimated for the thyroid gland scintygraphy examination [2,6].

Radiopharmaceutics used in thyroid gland scintygraphy

A radiopharmaceutical is a chemical substance, which found its application in the aim of diagnostics and treatment [2,6]. A radiopharmaceutical contains a radioisotope, that marks his chemical connection, enabling in his way its transformations' in the organism tracking by registration of the radiation emitted by it. A non-radioactive chemical connection decides of the way the particle (radioisotope + chemical connection) would behave in the organism, by which it is gathered, what chemical processes it's collecting grade would depend on and which of the examined organ's function will be revealed during the examination [2,6].

Nadtechnecian of natrium - NaO_4 ^{99m}Tc

His radiopharmaceutical is actually the most frequently used one. The main difference between atrium technetium and the radioisotopes of atrium is the fact that NaO_4-^{99m}Tc is based only on the capturing performed by the follicular cells, while it doesn't go through next transformations, as iodine does. Atrium technician emits radiation gamma. The source of that radioisotope is the commonly available in the majority of nuclear medicine institutions molybdenum – technetium $^{99}Mo/^{99m}Tc$ generator. The half NaO_4-^{99m}Tc decay time is 6 hours, the radiation energy is 140 keV. Its effective dose factor taken to an activity unit makes 1,3x10 -2 mSv/MBq. The dose necessary for performing the thyroid scintygraphy examination makes about 75-150 MBq. The examination is performed in 20 minutes from the intravenous radiopharmaceutical application [1,2,17].

Natrium iodine – Na-^{131}I

Atrium iodine is a radiopharmaceutic administrated orally or intravenous. Considering the extra-radiation gamma emission and the beta radiation, it is used in diagnostics only in particular cases (retrosternal goiter, thyroid ectopy). The Na-^{131}I half-decay time is estimated to be 8 days. That connection has a comparatively high radiation energy: γ – 364 keV, β – 610 keV. Its radiation quantity effective dose that is attributed to a unit activity is 24 mSv/MBq. The dose needed for a thyroid scintygraphy diagnostics to be performer estimates 4 MBq. The exploration is made in 24 and in 48 hours, measuring at the same time the iodine radioisotope uptake through the thyroid (iodine uptake). The disadvantages of a radiopharmaceutical are: the

long-lasting period of half-decay, the increased radiation gamma energy and the beta radiation emission. An iodine radioisotope goes through the processes of thyroid hormones synthesis. In case of a retrosternal crop a high energy comes to be useful [1,2,17].

Thyroid scintygraphy diagnostic procedures

Thyroid diagnostics uses a gamma camera. Depending on the radioisotope used, the x-ray window f a 20% width, is being set for an adequate energy. It is recommended to use the pin-hol type collimator, which enables the image scaling. Initially a scintigram is made, the collimator being set on a length of 6 cm from the patient's neck. It is made in the aim of the thyroid size estimation. Next a scintygraphy enabling the detection of abnormalities of the thyroid distribution marker is being performed. The collimator must have such a localization, that the thyroid image would take 75 % monitor's image. A standard projection, in which a scintigram is made is the AP projection. It is also recommended to perform the diagnostics in other projections: LAO-45^0 and RAO-45^0. The obtained scintygraphy image is characterised by a rather low resolution enabling the focals or nodular changes visualization, that have the diameter of approximately 1 cm with an adequate difference of the radiopharmaceutical's accumulation between the focal and the rest of the thyroid tissue. The thyroid volume measurements that are made on basement the scintigram may be subjected to a significant mistake considering the projection distortion that results from the respiratory mobility [2,18,19].

The normal thyroid scintigraphic image

A homogenous radioactivity decay in the thyroid lobe should be equally distributed. The size of each lobe must be the following: 5 cm length, 2 cm width. A slight asymmetry of the both lobes is also established. The right lobe is usually a bit bigger than the left one. A part of the patients examined present the visualization of the third lobe – pyramidal. The thyroid scintygraphic image reflects the anatomical image of it. Rarely a radiopharmaceutical's presence can be established only in one of the lobes, or the capturing absence may be established in the both lobes. It can tell us about a congenital thyroid lobe atrophy, retrosternal position of the gland near the tongue's basement, called the sublingual thyroid [1,2]. A pathological accumulation of an isotope in a thyroid view should be understood as a presence of regions called the nodules. The following nodules can be distinguished: cold, cold, warm and hot. The radioactive iodine isn't captured by the cold-cold nodules. However, cold nodules capture it in a lower degree than the surrounding pulp. Warm nodules capture the marker in the same way

as the healthy thyroid does. But the hot nodules capture iodine in a significantly higher stage than the remained healthy thyroid does [20].

Contraindications for the diagnostics

An absolute contraindication for thyroid scintygraphic diagnostics is pregnancy. There is a possibility of performing the diagnostics in breast-feeding women. Anyway there is a need of making a break in breast-feeding, and the break soul take normally: 12 hours after ^{99m}Tc radiopharmaceutical use, immediately after the diagnostics with ^{123}I – 2 days. There is a need of breaking the breast-feeding before a planned examination in order to protect mammary glands from the β radiation, emitted by the isotope ^{131}I, during the lactation period. There are no contraindications for pregnancy preventing after the isotopic thyroid examination. Application of 80 MBq and more of ^{131}I during thyroid cancer examination and the radioiodine treatment because of hyperthyroidism is a contraindication for pregnancy during a six-months period [17,21].

Diagnostics particularities in children

In case of patients younger than 16th year of life, during the radioisotope administration the age and the weight should be taken into consideration. There were published conversional tables used for the radiopharmaceutical's activity designation in children of a particular weight. In case of diagnostics planning in children there is a need to pay a special attention to the previously performer procedures, in which ionization radiation was used. Children are in a higher degree than the adults expose to the radiation during the diagnostics. In a young organism the number of the dividing cells is significantly higher than it is in an adult, and also it is sensitive to small radiation doses. Children may develop adverse reactions resulting from small doses of radiation, taking into consideration a longer life-time. An important aspect is to use the lowest possible dose that would make the normal image creating during a diagnostic examination of children [1].

Radiologic protection used in scintygraphic thyroid examination

The actual rule in radiologic protection is the ALARA rule (As Low As Reasonably Achievable). The work with radiation-emitting sources must be organized in the way to limit the radiation risk to minimum. Radiology protection rules observance enables a decrease of the ionized radiation effects that influence both the patient and the medical personal. The dose used for the diagnostics must not be too high, and as well not too low, because then the diagnostics will not bring the expecting diagnostic results and would be necessary to be repeated, once again exposing the patent to the harmful radiation effect [2,6]. Whether it is possible, the

radiopharmaceutical's accumulation should be limited in the organs that are not being examined (i.e. Organic iodine (^{123}I) blocking of the thyroid in case of suprarenal nodules). The time of the radioisotope's activity must also be reduced to the minimum. With the help of an adequate hydratation we contribute to a faster elimination of the radiopharmaceutical from the organism through the urinary tract (the time of half-delay of the radiopharmaceutic will be shortened) [6]. The dose that will be got by the examined person depends on: the radioisotope's delay in the organism, radiation energy, activity and half-delay time. Every examination with the use of a radiopharmaceutical must be justified. The selection of an adequate dose is a fundamental element. We must carefully choose the adequate radiopharmaceutic, using the one with the lowest radiation energy. All the procedures must be performed according to the norms that have been adopted. If there is such a possibility, we hale to influence the decay of the radiopharmaceutical in the organism. It can be made by administrating of particular medicine, that would block the radiotracers' escapement in the organs, that actually are neither being examined nor treated, and by an adequate hydratation of the patient [1,2]. We should also remember abort medical personal's radiologic protection, respecting the rules mentioned below. Everywhere it is possible, there is a need to use the cover before the radiation expose. Syringes and vials must be located in plumber containers used specially for that purpose. Preparing the radiopharmaceuticals there is an absolute indication to use protective aprons and gloves. All the works linked to that must be performed only in isotopic rooms or other places used for that, that are supposed to an adequate observing control made by an inspector. Those rooms must have an adequate set of instruments, both dosimeter and protective. All the works performed on radiation-emitting sources have to correspond the actual rules. Only the people who have passed an adequate qualification course, have no medical contraindications and received the radiologic protection inspector's permission, are allowed to working with radioemitting sources. A temporary radiologic control, that includes dosage calculating, pollution level at working place, environmental pollution, and also individual pollution, i san important element. All the pollutions and deregulations established have to be liqidated immidiately, according to the basements named by the radiologic protection inspector. The people, that were exposed to a pollution or a radiation at a level higher than the normal one, have to be immediately examined, and exposed to further treatment if necessary. All the substances, such as radiation sources and waste, should be kept in special storehouses meant for that and must be an evidence subject [1,2,6].

Other imagistical examination used in thyroid diagnostics

Actual medical knowledge also enables imagistic thyroid examination using the following methods: SPECT (single photon emission computed tomography) - CT (computed tomography), MRI (magnetic resonance imaging), PET (positron emission tomography) [8, 19,22,23]. Indications for CT and MRI diagnostics are: extra-thyroid anti-tumor proliferation, the tumor's evaluation, thyroid gland evaluation performed in a place inaccessible for ultrasound, for ex. The evaluation after a thyroid cancer rejection or a retrosternal goiter. In many cases during such examinations performing for other reasons the specialists detect changes in the thyroid [8]. CT of the Neck must be planned before and after surgery. Using iodine contrasts in the aim of improving the image quality may led do a fundamental decrease of the iodine uptake of the thyroid tissue, that in further consequence disables a supplementary treatment with radioiodine and the diagnostics for the next 6 months. If there is no possibility to exclude the diagnostics using radioiodine or such sort of treatment, this examination shouldn't be performed. CT without the use of contrast sources has a lower diagnostic value [24,25]. The CT examination's value is used in course of laryngeal and tracheal invasion evaluation, and also in metastasis' localization in lungs and bones [8, 22]. The advantages of CT examination comparing with MRI are: the sorter examination time, and also the possibility to guide the bioptical needle to the tumors, which are inaccessible in an ultrasonography examination. The disadvantages of the method are: the expose to radiation, the lack of possibility to use the contrast substance in all the cases, and the imaging being created in one abundance [8]. During the appreciation of near-by tissues' invasion by a malignant tumor, the most fundamental role plays the MRI examination of the neck [25]. It accurately shows the borders of tissues, having small contrast substance differences [26]. Positron emission tomography is a valuable diagnostic instrument enabling the localization and the evaluation of the malignant tumors' stage. Compared to CT and MR, PET examination is characterized by a lower resolution but At the same time a very precise cellular metabolism evaluation, that enables a better evaluation of the thyroid function. It also gives some fundamental indicators in the ambiguous changes' analysis, particularly during each examination. The SPECT examination enables the organ's imaging by the radiopharmaceutical's placement in the particular layers of the organ examined. The appreciation of the gland's volume consists of the registration of a rotation series, and its further reconstruction made by the help of an adequate computer program. The modern connection of PET and SPECT techniques with the computer tomography (PET/CT and SPECT/CT) give the chance for an accurate appreciation of the anatomy localization, thanks to what it became possible to precisely localize the lymphatic

nodules implicated in the pathology [1,8,27,28,29]. Another examination method used in the thyroid diagnostics is thermography. It enables the detection of non-echogen zones. It results from the metabolic differentiation of the particular zones. It enables the detection of inflammatory processe, malignant tumor changes and hot nodules. It is characterized by a low specification and is not used in everyday medical practice [8].

Summary

Diagnostic methods used in nuclear medicine give the possibility to answer many questions put by endocrinologists, oncologists and surgeons. Therefore those examinations, together with the radiologic ones, constitute the fundamental thyroid disease' examination methods.

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PROBLEMS OF SOCIAL MEDICINE

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Gender and the behavior and attitudes of youth associated with the risk of mental anorexia-type eating disorders

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Introduction

In the past years there has been a significant increase in the prevalence of eating disorders, which are serious medical and social problem [1,2]. One of them is anorexia nervosa that occurs in the world with an incidence of 0.5-1% among women and 0.05-0.1% among men. In Poland it affects from 0.8% to 1.8% of the population of girls under 18 years of age [3,4]. This illness almost always begins during puberty and usually occurs in girls unhappy with their appearance [5,6]. It occurs most often in persons aged 13-14 and 17-18 [3].

Mental anorexia was described as a separate syndrome consisting in body waiting, accompanied by a loss of appetite, constipation, loss of menstruation and lack of concern for one's health and life at the end of the 17th century. However, more extensive research into this disorder had not occurred until the late 19th and early 20th century. It is nowadays defined as a psychological eating disorder involving loss of appetite [7,9], which is associated with irrational fear of weight gain [10,11] and it affects mainly girls in their late and early third decade of life [12]. These disorders are characterized by deliberate weight loss, induced and sustained by the patient [13,14], with simultaneous impaired own body image and presence of occurrence of dysmorphophobia, i.e. anxiety associated with the conviction of unaesthetic appearance or structure of the body, as well as setting successive, ever lower limits of body weight [14]. Disorders usually begin with a seemingly harmless teenagers slimming, which unnoticed takes the clinical form of disorder with serious consequences [15]. Among the diagnostic criteria for anorexia nervosa by ICD - 10, listed are, among others 1) weight loss, and in children lack of weight gain leading to achieving body weight at least 15% below the normal or expected for a given age and height, 2) behavior aimed at weight loss is self-imposed by avoiding the "fattening food", 3) perceiving oneself as an obese person and the existence of the fear of weight gain disturbing proper nutrition, which leads to self-imposition of low body weight threshold [10].

