

EDUCATION OF PATIENTS SUFFERING FROM CHRONIC GASTRIC AND DUODENAL ULCER DISEASE

EDUKACJA PACJENTÓW Z CHOROBA WRZODOWĄ ŻOŁĄDKA I DWUNASTNICY

Maria Połocka-Molińska¹, Anna Molińska-Kulesza², Bartosz Łukaszewski³, Karolina Chmaj-Wierzchowska¹, Mieczysława U. Jurczyk¹

¹ Katedra Zdrowia Matki i Dziecka, Uniwersytet Medyczny im. Karola Marcinkowskiego w Poznaniu

² Nowy Szpital we Wschowie

³ Oddział Ortopedii i Traumatologii Narządu Ruchu, Szpital Kliniczny im. Heliodora Świącickiego Uniwersytetu Medycznego im. Karola Marcinkowskiego w Poznaniu

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ABSTRACT

Introduction. Chronic gastric and duodenal ulcer disease remains the most common chronic disease of the alimentary tract. Helicobacter pylori infection, non-steroid anti-inflammatory agents' administration, stress, smoking or alcohol are numbered among risk factors of the disease.

Aim. The aim of the research was an attempt to answer the question: Is there a demand for health education among patients with chronic gastric and duodenal ulcer disease and if so, what range of operation does it concern?

Material and methods. The research was conducted among patients with chronic gastric and duodenal ulcer disease. The examined group consisted of 140 women and 140 men of various age. In the research the knowledge of patients concerning: risk factors, disease complications, diet rules, ability to cope with stress, avoiding stimulants and desire to deepen knowledge concerning chronic peptic ulcer disease, was taken into consideration. The main research instrument was self-made questionnaire.

Results. the results of the research demonstrated relatively good knowledge of questioned persons on the subject of chronic peptic ulcer disease. However, in some aspects there is a necessity to complete educational actions in the field of: disease complications, stress coping, avoiding stimulants and most of all taking the responsibility for one's health. Differences between the knowledge of healthy life style and actual pro healthy behaviour were observed. Respondents evaluated their knowledge as sufficient for living with the disease nonetheless, they wished to deepen knowledge concerning chronic peptic ulcer disease.

Keywords: chronic gastric and duodenal ulcer diseases, education.

STRESZCZENIE

Wstęp. Choroba wrzodowa żołądka i dwunastnicy należy do najczęstszych schorzeń przewodu pokarmowego. Do czynników ryzyka choroby zalicza się przede wszystkim zakażenie *Helicobacter pylori*, przyjmowanie niesterydowych środków przeciwzapalnych, stres, palenie tytoniu czy też alkohol. Celem podjętych badań była próba odpowiedzi na pytanie: Czy wśród osób dotkniętych chorobą wrzodową istnieje zapotrzebowanie na edukację zdrowotną, oraz jeżeli istnieje to jakiego zakresu działań dotyczy?

Materiał i metody. Badania przeprowadzone zostały wśród pacjentów chorujących na chorobę wrzodową żołądka i dwunastnicy. Grupa badawcza liczyła 140 kobiet i 140 mężczyzn w różnych grupach wiekowych. W pracy wzięto pod uwagę wiedzę pacjentów dotyczącą: czynników ryzyka, powikłań choroby, zasad odżywiania, umiejętności radzenia sobie ze stresem, unikania używek, jak również chęci pogłębienia wiedzy dotyczącej choroby wrzodowej. Podstawowym narzędziem badawczym w tej pracy był kwestionariusz ankiety własnej konstrukcji.

Wyniki. Wyniki badań wykazały stosunkowo wysoką wiedzę ankietowanych na temat choroby wrzodowej. Aczkolwiek w niektórych aspektach konieczne jest uzupełnienie działań edukacyjnych w zakresie: powikłań choroby, walki ze stresem, unikania używek, a przede wszystkim brania odpowiedzialności za własne zdrowie. Zaobserwowano różnicę pomiędzy posiadaną wiedzą pacjentów na temat zdrowego stylu życia a faktycznym zachowaniem prozdrowotnym. Respondenci ocenili dotychczasową wiedzę jako wystarczającą do życia z chorobą, pomimo tego wyrażali chęć pogłębienia swojej wiedzy dotyczącej choroby wrzodowej.