Assumptions and aim of the study

The problem of eating disorders is often noticed too late, despite numerous symptoms and alarming behavior [16]. This may be due to the fact that malnutrition is much less publicized than obesity and is associated with the creation of a thin-ideal woman or man or identification of this condition with poverty [17]. The problem of anorexia is addressed more frequently in the media and publications, however, this does not translate into the public awareness of the risk factors and complications of this illness [2]. Yet, the consequences of this disease are serious. Mortality in patients with anorexia is as high as 10%, and the most common causes of death are somatic complications and suicide [18,19].

The aim of the study was therefore to evaluate behaviors and attitudes which may be related to the risk of mental anorexia development in the group of high school students, taking into account an analysis of their gender-dependent differentiation.

Material and methods

The studies were conducted in 2011 on students of Zespół Szkół Zawodowych *(Complex of Vocational Schools)* in Krościenko. The study group consisted of 100 persons (50 girls and 50 boys) aged 16-19. 16-years-olds slightly prevailed in this group, constituting 28% of the subjects, and most of the subjects, i.e. 61% were city residents. For the purposes of collecting the study material, diagnostic survey method and surveying technique were adopted. Questionnaire prepared by the author containing questions about risky behaviors and attitudes that may be associated with anorexia was used as a research tool. The material was analyzed statistically using a test analyzing the relationship between categorical variables - χ^2. Criterial value adopted for assessing the relevance of statistics was α=0.05. As statistically significant [SS] considered were those statistics the probability of which was lower than the criterial value - $p<0.05$.

Results

In the first place analyzed were data on self-acceptance as well as acceptance of one's appearance and weight. As indicated by the data presented in table below (no. 1), 40% of the subjects accept their figure, and significantly most of them are boys compared to girls (54% and 26% respectively; SS, $p<0.01$). 35% of youth expressed high level of aversion to their body shapes, and significantly most of them were girls (60% and 10% respectively; SS, $p<0.001$). 53% of the subjects have problems with perceiving oneself as an obese person, and the data distribution indicates that girls perceive themselves as such more often than boys (66% and 40% respectively). However, this difference was not statistically significant (NS, $p>0.05$),

Alarming is the fact that quite a large part of the surveyed youth, i.e. 54%, is afraid of gaining weight, and significantly most of them are girls (76% and 38% respectively; SS, $p<0.001$).

Table 1. Self-acceptance as well as acceptance of one's appearance and weight

Variable	Men		Women		Total		Chi-square test
	n	%	n	%	n	%	
Acceptance of one's figure							
yes	27	54%	13	26%	40	40%	$\chi^2=9.363$ p=0.01 SS
no	14	28%	17	34%	31	31%	
so-so	9	18%	20	40%	29	29%	
total	**50**	**100%**	**50**	**100%**	**100**	**100%**	
Aversion to one's body shape							
rather yes	3	6%	13	26%	16	16%	$\chi^2=31.81$ p<0.001 SS
definitely yes	2	4%	17	34%	19	19%	
definitely no	14	28%	12	24%	28	28%	
rather no	31	62%	8	16%	39	39%	
total	**50**	**100%**	**50**	**100%**	**100**	**100%**	
Perceiving oneself as an obese person							
definitely yes	11	22%	19	38%	30	30%	$\chi^2=6.818$ p=0.078 NS
rather yes	9	18%	14	28%	23	23%	
definitely no	9	18%	5	10%	14	14%	
rather no	21	42%	12	24%	33	33%	
total	**50**	**100%**	**50**	**100%**	**100**	**100%**	
Fear of gaining weight							
definitely yes	7	14%	21	42%	28	28%	$\chi^2=24.386$ p<0.001 SS
rather yes	9	18%	17	34%	26	26%	
rather no	18	36%	11	22%	29	29%	
definitely no	16	32%	1	2%	17	17%	
total	**50**	**100%**	**50**	**100%**	**100**	**100%**	
Feeling of lack of acceptance by peers in the event of gaining weight							
definitely yes	1	2%	11	22%	12	12%	$\chi^2=54.241$ p<0.001 SS
rather yes	0	0%	15	30%	15	15%	
rather no	1	2%	12	24%	13	13%	
definitely no	48	96%	12	24%	60	60%	
total	**50**	**100%**	**50**	**100%**	**100**	**100%**	
Acceptance of changes in the body							
yes	49	98%	19	38%	68	68%	$\chi^2=41.36$ p<0.001 SS
no	1	2%	31	62%	32	32%	
total	**50**	**100%**	**50**	**100%**	**100**	**100%**	

A little over a quarter of the total sample of high school students (27%) is also afraid of lack of acceptance by peers in the event of gaining weight. Data distribution indicates that this

problem affects significantly fewer boys than girls (2% and 52% respectively; SS, p<0.001). About 1/3 of the surveyed youth (32%) does not accept changes in the body taking place with time. Such an attitude is significantly more often frequently adopted by girls (32% and 2% respectively; SS, p<0.001). As indicated by the data contained in table no. 2, the surveyed young people try to control their figure and body weight in various ways.

Table 2. Self-control - of appearance and weight

Variable	Men		Women		Total		Chi-square test
	n	%	n	%	n	%	
Weighing							
every day	10	20%	21	42%	31	31%	χ^2=12.861 p<0.05 SS
every few days	11	22%	14	28%	25	25%	
once a week	8	16%	9	18%	17	17%	
less frequently than once a week	20	40%	6	12%	26	26%	
seldom	1	2%	0	0%	1	1%	
total	**50**	**100%**	**50**	**100%**	**100**	**100%**	
Viewing oneself in a mirror							
yes	22	44%	35	70%	57	57%	χ^2=11.922 p<0.01 SS
no	18	36%	4	8%	22	22%	
sometimes	10	20%	11	22%	21	21%	
total	**50**	**100%**	**50**	**100%**	**100**	**100%**	
Ever being on weight loss diets							
yes	8	16%	33	66%	41	41%	χ^2=25.837 p<0.001 SS
no	42	84%	17	34%	59	59%	
total	**50**	**100%**	**50**	**100%**	**100**	**100%**	
Being on a weight loss diet at the time of the study							
yes	2	4%	12	24%	14	14%	χ^2=8.306 p<0.01 SS
no	48	96%	38	76%	86	86%	
total	**50**	**100%**	**50**	**100%**	**100**	**100%**	
Methods of weight control - weight loss							
inducing vomiting	1	12.5%	4	12%	5	12%	χ^2=5.706 p=0.222 NS
laxatives	1	12.5%	1	3%	2	5%	
starvation diet	1	12.5%	3	9%	4	10%	
sports	4	50%	7	21%	11	27%	
dietary restrictions	1	12.5%	18	55%	19	46%	
other method	0	0%	0	0%	0	0%	
total	**8**	**100%**	**33**	**100%**	**41**	**100%**	

Almost 1/3 of the subjects (31%) weigh every day, and 78% of them check their body weight at least once a week. Girls tend to control their weight significantly more often than boys (SS, p<0.05). More than half of high school students (57) control their appearance by

examining themselves in the mirror, and again most of them are girls (SS, p<0.01). They try to maintain and control self-imposed body weight thresholds by using weight loss diets. As many as 41% of high school students have already taken such attempts in their lives, and significantly most of them were girls (SS, p<0.001). During the study, slightly less of them, namely 14% of the subjects, were on a diet (4% of boys and 24% of girls; SS, p<0.01). The subjects try to achieve their goals mainly through dietary restrictions (46%), inducing vomiting (12%), starvation diets (10%) and physical activity (27%). No statistically significant relationship was stated here, although data distribution indicated that boys often prefer physical activity (50% and 21% respectively), while girls prefer dietary restrictions (55% and 12.5%).

According to a quarter of the subjects, the decision to lose weight was taken under the influence of television programs. Women were significantly more susceptible to such influences (42% and 8% respectively; SS, p<0.001). Under the influence of television, especially advertisements, ½ of the surveyed young people bought products affecting figure and body weight, and again these were mostly girls (84% and 16% respectively; SS, p<0.001). Girls were buying mostly slimming pharmaceuticals (30%) and cosmetics (30%).

Table 3. The influence of television programs on making decisions

Variable	Men		Women		Total		Chi-square test
	n	%	n	%	n	%	
Decision on losing weight							
yes	4	8%	21	42%	25	25%	χ^2=15.413 p<0.001 SS
no	46	92%	29	58%	75	75%	
total	**50**	**100%**	**50**	**100%**	**100**	**100%**	
Purchase of slimming product							
pharmaceutical, e.g. tablets	1	2%	15	30%	16	16%	χ^2=48.025 p<0.001 SS
cosmetic	3	6%	15	30%	18	18%	
slimming underwear	2	4%	3	6%	5	5%	
sports slimming equipment	2	4%	9	18%	11	11%	
never bought	42	84%	8	16%	50	50%	
total	**50**	**100%**	**50**	**100%**	**100**	**100%**	

As indicated by the data contained in table no. 4, most of the subjects, i.e. 83% have a positive attitude to eating, which is associated with feeling of pleasure. However, 17% of high school students declare reluctance to eating, and most of them are girls, which was not, however, confirmed by the analysis using test χ^2 (NS, p<0.05).

Table 4. Subjects' attitude to eating

	Men		Women		Total		Chi-square test
	n	%	n	%	n	%	
positive	45	90%	38	76%	83	83%	χ^2=3.473 p=0.062 NS
negative	5	10%	12	24%	17	17%	
total	**50**	**100%**	**50**	**100%**	**100**	**100%**	

Among the values appreciated by the subjects (table no. 5), young people indicated mainly love (38%) and loving family (31%). Health was rarely indicated as a value, by only 6% of the subjects (NS, p>0.05).

Table 5. Values in the lives of the subjects

Value	Men		Women		Total		Chi-square test
	n	%	n	%	n	%	
friendship	2	4%	4	8%	6	6%	χ^2=4.83 p=0.566 NS
health	1	2%	5	10%	6	6%	
beauty	2	4%	1	2%	3	3%	
love	20	40%	18	36%	38	38%	
loving family	16	32%	15	30%	31	31%	
education	8	16%	5	10%	13	13%	
other	1	2%	2	4%	3	3%	
total	**50**	**100%**	**50**	**100%**	**100**	**100%**	

Discussion

The aim of the study was to evaluate behaviors and attitudes which may be related to the risk of mental anorexia development in the group of high school students. Adolescence is closely connected with the change of self-image, and it often involves dissatisfaction with one's appearance leading to risky health behaviors. In addition, adolescence is a period of increased risk of anorexia. In almost all the cases, this illness begins at puberty. It most often affects girls who are dissatisfied with their appearance, and who in order to lose weight introduce diets restricting food intake [5, 6].

One of the symptoms of mental anorexia is perceiving oneself as an obese person and the presence of fear of weight gain disrupting proper nutrition, which leads to imposing on oneself low threshold of body weight [10]. Analysis of the obtained data on self-acceptance, as well acceptance of one's appearance and weight among the subjects indicated that some young people show such attitudes, and they were significantly more often present in the group of surveyed girls. They involved lack of full acceptance of one's figure (74% of girls), aversion to one's body shape (60%), fear of gaining weight (76%), fear of lack of acceptance by peers in

the event of gaining weight (52%) and lack of acceptance of changes in the body taking place with time (32%) (SS, $p<0.05$). More than half of the subjects perceived themselves as obese persons, and again most of them were girls (66%), although this turned out not to be statistically significant (NS, $p>0.05$). Girls also stated aversion to food more often than boys.

Lack of self-acceptance and fear of weight gain triggers the mechanisms of control of one's figure and weight [10]. Signs of such a control were observed in the surveyed group of youth and related more often to the surveyed girls than boys. This control involved mainly everyday weighing (44%) and frequent viewing of oneself in the mirror (70%) ($p<0.01$). The subjects tried to maintain and control self-imposed body weight threshold by using weight loss diets (66% of girls have been on a diet in their lives and 24% were on a diet during the survey) (IS, $p<0.01$).

The research results obtained are consistent with the reports described in the scientific literature. As many as 60% of the studied USA female teenagers perceived themselves as obese, despite having normal body weight. Half of young people in developed countries is on a diet, and one in six uses strict diet. 40% of Australian female teenagers perceive themselves as fat, and therefore they do intense exercise, leave one meal a day, choose low-calorie and low carbon foods [20]. HBSC studies carried out in Poland in 2002 showed that the belief in the need of weight loss related to nearly half of young women [5]. A significant proportion of young people improperly nourishing and slimming themselves was also stated by Ziora et al. in their studies [21]. Gender as a factor modifying the behavior of young people in the context of eating disorders was indicated by, among others, Sepulveda et al. [22], who conducted studies on a group of 2,551 students. According to them, women are more likely than men to control body weight and to try to lose weight using low-calorie diets, laxatives or by provoking vomiting.

In the search for causes of taking actions by young people to control body weight, media are sometimes indicated as such [2]. In the concept of formation of health behaviors, they are mentioned as a determinant of the process of socialization, during which a young person acquires various skills [23]. As the studies have shown, some young people, especially girls (SS, $p<0.01$) are influenced in their decisions by TV commercials. One can try to explain the influence of the media on adopting certain behaviors by young people with the antecedents mechanism, i.e. signals or incentives for taking actions [23].

Shaping of lifestyle and health behaviors is associated with the elements of the family culture, among which the role of values determining our choices is stressed. This includes in particular the place of health in the hierarchy of values [23]. The subjects scored health as low as in 4th place. Low place of health in the hierarchy of values, as well as adopting risky

behaviors by the subjects can be linked to their age. A distant for young people prospect of disease may not constitute an argument to take care of health and health-promoting choices. Therefore, properly selected model of health education, oriented at the disease, not health, can play an important role in combating the threats.

Conclusions

1. The surveyed high-school students, especially girls, exhibit signs of negative behaviors and attitudes associated with their health, which may be related to the risk of mental anorexia.
2. Negative beliefs and attitudes are primarily associated with self-evaluation of one's appearance and excessive control of self-imposed body weight threshold, mainly by using restrictive weigh loss diets.
3. In combating eating disorders, it seems reasonable to direct to young people prevention programs based on the health-oriented education model.

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Social support and the locus of control of the health of elderly people

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Introduction

The notion of social support is still ambiguous and vague both in the content as well as its range account. It has been applied for ages in the context of situations of difficult problems, critical and so-called traumatic events [1].

Analysing the influence of the support on the medical condition one can distinguish the structural and quantitative attitude and qualitative and functional one. In the first approach one considers objective measures and analyses social network; according to PS. Berkman, the following dimensions of the network are analysed: density - area whose members creating the network entering into interactions with each other; size - the number of people online; symmetrical - reciprocity of interaction; geographical proximity - regards area members of the network they live in; homogeneity - dimensions, on which members of the network are similar to each other (age, sex, social class, faith); availability - easiness of contacting of members with each other [1-3].

Social contacts provide the stability along with positive experiences and strengthen the sense of one's life. Obtained support providing the feeling of closeness and understanding, strengthens general condition and the frame of mind of individual, sustaining his health irrespective of stress factors. The high level of received and gained support aids more effective dealing of the individual with problems [4,5].

Undoubtedly every individual receives support in the daily living, in the situation of constant relations and interaction with other people, but this support is particularly essential in the situation of the infirm, ailing elderly people. The elderly require diverse forms of social support [6].

Very crucial element of social support is subjective conviction of the individual is that he/she is liable to the care of his/her network, is respected, and the communication online is based on a principle of mutual obligation. In such circumstances support may play important role in maintaining the health of the elderly, protect him/her from illness and support processes of recovering [7]. For the medical condition of elderly people all public relations are priceless.

Looking at elderly people through the prism of their participation in social interactions online, it is a chance for showing the relation between the, psychological, and social physical health [8].

Both the scope and the quality of the provided support for elderly people or by this person to the others depends, how L. Berkman puts it, on supporting net elderly people have, but also from sources, possibilities of this supporting net. These network supplies are being started for elderly people in the problem situation or depending on needs and expectations. [9].

The research on the quality of life of elderly people shows that social relations, whole network of social relations - condition social support and better subjective sense of health, the psychological frame of mind, the self-assessment and the smaller risk of death. Studies on mortality predictors explicitly prove that lack of social relations, loneliness, the absence of family increase the risk of death directly or indirectly explicitly pointing to the lack of social support [10,11].

Social contacts have direct and indirect effect to the good functioning of elderly individuals [12].

Objectives

The aim of this study was researching the level and the network of social support and the locus of control of the health of elderly people - the students of University of the Third Age.

Materials and methods

The research was conducted in the period from April to July 2010 amongst students of University of the Third Age in the Lublin macroregion. Respondents were informed of full anonymity and the freedom of the involvement in the examination, questionnaire forms were handed out personally before and after classes.

762 individuals participated in the examination, 581 filled in sets of questionnaires were received (77 from them were rejected as incorrectly or partially filled in). After all 504 sets of questionnaires were analysed.

The age of respondents was included ranged from 54 to 85 years, with the mean 67.09, standard deviation 7.15.

For scientific purposes and statistical analysis examined population of elderly people were grouped according to classification of D. B. Bromley into group of up to 65 (time before the retirement) constituting I group and individuals above 65 years (the retirement pensioners and the senile age) forming the II group.

Amongst examined individuals the majority were women (85.1%) with men in minority (14.9%). In percentage terms women prevailed both in group I where (men- only a 10% , 90%

were women), as well as in the group II (the 81% of women, but only 19% of men). This relation was essential statistically (p = 0.005, V Cramer = 0.127).

In the examined population the majority were individuals living in matrimony - 46.6%. However amongst individuals above 65 of year of age individuals constituting the largest group were widowers (41.4%), however in the group of up to 65, individuals which lost the spouse constituted - 24.7%. 2 individuals cohabited, one each in every of analysed groups, constituting (0.4%) of the whole of the examined, however there were 5 individuals in the separation, constituting the 1.0% of the whole of the examined. These relations demonstrated character of statistically essential relations of a weak power (p = 0.007, V Cramer = 0.178).

The characteristics of the group was also made, taking into consideration the education of the examined. The University of the Third Age consists largely of respondents having higher education - 50.2% and secondary education - 45.8%. Only 3.2% examined had a vocational education.

The characteristics of the examined was also made on account of the domicile, 492 individuals (97.6%) lived in a city, 7 respondents (1.4%) indicated as the domicile - the settlement, and 5 (1.0%) were country dwellers.

In order to obtain the research material a method of the diagnostic survey was applied. The following standard research tools were used:

1. The Need of Support and Service Questionnaire (NSSQ) by J. S. Norbeck in the adaptation J. Kirenko. The questionnaire measures the network of social support and the intensity (level) of received support in its individual dimensions: emotions, affirmation and the help.
2. Multidimensional Health Locus of Control (MHLC) Scale by K. A. Wallston, B. S. Wallston, R. DeVellis in the adaptation of Juczyński containing 18 statements and is including beliefs examined, determining feeling the locus of control enables the health in three dimensions:
   - internal - showing that the control over the own health depends on me;
   - influence other - dimension showing that the own health is an influence of others, of especially medical staff
   - coincidence- coincidence or other extrinsic factors decide on the medical condition

Author's questionnaire consisting of 41 questions was used. These questions concerned demographic data and the self-assessment of the medical condition of the examined. The obtained research material was subjected to a statistical analysis with the help of Statistica programs in version 9 and SPSS Statistics IBM in version 19. The selection of statistical methods resulted from the type of data which were in questionnaire forms. To identify

distinctions and dependences between variables t-Student test, Pearson coefficient of correlation and Spearman's coefficient of correlation were used.

The study accepted a 5% as the non sequitur and p materiality level associated with it <0,05 pointing to the existence of statistically significant differences or relations. Substantiality level was designated as "*".

If a received result was accepted with the p probability < 0.05 differences were regarded significant and they marked "*". If it took place with the p probability < 0.01 differences were regarded more significant and they marked "* *". However, if p < 0.001 differences were highly substantial and they were indicated "* * *".

Results

The age of respondents was included ranged from 54 to 85 years. For scientific purposes and statistical analysis examined population of elderly people were grouped according to classification of D. B. Bromley into group of up to 65 (time before the retirement) constituting I group and individuals above 65 years (the retirement pensioners and the senile age) forming the II group.

Amongst examined individuals the majority were women (85.1%) with men in minority (14.9%). In percentage terms women prevailed both in group I where (men- only a 10% , 90% were women), as well as in the group II (the 81% of women, but only 19% of men). This relation was essential statistically (p = 0.005, V Cramer = 0.127).

In the examined population the majority were individuals living in matrimony - 46.6% (in group I - 53.2%, in group II - 41.0%). However amongst individuals above 65 of year of age individuals constituting the largest group were widowers (41.4%), however in the group of up to 65, individuals which lost the spouse constituted - 24.7%. 2 individuals cohabited, one each in every of analysed groups, constituting (0.4%) of the whole of the examined, however there were 5 individuals in the separation, constituting the 1.0% of the whole of the examined. These relations demonstrated character of statistically essential relations of a weak power (p = 0.007, V Cramer = 0.178).

The characteristics of the group was also made, taking into consideration the education of the examined. The University of the Third Age consists largely of respondents having higher education - 50.2% (group I - 48.1%, group II - 52.9%) and secondary education- 45.8% (group I - 47.2%, group II - 44.7%). Only a 3.2% examined had a vocational education (group I - 3.9%, group II - 2.6%).

The characteristics of the examined was also made on account of the domicile, 492 individuals (97.6%) lived in a city, 7 respondents (1.4%) indicated as the domicile - the settlement, and 5 (1.0%) were country dwellers.

Group diversity at the examined individuals was described on account of the age and determined with the t-Student test for independent data (Table I).

Table I. Age and the locus of control of the health of elderly people

Dimension of health	**group I (up to 65 year of life)**		**group II (above 65 year of life)**		**t-Student test**	
	M	**SD**	**M**	**SD**	**t**	**P**
Internal	22.38	4.83	26.00	5.47	1.36	0.005*
Influence of others	21.23	5.50	25.68	5.42	1.13	0.003*
Coincidence	21.68	4.98	21.11	5.07	1.27	0.203

*p< 0,05; ~ close to statistical significance

Basing on statistical analyses conducted one should state that there exist statistically essential differences in the locus of control of the health at both examined groups both in the dimension of the internal locus of control of the health and in the dimension announcing the influence of others to the health of the examined individuals. However substantial differences weren't stated statistically in the dimension of the random locus of control of the health amongst the examined.

According to the obtained results of the persons from group II in indeed large degree they are indicating, distinguishing to group I, internal dimension of locus of control of the health, that is considerably more often that the control over health depending on subjects alone.

As a result of conducted analyses (Table II) one should stat that the level of social support received by students the University of the Third Age from the group I differs indeed statistically from the level of support for group II. According to the received results, individuals of up to 65 are characterised by the highest level of social support in its all dimensions of the support (emotional, affirmation and practical), differences are on the significant statistically level which signifies that the examined of up to 65 of year of age will both sustain bigger feeling of social support, as well as strong declare its need.

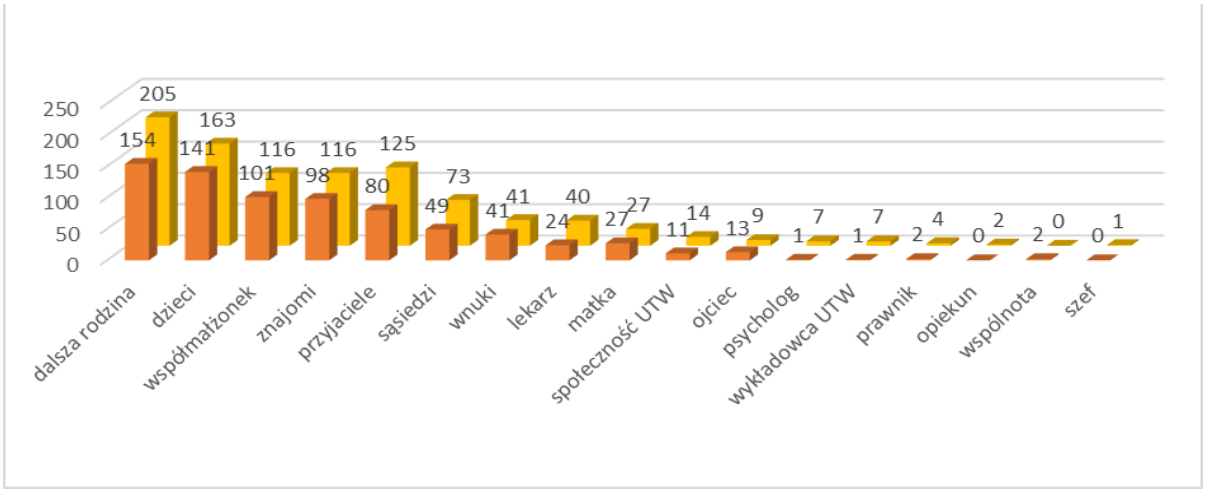
Table II. The results of the social support of subjects from group I and group II

	group I		group II		t-Student test	
	M	**SD**	**M**	**SD**	**t**	**P**
EMOTIONAL SUPPORT	49.80	28.94	42.42	25.77	3.03	0.003*
AFFIRMATIVE SUPPORT	51.61	29.51	43.49	26.89	3.23	0.001*
PRACTICAL SUPPORT	46.87	27.03	38.88	24.05	3.51	0.000*
Functional sum	148.27	82.84	124.78	74.17	3.36	0.001*
Question 7 The time of acquaintance	32.66	18.07	27.71	16.40	3.22	0.001*
Question 8 Frequency of contacts	25.52	13.72	21.54	12.47	3.41	0.001*

They are also characterised by a bigger feeling of certainty as for the fact that they are granted with trust from their network of support, in the matter of abilities and competences necessary in taking action. In comparing to individuals above 65 they also considerably receive the highest level of the practical support, in the financial or functional help. The meaningful difference was noticeable also with reference to variables of the duration of the acquaintance with supporting individuals (question 7) and frequencies of relations held with them (question 8) - Table II.

Important individuals, in the opinion of the examined seniors to 65 as well as those above 65, belong: distant relations, children, the spouse or the domestic partner, acquaintances, friends and later neighbours, grandsons. Smaller support is offered by clergymen, community of the University of the Third Age, psychologist/psychotherapist, academic teachers, lawyers. However the carer, community and the boss have the smallest participation in online support, not exceeding the value of 1% (Figure. 1)

Amongst respondents from groups I and II distinguished on account of the age there exists statistically essential strong correlation between the internal locus of control of the health and the indicator of the affirmation support ($p < 0.01$; r Pearson = 0.49; r Pearson = 0.45). Additionally from group II, a statistical relation is characterizing examined individuals between the internal locus of control of the health and the emotional support ($p < 0.01$; r Pearson = 0.49). Along with increasing support of the examined above 65 year of age in their taken actions, competences, ability and growing with feeling of approval and the admiration, there raises the conviction of seniors that their health depends only on them .



further family, children, spouse, acquaintances, friends, neighbours, grandchildren, doctor, mother, the community of UTA, lawyer, carer, community, boss

Fig. 1. Social support network of the examined with respect to their age

Next negative, but also statistically essential correlation, appears between the influence of others and the practical support ($p < 0.01$; r Pearson = -0.55). It results from this that along with falling intensity of support in the financial and functional help conviction of seniors that their health is under the influence of others, especially medical staffs grows. (Table III).