Słowa kluczowe: choroba wrzodowa żołądka i dwunastnicy, edukacja.

Introduction

Over recent years an alarming increase in the occurrence of peptic ulcer and duodenum ulcer among both men and women can be observed. The present times can be characterized by a remarkable acceleration of the pace of life, natural habitat pollution, stress related to socio-economic factors, workaholism, inadequate nutrition and the use of drugs and stimulants. All mentioned factors affect the

number of occurrence of chronic diseases, including peptic ulcer and duodenum ulcer.

Peptic ulcer disease is a systemic illness that belongs to the most common diseases of gastrointestinal tract. It is a chronic disease characterized by frequent relapses and exacerbations [1].

The prevalence of the disease in various countries is estimated to be from 5% to 10% of the adult population,

and in Poland, according to CSO (GUS) data, the indicator is approximately at the level of 6.2%. Among employees of industrial facilities this figure is 7%, while in the rural areas 5.3%. On a basis of statistical data it can be noted that peptic ulcer and duodenum ulcer are more frequent among men. The disease can appear at no particular age. Nevertheless, it affects primarily young people in the production period. The highest percentage of occurrence of the disease can be observed among people in the age group between 20 and 50 years old [1,2].

Peptic ulcer is a very serious problem not only from medical, but also from social point of view since it results in significant disturbance in the functioning of a person at the professional and psycho-sociological level.

A disease process consists of several factors. Helicobacter pylori infection, smoking, excessive consumption of alcohol, stress, insufficient nutrition, as well as taking non-steroidal non-inflammatory drugs are the most relevant factors.

Sometimes people act as if their health was of no value for them. They often take actions which lead to the emergence of the disease or which prolong its duration. Every man is responsible for his own health because the way we live, how we cope with stressful situations, how we rest and nourish affects our health. Therefore, it is necessary to inform people what is harmful for them, how they can avoid inimical factors, and how to deal with them.

Thus, the task of the peptic ulcer education will be to provide information related to factors influencing the formation of ulcers, general principles of nutrition, the knowledge of possible complications, pharmacological treatment, the recommended lifestyle, a possibility to cope with pain and prevention of disease relapses, but mostly, to develop responsibility for one's health.

Properly conducted educational activities will enhance the prevention of disease relapses, help to alleviate disturbing symptoms and teach people how to "live" with the disease.

The aim of the study was to identify the need for education of patients with dysfunctions of gastrointestinal tract as well as to assess whether the scope of expressed need for information corresponds with the actually existing lack of knowledge among respondents.

Material and methods

In order to answer the above questions and to assess the level of knowledge and behaviors affecting the course of peptic ulcer and duodenum ulcer disease among patients, a questionnaire survey among 280 people has been conducted.

The primary research tool was a questionnaire prepared by the author consisting of 3 parts. I part – a certificate, included socio-demographical data of respondents (age, gender), II part included questions related to the disease, its duration and the occurrence of disease symptoms. III part included questions devoted to the knowledge of respondents and the need for education. The survey was preceded by a preliminary interview that aimed to obtain an approval to take part in the study. The rules of answering the questions included in the questionnaire were also explained. Respondents were informed about the anonymity of the research and that the results would be used only for scientific purposes.

Results

The study included a total number of 280 participants (140 women and 140 men, aged between 50 and 75 years old, the average age was 59.8 years), with diagnosed peptic ulcer and duodenum ulcer disease. The duration time of the disease among respondents ranged from 2.5 year to 10 years and more. Both inhabitants of the city (56.8%) and of rural areas (43.2%) took part in the survey (**Table 1**). A vast majority of respondents was of high-school, vocational and primary school education – 63.6%, and only 36.4% was of higher education (**Table 2**). The largest group was represented by pensioners – 41.4%. The characteristics of the studied group has been presented in Table 3.