Table III. Correlation between the locus of control of the health of subjects from group I and II measured by MHLC and social support measured by NSSQ

Health Dimension	**EMOTIONAL SUPPORT**		**AFFIRMATIVE SUPPORT**		**PRACTICAL SUPPORT**		**GENERAL SUPPORT**	
	group I	**group II**	**group I**	**group II**	**group I**	**group II**	**group I**	**group II**
Internal	0.02	0.49**	0.49**	0.45**	0.05	0.04	-0.01	0.07
Influence of others	-0.01	-0.04	-0.02	-0.08	-0.55**	-0.08	-0.02	-0.07
Coincidence	0.04	-0.06	0.03	-0.10	0.08	-0.02	0.05	-0.07

Amongst chronically ill respondents belonging to group I, distinguished on account of the age, exists statistically essential negative correlation between the internal locus of control of the health, and the emotional support ($p < 0.01$; r Pearson = -0.44). Moderately strong and

essential correlations also occur between affirmation support and internal locus of control the health and among affirmation support and the influence of others ($p < 0.01$; r Pearson = 0.54; r Pearson = 0.36). Along with the increase of support of chronically ill individuals of up to 65 of year of age as for competence in taken actions, the ability, belief that their health depends not only on them grows, but also on other individuals, especially a medical staff.

Next a little bit weaker essential positive correlation occurs between practical support and the significance of the influence of others on the control of the health (r Pearson = 0.22 for $p < 0.05$). So along with falling intensity of support in the financial and functional help there decreases a belief amongst seniors being chronically ill of up to 65 of year of age that their health depends on having an influence from others, especially a medical staff.

Amongst chronically ill individuals belonging to II group distinguished on account of the age essential statistical relations take place as well ($p < 0.01$). They are moderately strong correlations pointing that that for intensifying support in the financial and functional help and intensity of the received emotional support (approval, admiration and happiness provided to seniors) there increases in them convincing about the internal control of the health and about the possible influence of others, for example a medical staff giving some hints. Individuals displaying the dominance of the internal control of the health are usually more independent in undertaking favourable behaviours for health, of course the more they are conscious, that their health to a large extent depends on them alone they more often abide by recommendations of health service employees (Table IV).

Table IV. Correlation between the locus of control of the health of subjects from group I and II of chronically ill measured by MHLC and social support measured by NSSQ

Health Dimension	**EMOTIONAL SUPPORT**		**AFFIRMATIVE SUPPORT**		**PRACTICAL SUPPORT**		**GENERAL SUPPORT**	
	group I	**group II**	**group I**	**group II**	**group I**	**group II**	**group I**	**group II**
Internal	-0.44**	0.39**	0.54**	0.11	-0.11	0.46**	-0.07	0.39**
Influence of others	0.06	0.30**	0.36**	0.36**	0.22*	0.03	0.04	0.37**
Coincidence	0.07	0.07	0.05	0.03	0.06	0.10	0.06	0.07

What's interesting, amongst individuals who are chronically ill and they belong to group I, completely different correlations between individual types of the public support and

dimensions of the locus of control of the health occur than amongst individuals belonging to the same age group, but not being chronically ill. In the recalled group because there occur essential and moderately strong correlations between the indicator of the emotional support, and the indicator of the internal locus of control of the health ($p < 0.01$; r Pearson = 0.39) and between the indicator of the practical support and the impact indicator of others in the locus of control of the health ($p < 0.01$; r Pearson = -0.49). So amongst seniors from group I not being ill chronically, growing intensity of emotional support (approval, admiration and happiness) lead to the decreasing belief of the examined that their health could be influenced by others.

Situation looks totally different if it is about correlations amongst respondents who aren't chronically ill, and belong to group II distinguished on account of the age. There exist in this group negative, essential statistically, moderately strong correlations between the assessment of the influence of others and with the dimension of the random locus of control of the health and all types of the public support (emotional, affirmation, practical, general). All recalled correlations are essential statistically achieving r Pearson values from -0.38 to -0.53 ($p < 0.01$). They point that along with the fall in intensity of the support in the financial and functional help, approval, competence and the ability grow, there grows a conviction about the influence of others on their health. It isn't a beneficial factor, because it indicates the the passivity in action being aimed at an improvement or supporting one’s own health.

However correlation is lacking between the dimension of the internal locus of control of the health and with all types taken into account of the public support (Table V).

Table V. Correlation between the locus of control of the health of subjects from group I and II, and non-chronic individuals measured by MHLC and social support measured by NSSQ

Health Dimension	**EMOTIONAL SUPPORT**		**AFFIRMATIVE SUPPORT**		**PRACTICAL SUPPORT**		**GENERAL SUPPORT**	
	group I	**group II**	**group I**	**group II**	**group I**	**group II**	**group I**	**group II**
Internal	0.39**	0.10	0.03	0.01	0.02	0.02	0.05	0.05
Influence of others	-0.08	-0.45**	-0.11	-0.49**	-0.49**	-0.47**	-0.10	-0.47**
Coincidence	0.01	-0.38**	0.02	-0.52**	0.10	-0.53**	0.04	-0.49**

Amongst maids and bachelors belonging to group I on account of the age a statistical relation is taking place between the dimension pointing to the influence of others, and emotional support ($p <0,05$; r Spearman=-0,42), affirmative support ($p<0,05$; r Pearson=-0,44) and the

general support (p<0,05; r Pearson=-0,41). In all Tyree cases these are negative correlations and they are moderately strong, where with the lowering intensity of support s for approval, decision support, taken actions competencies, there increases their conviction of the influence of others on their health, especially by medical staff. Amongst maids and bachelors belonging to the II distinguished group on account of the age correlation between individual dimensions of the health and kinds of social support is lacking (Table VI).

Table VI. Correlation between the locus of control of the health of subjects – the bachelors and maids from group I and II measured by MHLC and social support measured by NSSQ

Health Dimension	EMOTIONAL SUPPORT		AFFIRMATIVE SUPPORT		PRACTICAL SUPPORT		GENERAL SUPPORT	
	group I	group II	group I	group II	group I	group II	group I	group II
Internal	-0.12	0.16	-0.13	0.12	-0.25	0.05	-0.17	0.11
Influence of others	-0.42*	0.07	-0.44*	-0.12	-0.33	-0.05	-0.41*	-0.04
Coincidence	0.01	-0.21	-0.04	-0.29	-0.07	-0.16	-0.03	-0.23

In the group of people being in the marital/partner relationship belonging to group I singled out on account of the age statistically essential correlation takes place between the dimension of the internal locus of control of the health and the emotional support (p <0,05; r Spearman=0,18), which denotes positive correlation. The increase of the intensity of emotional support is (approval, admiration and happiness), is supported by the increase of the feeling of internal control over health. Amongst persons belonging to group II it is also noticeable that only essential statistically and weak relations appear between the dimension pointing at influence of others and practical support (p < 0.05; r Pearson = -0.19) (Table VII).

Table VII. Correlation between the locus of control of the health of subjects from group I and II, being in a relationship measured by MHLC and social support measured by NSSQ

Health Dimension	EMOTIONAL SUPPORT		AFFIRMATIVE SUPPORT		PRACTICAL SUPPORT		GENERAL SUPPORT	
	group I	group II	group I	group II	group I	group II	group I	group II
Internal	0.18*	0.01	0.10	-0.03	0.10	-0.02	0.13	-0.01
Influence of others	0.03	-0.11	0.01	-0.14	0.00	-0.19*	0.02	-0.15

Amongst individuals from groups I and II who lost the domestic partner, none statistically essential correlations between the locus of control of the health and social support exist. It leads to the conclusion that the marital status unlike the presence of the chronic disease or its lack isn't a variable which in any way whatsoever effectively is diversifying the examined group with regard to correlation between social support and the locus of control of the health (Table VIII).

Table VIII. Correlation between the locus of control of the health of subjects from group I and II, who lost life partner measured by MHLC and social support measured by NSSQ

Health Dimension	EMOTIONAL SUPPORT		AFFIRMATIVE SUPPORT		PRACTICAL SUPPORT		GENERAL SUPPORT	
	group I	group II	group I	group II	group I	group II	group I	group II
Internal	0.08	0.00	0.08	0.01	0.10	-0.08	0.09	-0.02
Influence of others	0.02	0.05	-0.00	0.01	0.02	-0.01	0.01	0.02
Coincidence	-0.08	-0.02	-0.10	-0.03	-0.05	0.03	-0.08	-0.01

Discussion

Social support plays an important role in the protection against illness, as well as in the process of recovering from illness [7]. Individual examinations show that holding social contact by elderly individuals considerably influences the maintenance or the improvement in the health, quality of life, improving cognitive functions and reducing the mortality amongst seniors. Research conducted by Woźniak shows that the presence of the social network provides the sense of security for the individual, the feeling of membership, approval and integrating [14]. In their examinations Sugisawa et al. [7,13]. Achieved results which point to the significance of social network of support as to the seniors' health [15].

Numerous studies conducted by E. Trafiałek, Woźniak confirming that along with age advancement the needs of financial satisfying of the existence, the safety and the emotional support starting to have a greater significance. Aspirations connected with the earlier occupational activity, successively lose their importance giving place to the increased demand for approval of the environment, but still a need of the membership in all sorts of social groups is noticeable. Such a membership is catering for a lot needs, for example, need for information. The findings of other authors confirm the observation [16-20].

Our research points out that seniors of up to 65 of year of age as well as above 65 most often count on support on the part of their family, in the natural way, most often in the area of the first social circle of security. Good relations in the family considerably influence keeping self-esteem, feeling of usefulness, forming of positive, practical balance. Conducted examinations by A. Tokaj in the 90s confirm it, where in the group of people at 60-70 the most important aspect of support was played by their families [21]. Other studies confirming the major part of the family were conducted by P. Czekanowski, J. Halik and others [22-24].

Our results suggest that right after the the second circle of trust was constituted by friends, colleagues, acquaintances - the 42.46% and friends - 40.67%. However other groups of people were indicated more rarely. Similar results in their studies were obtained by Johnson & Mullins, 1987; Mullins, Forest & Putnam, 1989, pointing additionally at the significance of supporting friends in lowering feeling of seniors' loneliness [25,26]. Meaningful role of social support in limiting the incidence of disease in its examinations was also pointed by: Finch, Garziano 2001, Russel, Cutrono 1991, Diener, King, Lubomirsky 2005, however Linley and Joseph 2007 holding a view that the sufficient social support can entirely prevent disease [27,28].

The research of other authors (Leszno- Rejchert 2005, Idzikowski, 2000, Zych 1995, Susułowska, Pakuła 2007, Linley, Joseph, 2007) also show that holding social contact, having supporting individuals considerably influences the improvement and keeping the health, the quality of life, improves cognitive functions and reduce the mortality amongst seniors. The presence of social network provides the sense of security for the individual, of the membership, approval and integrating [5,7,14,17- 20].

Examinations conducted by Bercman and Syme (1979) show that a positive effect of social support on the incidence and the mortality is unusually strong, not to say more essential than risk factors of the chronic disease.

The membership in the University of the Third Age provides rich network of supporting seniors, develops the social initiative, helps to fight loneliness and keeps away seniors from only focusing on the everyday life. The University of the Third Age realizes social needs which are exquisitely important in case of narrowing of familiar circles after the retirement. University meetings support holding numerous interpersonal contacts, provide feeling of happiness, approval, confidence and possibilities of reaching for the help from meaning family and friends. These conclusions are confirming examinations in large numbers conducted [18-20,29].

Having a meaning social support is connected with the better sense of well-being; we have a better self-assessment, as well as can feel the value, the health, the life and its

significance [30]. Examinations conducted by Knoll et al are suggest that giving support is contributing to the increase in the frame of mind and also at supporting the person [31,32]. In their examinations Bercman and Syme'y (1979, too: Linley, Joseph 2007), described a positive effect of social support on the medical condition and the life span of seniors show that good social relations prolong living on average of about 2.8 of years for women and 2.3 for men [28].

Conclusions

1. The researched students of the University of the Third Age receive all three types of support on similar level. In spite of minor differences it is possible to put them in order from the strongest to the weakest in the following order: AFFIRMATIVE SUPPORT, EMOTIONAL SUPPORT, PRACTICAL SUPPORT.
2. Seniors of up to 65 will experience bigger social support, than respondents above 65 of year of age and they much stronger declaring its need.
3. Individuals not-being chronically ill receive the strongest emotional, affirmation and practical support, and consequently also general, in distinguishing to chronically ill individuals.
4. The highest level of the provided support is given to , in general sense and in all dimensions, to seniors in relationship, and the least support is offered to individuals experiencing a bereavement (divorce or partner’s death)
5. Students of the University of the Third Age are presenting the internal control of the health in the large degree. On the second place the examined seniors mentioned the influence of others, and the lowest significance in their view the notion of coincidence.

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HEALTH EDUCATION

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Women’s knowledge on prevention of cervical cancer – selected aspects

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Introduction

Looking from the global perspective, cervical cancer is the second, after breast cancer, most common cancer among women [1] and the third cause of the cancers deaths [2]. It occurs among women of all ages, but an increase in morbidity is noticed, after exceeding the age of 30. Almost half of the women diagnosed with cervical cancer are at the age of 45 - 59 [3].

In Poland, cervical cancer for many years has been a serious epidemiological danger [3]. Women's life threat due to the cervical cancer in Poland is systematically decreasing and is up to 18% lower, than it was in 2000 [4]. Poland, however, pertains to those European countries which have one of the lowest percentage of 5-years-survival in terms of cervical cancer (about 54% vs. 67% for Europe) [5]. Number of deaths caused by cervical cancer are still keeping high against most of the UE countries, in the last few years becoming a serious threat for women especially in Polish regions such as Warmia and Mazury, Lubelszczyzna and Pomorze. In Warmia and Mazury region, number of deaths caused by cervical cancer is now higher than a decade ago [4].

Knowledge about the prevention of cervical cancer and inculcating proper health behaviours at the early stage, which aim is to decrease the risk of women’s morbidity, has an important impact on the number of diagnosed cases in future years [6,7].

Assumptions and aim of the article

The aim of this article is to determine the knowledge of the surveyed women on cervical cancer prevention. This assessment was sought based on the answers given to the following questions:

1. What is the knowledge of risk factors and symptoms of the surveyed women?
2. How do women assess their preparation towards participation in cervical cancer prevention?
3. Are women open to education in the field of the prevention of cervical cancer?

4. What are the factors diversifying the level of knowledge on the prevention of cervical cancer?

Materials and methods

For the purpose of this article a research has been conducted on a group of women who attended General Practitioner's Office in Ostróda district in the Warmia and Mazury region, Poland. Results come from 71 surveyed women between the age of 18 and 62. Participation in the research was anonymous and voluntary. Research has been conducted on the method of a diagnostic opinion poll. The tool used in the research was a survey questionnaire of own authorship, which enabled to distinguish information in the topic of demographic characteristics of the surveyed population, acquaintance of the risk factors and symptoms of cervical cancer, as well as the self-assessment of the preparation towards participation in prevention and willingness to education of the surveyed group of women.

Results

Among the surveyed population, the vast majority were women living in the urban environment (66.2%). One out of every three respondents declared to be living in the rural environment (33.8%).

The biggest part of the researched group were women having secondary education (32.4%), married (63.4%), at the age of 25-44 years old (63.4%). The average age was 37.9. One out of each seven of surveyed women were at the age in which the risk of developing cervical cancer is the highest (14.1%). Main livelihood for the examined population was permanent employment (53.5%). Details are shown in Table 1.

Data do not sum up to 100%, because respondents mentioned few answers.

From the surveys emerges that more than half of the women consults gynecological in private practices (52%), little over one third consults gynecologist within NHS (National Health System) (36.6%), and one tenth of them does not consult gynecologist at all (11.2%). Only one woman knows the main cervical cancer risk factor, but vast majority has no knowledge on the risk factors of cervical cancer (66.2%) or has an incorrect knowledge. Multitude of partners as a risk factor was indicated only by 12.7% of the examined women, however smoking tobacco was known only by one person. Interesting enough, more knowledge of the risk factors was noticed among women consulting gynecologist within NHS and the biggest among group not consulting gynecologist at all. Details are presented in Table 2.

Table 1. Characteristics of the surveyed population

Examined feature:	N =71	[%] 100
Place of living:		
Rural area	24	33.8%
City up to 5.000 residents	14	19.7%
City between 5.000 and 10.000 residents	7	9.9%
City between 10.000 and 20.000 residents	3	4.2%
City between 20.000 and 100.000 residents	23	32.4%
Age:		
18-24 years old	7	9.9%
25-44 years old	45	63.4%
45-55 years old	10	14.1%
56-62 years old	7	9.9%
Marital status:		
Single (never married)	20	28.2%
Married	45	63.4%
Widow	2	2.8%
Divorced	4	5.6%
Education:		
Primary	7	9.9%
Vocational	10	14.1%
Secondary	23	32.4%
College	8	11.3%
Bachelor's Degree	5	7.0%
Master Degree	18	25.4%
Main livelihood:		
Permanent job	38	53.5%
Part time job	2	2.8%
casual work contract or contract of commission	3	4.2%
Pension	4	5.6%
Annuity	5	7.0%
Unemployment benefit	3	4.2%
Other benefit	7	9.9%
At family maintenance	4	5.6%
Agricultural farm work	2	2.8%
Other (alimony, at partner's maintenance)	3	4.2%

Table 2. Knowledge of cervical cancer risk factors among examined women

Examined feature:	Altogether		Consulting Gynecological Private Practice		Consulting Gynecologist within NHS (National Health System)		Not consulting any gynecologist	
	71	100%	37	100%	26	100%	8	100%
Cervical cancer risk factors								
HPV infection	1	1.4%	0	0.0%	1	3.8%	0	0.0%
Multitude of partners	9	12.7%	4	10.8%	5	19.2%	0	0.0%
Genetic predispositions	6	8.5%	1	2.7%	4	15.4%	1	12.5%
Uncured cervical ectropion	2	2.8%	1	2.7%	1	3.8%	0	0.0%
Stress	2	2.8%	0	0.0%	2	7.7%	0	0.0%
Lack of hygiene	3	4.2%	2	5.4%	1	3.8%	0	0.0%
Tobacco, alcohol	1	1.4%	0	0.0%	1	3.8%	0	0.0%
One has no impact on the risk of cervical cancer	5	7%	2	5.4%	2	7.7%	1	12.5%
No knowledge	47	66.2%	28	75.7%	13	50.0%	6	75.0%

Most of the examined women associated exposing oneself towards HPV infection with sexual activity (67.6%). What deserves attention is the fact that more than one third of the respondents (36.4%) had completely no knowledge (25.4%) or had incorrect knowledge about the threat of HPV infection. Higher level of knowledge was registered among those women consulting gynecologists in Private Practices and the highest deficiency among those who do not consult gynecologist at all. The vast majority of the examined women did not know the age in which the risk of morbidity for cervical cancer is the highest (84.5%). Detailed information is presented in Table 3.

Table 3. People mostly liable to HPV infection based on the opinion of tested women

Examined feature:	Altogether		Consulting Gynecological Private Practice		Consulting Gynecologist within NHS		Not consulting any gynecologist	
	71	100%	37	100%	26	100%	8	100%
People most liable to HPV infection:								
having one permanent sexual partner	2	2.8%	2	5.4%	0	0.0%	0	0.0%
having multitude of sexual partners	45	63.4%	26	70.3%	17	65.4%	2	25.0%
not sexually active	1	1.4%	0	0.0%	0	0.0%	1	12.5%
all of the people	5	7.0%	1	2.7%	3	11.5%	1	12.5%
no knowledge	18	25.4%	8	21.6%	6	23.1%	4	50.0%
Cervical cancer morbidity concerns mostly women at the age of:								
11-12 years old	0	0.0%	0	0.0%	0	0.0%	0	0.0%
25-59 years old	41	57.7%	20	54.1%	19	73.1%	2	25.0%
45-55 years old	11	15.5%	6	16.2%	3	11.5%	2	25.0%
during whole life	1	1.4%	0	0.0%	0	0.0%	1	12.5%
no knowledge	18	25.4%	11	29.7%	5	19.2%	2	25.0%

The answers suggests that most of the women had no knowledge of the existence of HPV vaccine (54.9%). Knowledge about the existence of HPV vaccine is more common among women under gynecological supervision within National Health System and less among those not consulting any gynecologist at all. Only one sixth of the respondents (mostly ones consulting gynecologist within NHS) knew that vaccination should be conducted before women's sexual initiation (16.9%). but almost half knew that it should not resign women from the regular cytological testing (43.7%). Interestingly enough, negligible number of surveyed women knew that condoms do not protect one from HPV infection (8.5%). Vast majority of respondents had an incorrect knowledge and considered condoms to be protection against HPV infection (64.7%). Detailed information are presented in Table 4.

Table 4. Women's knowledge on the existence of HPV vaccine

Examined feature:	Altogether		Consulting Gynecological Private Practice		Consulting Gynecologist within NHS		Not consulting any gynecologist	
	71	100%	37	100%	26	100%	8	100%
Whether HPV vaccine exists:								
Yes	30	42.3%	16	43.2%	14	53.8%	0	0.0%
No	2	2.8%	0	0.0%	0	0.0%	2	25.0%
No idea/Does not know	39	54.9%	21	56.8%	12	46.2%	6	75.0%
HPV vaccine should be given to women:								
Before sexual initiation	12	16.9%	6	16.2%	5	19.2%	1	12.5%
Sexual initiation has nothing to do with the vaccine	1	1.4%	0	0.0%	1	3.8%	0	0.0%
After sexual initiation	1	1.4%	0	0.0%	1	3.8%	0	0.0%
Each, no matter whether before or after sexual initiation	21	29.6%	12	32.4%	8	30.8%	1	12.5%
No knowledge	36	50.7%	19	51.4%	11	42.3%	6	75.0%
HPV vaccinations disoblige women from regular cytology testing								
Yes	0	0.0%	0	0.0%	0	0.0%	0	0.0%
No. but cytology can be performed less often	10	14.1%	5	13.5%	5	19.2%	0	0.0%
No, regular cytological testing should be perform regularly	31	43.7%	14	37.8%	14	53.8%	3	37.5%
No knowledge	30	42.3%	18	48.6%	7	26.9%	5	62.5%
Condoms protect from HPV infection								
Protect completely	5	7.0%	2	5.4%	1	3.8%	2	25.0%
Restrain the risk of infection	41	57.7%	26	70.3%	14	53.8%	1	12.5%
Do not protect	6	8.5%	4	10.8%	1	3.8%	1	12.5%
No knowledge	19	26.8%	5	13.5%	10	38.5%	4	50.0%

The vast majority of examined women present a striking lack of knowledge of the cervical cancer prevention (83.1%). Bleeding not associated with menstrual cycle, abnormal homogenous vaginal discharge or ailments as cervical cancer symptoms are known only by one tenth of the surveyed women. In most cases, higher level of knowledge of symptoms is noticed among women under gynecological supervision within NHS and the lowest within those under no gynecological supervision. Women do not know the symptoms of the cervical cancer which is lumbosacral pain. Detailed information are presented in Table 5.

Table 5. Cervical cancer symptoms based on the examined women's opinion

Examined feature:	Altogether		Consulting Gynecological Private Practice		Consulting Gynecologist within NHS		Not consulting any gynecologist	
	71	100%	37	100%	26	100%	8	100%
Cervical cancer symptoms:								
lower abdominal pain	6	8.5%	1	2.7%	5	19.2%	0	0.0%
spotting	2	2.8%	0	0.0%	2	7.7%	0	0.0%
bleeding between menstruations	8	11.3%	2	5.4%	6	23.1%	0	0.0%
pain during sexual intercourse	7	9.9%	1	2.7%	6	23.1%	0	0.0%
abnormal homogenous vaginal discharge	8	11.3%	1	2.7%	7	26.9%	0	0.0%
cervical erosions	2	2.8%	1	2.7%	1	3.8%	0	0.0%
no knowledge	59	83.1%	34	91.9%	17	65.4%	8	100.0%

Women taking part in the research very critically assessed their level of knowledge on cervical cancer prevention. Only two of them conceded their knowledge as very good (2.8%). Lack or insufficient level of knowledge was determined by 47.9% of the surveyed. For a deficiency in knowledge showed mostly women under no gynecological supervision. the least

- women under gynecological consultation within National Health Fund. Detailed information are presented in Table 6.

Table 6. Self-assessment on cervical cancer prevention knowledge based on examined women's opinion

Examined feature:	Altogether		Consulting Gynecological Private Practice		Consulting Gynecologist within NHS		Not consulting any gynecologist	
	71	100%	37	100%	26	100%	8	100%
Self-assessment on cervical cancer prevention knowledge								
Very good	2	2.8%	1	2.7%	1	3.8%	0	0.0%
Fair enough	35	49.3%	18	48.6%	16	61.5%	1	12.5%
Insufficient	30	42.3%	17	45.9%	6	23.1%	7	87.5%
No knowledge	4	5.6%	1	2.7%	3	11.5%	0	0.0%

Women taking part in the research declare wide interests and openness towards education. In most cases, they are interested in the methods of treating cervical cancer (62%). A bit smaller percentage of women, in terms of cervical cancer prevention, would like to get information on what are the symptoms (50.7%), risk factors of the disease (49.3%). One woman out of three, would like to know what to do to protect yourself from cervical cancer (33.8%) and to acknowledge the prognosis during the disease (38%).

Moreover, respondents are interested in mastering the effectiveness of the treatment (28.2%), diagnostic tests and behavior during the disease (26.8%). Detailed information are presented in Table 7.

Table 7. Women's expectations in terms of preventive education

Examined feature:	Altogether		Consulting Gynecological Private Practice		Consulting Gynecologist within NHS		Not consulting any gynecologist	
	71	100%	37	100%	26	100%	8	100%
Would you like to get more information on cervical cancer prevention:								
Yes, what are the main risk factors	35	49.3%	19	51.4%	13	50.0%	3	37.5%
Yes, what are the symptoms	36	50.7%	17	45.9%	16	61.5%	3	37.5%
Yes, what are the diagnostic research during cervical cancer testing	19	26.8%	9	24.3%	9	34.6%	1	12.5%
Yes, what should one do to protect herself from cervical cancer	24	33.8%	13	35.1%	10	38.5%	1	12.5%
No, I already know everything	4	5.6%	2	5.4%	2	7.7%	0	0.0%
No	1	1.4%	0	0.0%	1	3.8%	0	0.0%
Would you like to get more information on cervical cancer treatment:								
Yes, what are the methods	44	62.0%	23	62.2%	16	61.5%	5	62.5%
Yes, what are the expectations	27	38.0%	12	32.4%	14	53.8%	1	12.5%
Yes, how can you identify the efficacy of cervical cancer treatment	20	28.2%	9	24.3%	11	42.3%	0	0.0%
Yes, how one should behave after being diagnosed with cervical cancer	19	26.8%	8	21.6%	10	38.5%	1	12.5%
No, I already know everything	3	4.2%	1	2.7%	2	7.7%	0	0.0%
No, because I am healthy	4	5.6%	3	8.1%	1	3.8%	0	0.0%

Discussion

Decrease in women's morbidity and mortality due to cervical cancer requires involvement not only from women, but also from scientific communities, politicians, social

organizations, medical societies: General Practitioners, Pediatricians, Gynecologists, as well as nurses and midwives [8].

Epidemiologists indicate that women should know the main cause of cervical cancer, which is infection of oncogenic types of HPV (human papilloma virus transmitted through sexual intercourse) [8,9]. The risk of genital types of HPV infection during the whole life among people sexually active is about 50% and is the most common among young women [10]. Among other cervical cancer risk factors following issues are being mentioned: age between 45 and 55 years old, multitude of sexual partners, early beginning of sexual activity, previous changes in cytologic testing results, smoking cigarettes [5,8]. The group of higher risk exposure that requires engaging preventive methods sooner, regardless of the age, constitutes [11-15]: women using hormonal contraceptive methods for over 5 years, multigravidas (over 7 completed pregnancies means - meaning twice higher morbidity risk), women smoking tobacco (two times higher risk), women infected with *Chlamydia trachomatis* (two times higher risk), women HIV-positive, teenagers sexually assaulted during puberty. Results obtained in own research indicated that women characterize themselves with a huge deficiency in knowledge of cervical cancer risk factors, which rules them out from a conscious participation in its prevention and requires a thorough and professional education and support from medical staff. Only one woman knew the main reason of cervical cancer and only one knew about the risk determined by smoking tobacco [16]. A bit more often than one tenth of the examined women had knowledge on the risk caused by a frequent change of sexual partners. None of the examined group, while naming risk factors, among risk factors of cervical cancer development did mention: age between 45 and 55, connection with early sexual activity and the fact of being fostered by previous changes in cytological testing results. Most women had no knowledge of any cervical cancer risk factors, had an incorrect knowledge, and even was certain that one has no impact on the risk of cervical cancer development. Higher level of knowledge was noticed among women consulting gynecologist within NHS, and the least women not consulting gynecologist at all.

The estimated analysis shows that almost half of the sexually active population, at some point of their lives are infected with HPV, as it is widespread [8]. Results coming from this research proves that most of the women rightly linked the exposure on HPV infection with sexual activity (67.6%).

Worrying enough, more than one third of women did not know who is mostly exposed to HPV infection or had an incorrect knowledge on that (36.4%). Higher level of knowledge in

this field was noticed among women consulting Private Gynecological Practices, and the highest among these who do not consult gynecologist at all. Lack of solid knowledge on the connection between sexual activity and HPV infection makes women unable to actively participate in prevention of the cervical cancer.

Epidemiologists indicate that there is a possibility to protect oneself from the cervical cancer, which is an effective prevention including cytology testing and protective vaccination [8]. Vaccination protects from the main cause of cervical cancer, which is the HPV infection. However, it is the most efficient among people, who have been vaccinated before beginning of their sexual activity. Through cytologic testing there is a chance of early detection of malformations, which might lead to cervical cancer development and undertake early and effective treatment [8].

Results from presented research shows that most women had no knowledge of the existence of HPV vaccine (54.9%). About the HPV vaccine existence, a little more often knew women being under gynecologic supervision within NHS, and the least often these, who did not consult gynecologist at all. Only a little more than one tenth of the respondents (mostly consulting gynecologist within NHS) knew that vaccination should be proceeded before the sexual initiation (16.9%). Insufficient knowledge of the issues connected with cervical cancer prevention caused that almost half of the women thought that vaccination let them off from regular cytology testing (43.7%). Insignificant percentage of the examined stated that condoms do not protect users from HPV infection. Vast majority of women taking part in the research had no knowledge of the age in which the cervical cancer morbidity risk is the highest (84.5%).

Oncologists state that clinical symptoms of cervical cancer appear quite late and many women in early stages of the disease are not submitting any ailments. First sign of the developing disease might be bleeding not connected with menstrual cycle, bleeding after sexual intercourse, and subsequently: vaginal discharge, lumbosacral or buttock region pain. In more advanced stages of the disease also oedema of lower extremities might occur [16]. The results of the research leads to the conclusion that vast majority of women does not know the cervical cancer symptoms (83.1%). The above symptoms (bleeding not associated with menstrual cycle, vaginal discharge or pain as the cervical cancer) were known only by one tenth of the women. Higher level of knowledge on cervical cancer symptoms was noticed among women consulting gynecologist within NHS, and the lowest among the ones not consulting gynecologist at all. Women did not know the symptom of cervical cancer which is lumbosacral ailment. A huge

deficiency in the field of cervical cancer symptoms determines a crucial factor hindering early detection and treatment of the disease among women.

Knowledge is the factor that empowers one to take pro-health choices and better care for his health [17]. In the presented research, women critically assessed their level of knowledge on the cervical cancer prevention, and only few considered it as very high (2.8%). None or insufficient level of knowledge was indicated mostly by those do not consulting gynecologist at all, and least by those consulting gynecologist within NHS. Results coming from own research suggest a very low or insufficient level of knowledge and consciousness of women, which is essential in active participation in the prevention of cervical cancer [18], although most of them consulted gynecologist also against payment, as in Poland the gratuitous screening program has been in use since 2004 [16]. The knowledge of women taking part in the survey is much lower in comparison with the level of knowledge assessed among other women's populations [19,20]. Results from own survey prove that the highest barrier in cervical cancer prevention among the examined women is a really low conscience [1]. Conformation of the limited knowledge in cervical cancer prevention are the expectations in the field of education declared by over 90% of examined women. Women taking part in the survey declared a high interest and openness for education. More often they are interested in information on treatment methods of cervical cancer (62%). A little lower percentage of women, in the field of cervical cancer prevention, would like to get more information on the symptoms (50.7%) and risk factors of the disease (49.3%). One third of the women would like to know what to do to protect ourselves from cervical cancer (33.8%) and to acknowledge prognosis in the disease (38%). Moreover, respondents are interested in getting to know the recognition of effective treatment (28.2%) and diagnostic tests (26.8%). Women’s expectations in the field of education did not confirm the suggestions of some authors [16].

Conclusions

1. Women characterize themselves with a visible deficiency in the field of risk factors and symptoms of the cervical cancer.
2. Almost half of the women critically assess their knowledge on the cervical cancer prevention.
3. Women declare openness to education in the field of cervical cancer prevention.
4. Gynecologic consultations differentiate the level of women’s knowledge on the prevention of cervical cancer.

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Preparing students of the "nursing" to participate in the prevention of arterial hypertension - selected aspects

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Introduction

The cause of over half of the global mortality are the Non-communicable Diseases (NCDs) [1]. Each year, around the world over one third of deaths (17 millions in total) results specifically from Cardiovascular Diseases (CVDs) [2] with Poland being ninth in the global rank of Cardiovascular Diseases' deaths number [1,2]. Complications, being the result of arterial hypertension, are the main reason of 9.4 million of world's deaths per year. Research shows that arterial hypertension gives rise to 45% of ischemic heart diseases' deaths and 51% of deaths attributed to apoplexy [3]. Around the world, in 2008 arterial hypertension was diagnosed in about 40% of the population over the age of 25. The epidemiological data shows that incidence of arterial hypertension is the highest in the region of Africa (46 % of adult population over the age of 25) and the lowest among North and South America population (35% of adults having 25 years or more) [4]. Higher morbidity rate for arterial hypertension can be observed in countries with a lower coefficient Gross Domestic Product (GDP) (ca. 40 %) than in countries with high GDP (ca. 35%) [2]. In Poland arterial hypertension occurs among 32% of adult population between the age of 18 and 79 which altogether makes about 9.5 million people [5].

Of all the causes of the increased incidences of arterial hypertension following are most commonly mentioned: getting on in years population, diet, alcohol abuse, insufficient physical activity, overweight, as well as chronic exposition to stress [2]. The significance of a correct blood pressure, both systolic and diastolic, on hearth, brain and kidney function as well as on the general condition of health and wellbeing calls for a engagement from medical staff, science community, individuals and families, as well as the government and politicians.

Aims of the research

Aim of the research is examine the nursing students' preparation to participate in the prevention of arterial hypertension.

The assessment of the students' preparation to participate in the prevention of arterial hypertension was based on the answers to the following questions:

1. What is the level of students' knowledge on the factors and symptoms of arterial hypertension?
2. How students evaluate their knowledge about risk factors, symptoms and willingness to participate in prevention of arterial hypertension?
3. Are the nursing students open for further education in the field of arterial hypertension prevention?
4. Are they willing to participate in prevention of arterial hypertension in the future?
5. Which risk factors diversify the knowledge of arterial hypertension in the researched group?

Materials and methods

The studies were conducted using the method of a survey questionnaire among students of the last year of Bachelor and Master Degree in Nursing Course. Results has been gathered from 39 students of the third year of Bachelor Course and 33 students of the second year of Master Degree in Nursery at one of universities in the Warmia and Mazury region. Students' participation in the research was voluntary and anonymous. The research were made with use a diagnostic poll as a survey technique. The used research tool was a questionnaire of authors own construction, which enabled to identify information such as: demographic characteristics, knowledge of the risk factors, symptoms of arterial hypertension, self-assessment on the preparation to prevention and students' willingness to participate in the arterial hypertension education.

Results

Among the researched population, vast majority were women (91.67%). The biggest group of respondents was constituted by: people living in rural area (33.33%), single (84.72 %). Little over half of the respondents were students of Bachelor Degree Nursing Course (54.17%). Detailed information are presented in Table 1.

Analyzing the risk factors knowledge of arterial hypertension among students finishing the Nursing Course, the most commonly mentioned risk factor was the lack of physical activity (50%). More than one third of the students knew that the risk of arterial hypertension can be

associated with factors such as the overweight and obesity (40.28%) or the excess of sodium in diet (36.11%). For tobacco as a risk factor of the arterial hypertension indicated only 29,17% of surveyed group. Improper, in general terms, diet was a risk factors of the hypertension in the opinion of 28% of respondents. Students of the Master Degree in the nursing course little more often than students of Bachelor Degree in the nursing study mentioned as risk factors of hypertension: overweight and tobacco use (42.42%), exposition to stress (18.18%), genetic predispositions (6.06%) and improper diet (36.36%). Students of Bachelor Degree in Nursing more often than their older colleagues indicated: the excess of sodium in diet (38.46%), consumption alcohol (23.08%) and more often students of Bachelor Degree in Nursing had no knowledge of arterial hypertension at all (12.5%). For the attention deserves the fact that none of students enumerated risk factors of arterial hypertension such as: the excess of saturated fat and cholesterol or the deficit in fruits, vegetables and fiber in diet.

Table 1. Characteristics of the surveyed population

Sex:	N	[%]
Female	66	91.67%
Male	6	8.33%
Place of living:		
Rural area	24	33.33%
City up to 5.000 residents	4	5.56%
City between 5.000 and 10.000 residents	5	6.94%
City between 10.000 and 20.000 residents	5	6.94%
City between 20.000 and 100.000 residents	13	18.06%
City over 100.000 residents	21	29.17%
Maritial status:		
Single (never married)	61	84.72%
Married	11	15.28%
Level of studies		
3rd year of Bachelor Degree in the nursing course	39	54.17%
2nd year of Master Degree in the nursing course	33	45.83%

The analyze of the most commonly known known risk factors of hypertension resulted in forming a conclusion that usually students knew from 1 to 3 risk factors of the arterial hypertension (75%) with more deficiency in the knowledge of the students of Bachelor Degree in Nursing. Detailed information are presented in Table 2.

Table 2. Knowledge of the risk factors of arterial hypertension in the researched group

Examined features:	Altogether		Students of the Bachelor Degree in the nursing Course		Students of the Master Degree in the nursing Course	
	72	100%	39	100%	33	100%
Arterial hypertensions risk factors:						
Overweight and obesity	29	40.28%	15	38.46%	14	42.42%
Excess of sodium in diet	26	36.11%	15	38.46%	11	33.33%
Insufficient physical activity	36	50.00%	21	53.85%	15	45.45%
Tobacco	21	29.17%	7	17.95%	14	42.42%
Alcohol	16	22.22%	9	23.08%	7	21.21%
Genetic predispositions	4	5.56%	2	5.13%	2	6.06%
Diabetes mellitus	4	5.56%	3	7.69%	1	3.03%
Stress	13	18.06%	7	17.95%	6	18.18%
Improper diet	20	27.78%	8	20.51%	12	36.36%
No knowledge	9	12.50%	8	20.51%	1	3.03%
The sum of the known risk factors of arterial hypertension:						
Lack of known risk factors:	9	12.50%	8	20.51%	1	3.03%
Known from 1 to 3 risk factors	54	75.00%	27	69.23%	27	81.82%
Known from 4 to 6 risk factors	9	12.50%	4	10.26%	5	15.15%
Known from 7 to 8 risk factors	0	0.00%	0	0.00%	0	0.00%

The analyze of the signs of arterial hypertension in the research population showed that only a little over of respondents knew that headache is a symptom of arterial hypertension (51.39%). Unfortunately, none of the students defined it as “morning headache in the occipital

area". Vertigo as a symptom of arterial hypertension was indicated almost by one third of the surveyed (32%). Only one student knew the symptom of hypertension which is tinnitus (1.4 %). One fourth of the respondents indicated the increase of blood pressure as symptom of hypertension (25%). More knowledge of the arterial hypertension symptoms had students of the Master Degree in Nursery. Analyzing the hypertension risk factor knowledge, it was exposed that students have selective, incomplete knowledge and consider other diseases's symptoms as the ones of arterial hypertension. Detailed information are presented in Table 3.

Table 3. Knowledge of the arterial hypertension symptoms among the surveyed group

Examined features:	Altogether		Students of the Bachelor Degree in the nursing Course		Students of the Master Degree in the nursing Course	
	72	100%	39	100%	33	100%
Symptoms of arterial hypertension:						
Headache	37	51.39%	16	41.03%	21	63.64%
Vertigo	23	31.94%	11	28.21%	12	36.36%
Increased blood pressure	18	25.00%	13	33.33%	5	15.15%
Tinnitus	1	1.39%	0	0.00%	1	3.03%
Quick fatiguability	9	12.50%	5	12.82%	4	12.12%
Feeling hot	5	6.94%	2	5.13%	3	9.09%
Dyspnoea	5	6.94%	4	10.26%	1	3.03%
Anxiety	3	4.17%	1	2.56%	2	6.06%
Redness of the cutaneous	8	11.11%	0	0.00%	8	24.24%
Hyperhidrosis	9	12.50%	1	2.56%	8	24.24%
Palpitation	7	9.72%	3	7.69%	4	12.12%
Nausea	1	1.39%	0	0.00%	1	3.03%
Depressed mood	10	13.89%	8	20.51%	2	6.06%
Accelerated expiratory rate	4	5.56%	3	7.69%	1	3.03%
Weakness	9	12.50%	3	7.69%	6	18.18%
No knowledge of symptoms	10	13.89%	8	11.11%	2	6.06%

In the opinion of researched group, the most common factor preventing from arterial hypertension is a healthy diet (61%). More than half of the respondents indicated physical activity as a preventive risk factor (58.33%). This behaviours of a lifestyle was a little more often declared by students of Bachelor Degree.

For attention deserves the fact that one fourth of the students had no knowledge of any factors that prevents from the development of hypertension and only one person listed correct body mass among other prevention factors. Detailed are shown in Table 4.

Table 4. Knowledge of the hypertension preventive factors among the researched population

Examined features:	Altogether		Students of the Bachelor Degree in the nursing Course		Students of the Master Degree in the nursing Course	
	72	100%	39	100%	33	100%
Hypertension preventive behaviours:						
Physically activity	42	58.33%	25	64.10%	17	51.52%
Balanced diet	44	61.11%	24	61.54%	20	60.61%
Proper body mass	1	1.39%	0	0.00%	1	3.03%
Not smoking	13	18.06%	5	12.82%	8	24.24%
Decreasing level of stress	7	9.72%	0	0.00%	7	21.21%
Haven’t excess of sodium in diet	5	6.94%	1	2.56%	4	12.12%
No alcohol use	6	8.33%	4	10.26%	2	6.06%
Don’t know	19	26.38%	11	28.21%	8	24.24%

Analyze of the self-assessment studies showed that students most often assess their knowledge of factors preventing from arterial hypertension critically (12%) and the highest evaluation given by them, was of the symptoms of the disease (4%). Critical self-assessment characterized mostly students of Master Degree in Nursery. Details shown in Table 5.

Vast majority of the students declares willingness to education in the field of arterial hypertension prevention (79%). It was more often stated by the Master Degree in Nursery students. Only one out of ten respondents is not opened to education, because of self-assessing their knowledge as already complete (11 %).

Table 5. Self-assessment of risk factors, symptoms and willingness to participate in hypertension prevention based on examined student's opinion

Examined features:	Altogether		Students of the Bachelor Degree in the nursing Course		Students of the Master Degree in the nursing Course	
	72	100%	39	100%	33	100%
Knowledge of the risk factors of hypertension:						
Very good [5]	14	19.44%	8	20.51%	6	18.18%
Fair enough [4]	54	75.00%	29	74.36%	25	75.76%
Insufficient [3]	3	4.17%	1	2.56%	2	6.06%
No knowledge [2]	1	1.39%	1	2.56%	0	0.00%
Knowledge of the symptoms of hypertension:						
Very good [5]	16	22.22%	10	25.64%	6	18.18%
Fair enough [4]	53	73.61%	27	69.23%	26	78.79%
Insufficient [3]	2	2.78%	1	2.56%	1	3.03%
No knowledge [2]	1	1.39%	1	2.56%	0	0.00%
Knowledge of the elements of lifestyle that prevents development of arterial hypertension						
Very good [5]	15	20.83%	8	20.51%	7	21.21%
Fair enough [4]	48	66.67%	27	69.23%	21	63.64%
Insufficient [3]	8	11.11%	3	7.69%	5	15.15%
No knowledge [2]	1	1.39%	1	2.56%	0	0.00%
Self-assessment of knowledge about arterial hypertension						
Very good [5]	15	20.83%	7	17.95%	8	24.24%
Fair enough [4]	50	69.44%	29	74.36%	21	63.64%
Insufficient [3]	4	5.56%	1	2.56%	3	9.09%
No knowledge [2]	3	4.17%	2	5.13%	1	3.03%
Self-assessment of preparation to participate in prevention of arterial hypertension						
Very good [5]	12	16.67%	6	15.38%	6	18.18%
Fair enough [4]	54	75.00%	30	76.92%	24	72.73%
Insufficient [3]	5	6.94%	2	5.13%	3	9.09%
No knowledge [2]	1	1.39%	1	2.56%	0	0.00%

Over half of researched students would like to participate in prevention of arterial hypertension in the future (64 %). Almost one out of each five students has not made up their minds in this field yet (19.44 %). More often than one tenth of the respondents, do not declares his willingness to participate in prevention of hypertension (16.67 %). Details are shown in Table 6.

Table 6. Students' opinion in the field of improving education and participation in the prevention of arterial hypertension.

Examined features:	Altogether		Students of the Bachelor Degree in the nursing Course		Students of the Master Degree in the nursing Course	
	72	100%	39	100%	33	100%
Would you like to enhance your preparation towards arterial hypertension prevention						
No. I already know everything	8	11.11%	3	7.69%	5	15.15%
No. I am not willing to participate in arterial hypertension prevention	5	6.94%	4	10.26%	1	3.03%
Have not decided yet	1	1.39%	1	2.56%	0	0.00%
Yes	57	79.17%	30	76.92%	27	81.82%
Would you like to participate in arterial hypertension prevention in the future?						
Yes	46	63.89%	25	64.10%	21	63.64%
No	12	16.67%	7	17.95%	5	15.15%
Have not decided yet	14	19.44%	7	17.95%	7	21.21%

Lack of knowledge on the arterial hypertension risk factors was most often registered among the following groups: Bachelor Degree Students (88%), people living in rural area (55%). The highest number of risk factors (from 4 to 6) was known by Master Degree students, citizens of cities between 20.000 and 100.000 residents and those whose source of knowledge of prevention were lectures, seminars and practical classes.

Table 7. Year of studies, place of living and sources of knowledge on the prevention and risk factors of arterial hypertension among surveyed group.

Examined features:	Altogether		No knowledge about risk factors		Knowledge about 1 to 3 risk factors		Knowledge about 4 to 6 risk factors	
	72	100%	9	100%	54	100%	9	100%
Year of studies:								
3rd year of Bachelor Degree in Nursery	39	54,17%	8	88,89%	27	50,00%	4	44,44%
2nd year of Master Degree in Nursery	33	45.83%	1	11.11%	27	50.00%	5	55.56%
Place of living								
Rural area	24	33.33%	5	55.56%	17	31.48%	2	22.22%
City up to 5,000 residents	4	5.56%	2	22.22%	2	3.70%	0	0.00%
City between 5,000 and 10.000 residents	5	6.94%	0	0.00%	3	5.56%	2	22.22%
City between 10,000 and 20,000 residents	5	6.94%	0	0.00%	5	9.26%	0	0.00%
City between 20,000 and 100,000 residents	13	18.06%	1	11.11%	9	16.67%	3	33.33%
City with more than 100.000 residents	21	29.17%	1	11.11%	18	33.33%	2	22.22%
Source of knowledge on the prevention of non-communicable diseases:								
Lecture	61	84.72%	7	77.78%	46	85.19%	8	88.89%
Seminars	53	73.61%	3	33.33%	42	77.78%	8	88.89%
Exercising classes	45	62.50%	2	22.22%	36	66.67%	7	77.78%
Practical classes	45	62.50%	3	33.33%	38	70.37%	4	44.44%
Self-education	31	43.06%	1	11.11%	26	48.15%	4	44.44%
Internships	43	59.72%	3	33.33%	35	64.81%	5	55.56%
Internet	48	66.67%	6	66.67%	37	68.52%	5	55.56%

Discussion

Arterial hypertension, one of the main risk factors of cardiovascular diseases [6,7], is a serious Public Health problem [2]. Numerous negative consequences being the precedence of arterial hypertension and the significance of the proper level of blood pressure**,** both systolic and diastolic for the overall health condition [1,2,5], strike for prevention and supervision with more engagement from medical staff [8]. Nurses, the most numerous medical work group, by fulfilling their duties and long-distanced contact with patients have an influence not only on shaping pro-healthy behaviors, but also on decreasing the morbidity risk for life style conditioned non-communicable diseases [9-12].

Research shows that the prevalence of arterial hypertension depends on some risk factors, in particular: patients' age, obesity, overweight, ethic affiliation [13], genetic predispositions, excess of sodium in diet, alcohol use, stress, improper and unhealthy diet (lot of saturated fats and cholesterol, deficits of fruits, vegetables and fiber in diet), lack physical activity, tobacco use [8,14,15].

Conducted researched revealed numerous deficiencies in risk factor knowledge among students of the last year of Bachelor and Master Degree in Nursing. More than half of the respondents do not know risk factors such as: overweight and obesity, excess using of alcohol, smoking, unhealthy diet. Half of the students do not know that the lack of physical activity increases the risk of arterial hypertension and one tenth of the students do not know any risk factors at all. Higher level of knowledge among students living in urban region confirms the results of the studies of other authors [16].

Ascertained in own research deficiency in knowledge of the risk factors of arterial hypertension is higher in comparison with those studies on students of universities in Wroclaw [16]. Students, taking part in the research, had a lower level of risk factor knowledge in comparison with working group [17] and patients [18]. Higher level of awareness was a little more common among students whose knowledge sources were lectures, seminars and practical classes. High deficiencies in the hypertension risk factor awareness will not enable students to participate actively and effectively in the prevention and will determine the necessity to consider the education in this area more carefully.

In the opinion of clinicians in the early stages of the disease, arterial hypertension develops without any clinical symptoms. In patients with a difficult, uncontrolled hypertension presence of headache is noticed. Symptoms and afflictions noted among people with hypertension are related to the formation of organ changes and the development of

complications of the disease [19]. Among the symptoms of arterial hypertension in a form of organ complications following are mentioned: headache, vertigo, blurred vision, Transient Ischemic Attack, deficiency in feeling or moving, palpitation, edema, epistaxis [2,19].

Results of own studies shows that more than one tenth of the students are unable to indicate any symptoms, only half knows that headache is a symptom and less of one third enumerates vertigo as a symptom of arterial hypertension. Higher level of knowledge of the signs have students of the Master Degree in nursing than respondents attending Bachelor Degree in Nursing Course. Analyze of the symptoms awareness revealed that students have a selective knowledge and among arterial hypertension symptoms list the ones of the other diseases. Lack of the results gathered concerning arterial hypertension symptoms awareness hinders a full evaluation towards found results.

Epidemiological researches shows that through an impact on the factors associated with lifestyle (diet, physical activity, tobacco use) it is possible to reduct the number of morbidity cases on the cardiovascular diseases [20,21] even by 90% [20]. Among the activities preventing from arterial hypertension development following examples are most common: alcohol use reduction, decrease in tobacco use, reduction of body mass, decrease in sodium consumption to 5-6 grams per day, increase of eating vegetables and fruits and systematic physical activity for 30 minutes per day or more [22-27].

In the prevention of arterial hypertension it is recommended to consider beneficial effects of physical activity [1,28]. Unfortunately, only 58% of the respondents find it significant. Although, in the prevention of hypertension, limiting of alcohol consumption to 20-30 grams per day and 140 grams per week for mans and 10-20 grams per day and 80 grams per week for women is recommended, because it results in a decrease of blood pressure of 1,2/0,7 millimeters of Hg [24], in the research over 90 % of the students had no knowledge of any actions oriented on the limitation of the alcohol use.

The connection existing between tobacco use (both active and passive) and the risk of developing arterial hypertension, cardiovascular diseases and premature mortality [4,29-32] results that in the prevention of hypertension in order to reduct and eliminate this factor following activities are recommended: rise in excise tax, recommendation for enabling public places to stay free from cigarette smoke, information about health consequences of tobacco use, bans on the commercials and promoting of tobacco [2]. Results of own researches displays that the connection between arterial hypertension and tobacco use is insufficiently known and accounts for only 18%.

Even though, to the arterial hypertension leads overweight and obesity [33], their reduction can for decrease of blood pressure (reduction body mass of 5,1 kg give depletion systolic blood pressure by 4,4 mm Hg and diastolic blood pressure by 3,6 mm Hg) [34], in the studies only one students indicated keep correct body mass as method preventing from hypertension. The confirmation of numerous deficiencies in the knowledge of actions preventing from the development of arterial hypertension might be lack awareness preventing of progress in 26 % of students. Despite certain significant deficiencies in the acknowledge risk factors, symptoms and preventing actions, the majority of respondents evaluated their knowledge as very good and sufficient. Students mostly assessed their knowledge on the arterial hypertension preventive behaviours critically (12%), and the highest grade got the knowledge of symptoms of arterial hypertension. More often, critical opinion in self-assessment was visible among the students of Master Degree in Nursery Course.

The confirmation of knowledge deficiencies in the field of issues crucial in the hypertension prevention is students' willingness to develop their preparation, which is declared by 79% of researched students, more common among Master Degree in Nursery Students. Only one tenth of the students claimed to knew already everything in the field of arterial hypertension prevention. For attention deserves the fact that only a little over half of the students would like to participate in the arterial hypertension prevention. Lack of data in the available literature impedes to take a full positioning to the results got in own research.

In the view of Orders from the Minister of Science and Higher Education [35], alumni having a Bachelor Degree in Nursery is a person that: „should have acquired abilities such as: usage of actual knowledge to ensure the safety and high level of medical care, ability to provide benefits in promotion, conservation of health and preventing diseases, perform both holistic and individual patient care", when the graduate with a Master Degree in Nursery should: „display with the advanced medical sciences and nursing knowledge, organize and control the nursing care (…), work out programs of health education and realize them in the selected population groups with the acknowledgments of local communities' needs" [35], results of own, presented research lead to assumptions that the Order of the Minister of Science and Higher Education remains completely unexecuted and a higher emphasis on the pre- and post-diploma education in association with the prevention of arterial hypertension is indispensable.

Conclusions

1. Students graduating Nursing Courses can be characterized with significant deficiencies in the awareness of risk factors and symptoms of arterial hypertension.

2. Students' self-assessment on their knowledge of arterial hypertension preventive behaviours is usually critical, and the highly assessed level of knowledge is on the arterial hypertension symptoms. Critical self assessment is mostly noticed among Master Degree in Nursery Students.
3. Majority of the students declare willingness to education in the field of arterial hypertension prevention.
4. More than half of the researched group would like to participate in the prevention of arterial hypertension in the future.
5. Awareness of the arterial hypertension risk factors is determined by the level of the studies, place of living and type of classes which are a source of information on the prevention of non-communicable diseases.

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Knowledge of women surrendering the screening densitometrical examination in the prevention of osteoporosis

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Introduction

Each year many elderly and middle aged people suddenly suffer a fracture during normal, daily life activity. A large part of those fractures is a consequence of a disease called osteoporosis. Osteoporosis is known to a group of disorders with a high social significance-because of its extent and consequences it causes [1-4].

In Poland it is estimated that about 25% of women and 13% to 29% of men suffer from osteoporosis. [5]. It has also been found that osteoporosis is growing relatively more common in people breed white and yellow, and there is practically no on black people. This is connected with occurring on black people a higher peak bone mass, muscle mass, more dynamic lifestyle and climate [6,7].

Osteoporosis develops over a long period of not giving any signs (also called 'silent thief') [8,9].

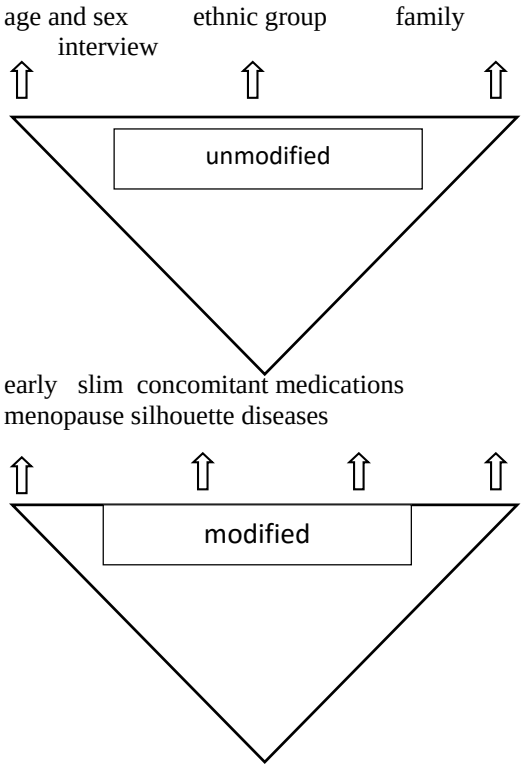
A group of people most vulnerable to the presence of women in climacterium. Osteoporosis is suffering from what the fourth woman aged about-and postclimacterial (25% of the female population), the incidence of osteoporosis fractures increases with age [10,11].

Source: own elaboration

Knowledge of risk factors for osteoporosis prevention allows the introduction of appropriate preventive measures Essential in the prevention of osteoporosis is becoming aware of the public, that the occurrence of fractures is a longtime with no signals development of the disease [12-14].

The strategy of effective prevention includes: adequate supply of calcium, regular physical exercise, eliminating falls using estrogen, calcitonin, and bisphosphonates [15-18].

Model 1. Risk factors for osteoporosis



Prevention of osteoporosis according to Marcinkowska-Suchowierska e., "Osteoporosis-Diagnostics, prevention and treatment" , p. 64 [19] among women including:

Pre - menopause period — Reduction of excessive bone loss

Past – menopause period
(high risk of disease)
- early menopause
-chronic illness
-Quick loss of bone mass — Achieving and maintenance of proper maximum bone mass

Health Educatin

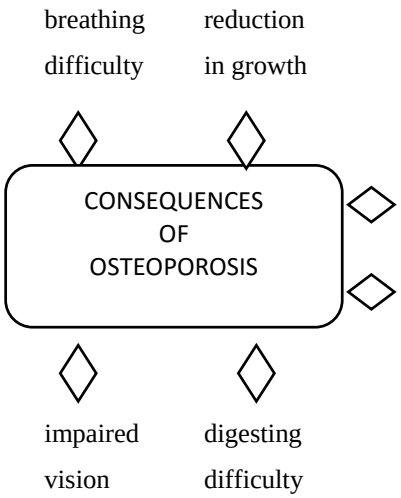
Physical exercises

Eliminating risk factors

Medication treatment:

- estrogens
- calcytonine
- biphosponian
- other medications

Model 2. The consequences of osteoporosis



Source: own elaboration

The aim of the study

The aim of the research was to assess knowledge on prevention of osteoporosis among women seeking screening bone density test.

Material and methods of the research

Researches were carried out among 130 women aged 22-87 years (mean 59.61; standard deviation 12.04) for Lublin and Chełm and the surrounding towns. Respondents were selected in amount of people who have come forward for dens metrical screening. Tested women represent different age groups: 22-55 years old (37.7%), 56-70l years old (40.8%) and 71-82 years old (21.5%). In the test group was 23.8% of women with higher education, 50% of the medium, 26.2% of professional education or primary. As regards place of residence, 81.5% of the respondents lived in the city, however, 18.5% in the countryside.

The study used a survey method using diagnostic questionnaire survey of my own consisting of 35 questions. Participation of respondents in the study was voluntary and anonymous. The women were informed that the data collected will be used only for scientific purposes. Collected material has been subjected to statistical analysis using Statistica program. The significance of differences was examined with the Chi-square test on independence. $p<0.05$ is assumed to be the level of statistical significance. The results of the analysis depending on: age, marital status, place of residence, and education of women.

Results of the Research

Women taking part in the research were asked about the definition of osteoporosis. More than two-thirds of women interviewed (67,7%) chose the correct definition of osteoporosis, i.e. claimed that osteoporosis is a systemic metabolic disease, which causes increased bone brittleness and susceptibility to fracture. 28.5% of women believed that osteoporosis is a disease of the skeleton, characterized by impaired strength of the bone. Only 3.8% of respondent indicated the wrong definition of osteoporosis. By analyzing the responses to this question in terms of socio-demographic characteristics of the population, there were statistically significant differences.

The research shows that the women's responses to the question about the most important causes of osteoporosis (tested asked a selection of three risk factors for their most important task in the etiology of osteoporosis). About three quarters of the respondents (75.4%) indicated on the advanced age as a fundamental cause of the development of osteoporosis. It has not been demonstrated statistically significant differences by analyzing response respondent to this question depending on the traits of the population.

More than half (52.3%) surveyed women indicated on the abuse of drugs as a major cause of osteoporosis. By analyzing the responses to this question depending on the age of the women, it was found that the older women significantly more often pointed to this cause of osteoporosis compared with women with the youngest and middle age bracket. ($p<0.05$)

Differences on the border of statistical significance is demonstrated by analyzing the responses to this question depending on the education of women. The notion that drug abuse is a major cause of osteoporosis more often represent women with primary education or professional compared with women with a higher education or medium. By analyzing the responses to this question depending on the marital status and place of residence, no difference indeed. There were also a statistically significant differences between the characteristics of the socio-demographic situation of the population, and other risk factors for osteoporosis indicated by the test.

The physical exercise, which, in the opinion of surveyed women have taken preventive action or treatment in osteoporosis. Women were given the opportunity to choose from three types of physical activity they consider most important. Type of activity most of the was-walking – this variant answers selected 64.6% of the respondent.

The 53.1% respondents have chosen the swimming and exercises in the water, as an important action in the prevention or treatment of osteoporosis. Taking into account the responses to this question, found statistically significant differences depending on the education

of women, are more likely to respond *Yes* participants having higher education compared to women with secondary education and basic or professional.

By analyzing the responses to this question depending on the age, marital status or place of residence, no differences were detected in fact. Almost half (49,2%) polled women already participated in prophylactic studies aimed at the detection of osteoporosis. Statistical analysis of this behavior, depending on the age of the interviewees showed a strong dependency of statistical significance. Significantly more often in the dens metrical examination have been involved older women and women in middle age than women in the youngest age bracket. No statistically significant differences in relation to marital status, place of residence, education.

Almost one third (31.5%) of surveyed women indicated sufficient access to research towards prevention of osteoporosis. By analyzing the responses to this question depending on the age, marital status and place of residence have been shown to differences on the border of statistical significance. It was found that women in middle age were the most satisfied with access to research as compared with women with the youngest and the oldest age bracket. Taking into account marital status, single women significantly more often than women who are therefore pointed out enough to be able to study the prevention of osteoporosis. Percentage of women evaluators to be able to study the prevention of osteoporosis was more than twice as high among women living in the city with rural residents. By analyzing the responses to this question depending on education, there were indeed statistical differences.

Very important in research was question given by women about sources of knowledge about osteoporosis. The most investigated woman drew the knowledge on the topic of radio, television, Internet (50,0%), the popular press ahead (%) and leaflets, brochures on osteoporosis (19.2%). By analyzing the sources of knowledge women interviewed on osteoporosis according to the traits of the population did not show statistically significant differences.

More than three-quarters of the women interviewed (80,0%) believed that improper nutrition promotes the development of osteoporosis. This view is significantly more likely to represent women with higher education (100%) than women with medium education (75,4%) and basic or professional (70.6%, Chi2 10,498, p 0,033). There were not found statistically significant differences in respondent answers to this question depending on the age, marital status and place of residence.

One third (30%) of the women surveyed are additional to the amount of calcium pharmacological preparations. The statistical relationship was observed between the responses to this question and age and civil status of women. Older women are more likely to significantly

complement the deficiencies of calcium in your diet by pharmacological compared with women with the youngest and middle age bracket.

There were also shown statistical differences in analyzing the responses to this question, depending on the status of women. Single women are more likely to significantly supplement the deficiency of calcium preparations pharmacological than women who are in a relationship. No statistically significant differences in regard to the place of residence and education.

The most of respondents (54.6%) drank a cup of coffee once a day or more often. It was found statistically significant differences depending on the age of the youngest women, women saw coffee more often than women of middle and older age bracket. By analyzing the responses to this question depending on the marital status and place of residence of the women surveyed, there were indeed differences.

Discussion

The definition developed by WHO experts in Hong Kong in 1993. Osteoporosis is defined as a systemic disease of the skeleton, characterized by low bone mass, the disorder and increased microstructure imperfect [20]. Studies have shown that most (67,7%) respondents have knowledge on the current definition of WHO however, 28.5% of women believed that osteoporosis is a disease of the skeleton, characterized by impaired strength of the bone. Results of the research carried out by Podbielską and others have shown that the level of knowledge about the definition of osteoporosis in women covered by the survey is at 17% insufficient, 43% of sufficient, good on 29%, and a very good only 11% [21].

Almost half (49.2%) of the subjects had already been participating in research of prevention aimed at the detection of osteoporosis. However, only 31.5% of the interviewees indicated sufficient access to research towards prevention of osteoporosis. This shows your knowledge resource on osteoporosis prevention and, at the same time, insufficient availability of such research.

Mc Leod and Johnson, made a review of the convictions of men and women in Canada for osteoporosis. They recognized that the individual health beliefs and the degree of sense of self-efficacy are important in shaping the desired health behaviour in relation to osteoporosis, and their evaluation is the basis for the creation of prevention programmes [22]. Kanis stresses that there is currently no common accepted standard testing screening for identifying people at high risk for fracture. Due to the lack of current strategy for dealing, an individual approach is recommended in patients who experienced energetic fractures, in which there is a high intensity of fractures and for measuring BMD. Such a schema is widely used throughout Europe and the United States [23].Of the study conducted by Szczygielską-Majewską and others, it appears

that the most popular source of knowledge on osteoporosis were mass media, mainly radio and television-(37.8%) and newspapers (25.9%). Medical staff only to a small extent (13.5%) is the test for source of information on this topic. Few people use books moving this issue (10.3%) [24].

The results obtained during the research indicate that the most common source of knowledge on this subject is radio, television and the Internet (50%), the popular press ahead (33.1%) and leaflets, brochures on osteoporosis (19.2%).How stresses Marcinkowska-Suchowierska among environmental factors conducive to the development of osteoporosis mainly lists the nutrition, and especially the supply of sufficient amounts of calcium [25].

The research shows that the vast majority of women interviewed (80%) believed that improper nutrition promotes the development of osteoporosis. Despite the knowledge of this topic only every third of them are additional to the amount of calcium pharmacological preparations. The above discussion of the results of research many authors shows some discrepancies in the prevention of osteoporosis. Also shows the disparities between the current access to prevention research, and real state. These differences are also apparently in the level of knowledge about osteoporosis and lack of awareness of the complete diet with calcium preparations.

Conclusions

1. Almost all of the respondents have given the correct definition of osteoporosis. For the most important causes of osteoporosis examined women considered advanced age, overuse of drugs and genetic predisposition.
2. Almost half of the respondents had previously participated in prophylactic studies aimed at the detection of osteoporosis.
3. One of three respondents assessed the access to research towards prevention of osteoporosis as sufficient. With access to these preventive tests more often satisfied women were middle-aged, single women and women living in the city.
4. Knowledge about osteoporosis examined women have benefited most from the radio, television, the Internet, with the popular press and leaflets and brochures on osteoporosis.
5. More than three-quarters of the women interviewed believed that improper nutrition promotes the development of osteoporosis, but only one-third of the subjects completed the supply of calcium in the diet of pharmacological preparations.

There is a need for health education of women in the prevention of osteoporosis and exercise by women screening for this disease.

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