Marital status of the respondents. Among the largest group of respondents 192 (68.6%) were persons being married. The least people – 26 (9.3%) were unmarried. A significant percentage of respondents 22.1% remained single because of the death of one spouse (**Table 4**).

Analyzing the professional activity of the respondents demonstrated that less than half – 116 (41.4%) of all respondents received retire or disability pension. Almost every fourth person, circled box – intellectual work, and the remaining 35% of respondents considered their work as a physical (**Table 5**).

More than a half of respondents (67.1%), evaluated so far obtained knowledge as sufficient to deal with the disease. Women prevailed in this group – 115 – 82.1%, men accounted for 52.1%. Taking all respondents into consideration, a significant percentage evaluated their knowledge as insufficient – 22.5%. The largest group among them were men. Self-evaluation of knowledge among women was considerably higher since only 15.8% felt dissatisfaction with their knowledge. The remaining 10.4% of respondents was not able to evaluate their knowledge related to the disease. For the question about the necessity of endoscopy most of respondents (81.25%) answered po-

Table 1. Place of residence of respondents

Place of residence	Males		Women		Together	
	N	%	N	%	N	%
A city to 20 000 inhabitants	65	46.2	77	55.0	142	50.7
A city with more than 20 000 inhabitants	11	7.9	6	4.2	17	6.1
Rural areas	64	45.7	57	40.7	121	43.2
Together	140	100	140	100.0	280	100.0

Table 2. Education level

Education level	Males		Women		Together	
	N	%	N	%	N	%
Basic	37	26.4	29	20.7	66	23.6
Basic profession	48	34.3	23	16.4	71	25.4
Secondary	20	14.3	21	15.0	41	14.6
Higher	35	25.0	67	47.9	102	36.4
Together	140	100	140	100.0	280	100.0

Table 3. Age of examined patients

Ages (years)	Males		Women		Together	
	N	%	N	%	N	%
50–55	33	23.6	53	37.8	86	30.8
56–60	31	22.1	25	17.9	56	20.0
61–65	26	18.6	32	22.9	58	20.7
66–70	34	24.3	16	11.4	50	17.8
71–75	16	11.4	14	10.0	30	10.7

Table 4. Civil status

Indications	Males		Women		Together	
	N	%	N	%	N	%
Married	91	65.0	101	72.1	192	68.6
Single	11	7.9	15	10.8	26	9.3
Widower/ Widow	38	27.1	24	17.1	62	22.1
Together	140	100.0	140	100.0	280	100.0

Table 5. Professional activity

Knowledge	Males		Women		Together	
	N	%	N	%	N	%
Physical work	75	53.5	23	16.4	98	35.0
Intellectual work	11	7.9	55	39.3	66	23.6
Pension	54	38.6	62	44.3	116	41.4
Together	140	100.0	140	100.0	280	100.0

sitively, including 43.75% who stated that it is "absolutely necessary". The same number of respondents – 43.75% stated that it is "rather necessary". Only 3.75% answered that it is "rather not necessary". Remaining respondents (8.25%), did not have an opinion about the necessity of this examination. Authors were interested if patients are able to point out the factors responsible for development of peptic ulcer disease. From the conducted study and its analysis it can be concluded that most of respondents can enumerate a few risk factors of peptic ulcer disease. Most often mentioned are: stress (65%), bad nutrition (62.5%), smoking (60%). Few respondents (13.75%) mentioned taking non-steroidal anti-inflammatory drugs as a risk factor. A similar percentage (15%), pointed for *Helicobacter pylori* bacteria. The fact that 16.25% did not know any risk factors is very disturbing.

In the opinion of 43.75%, of respondents, stress was the most frequent cause of increasing the symptoms of peptic ulcer disease. Among other causes that result in complaints, respondents most often mentioned improper nutrition - according to 41.25%, including one in four men and one in three women. "Bad nutrition" was understood as food difficult to digest, cold meals, consumed at different and irregular hours, eaten in a hurry. A following reason mentioned by 16.8 % of respondents was the use of stimulants: coffee, alcohol, cigarettes. Men constituted the majority in this group, whereas women were in minority. The following cause, according to respondents (23.75%), was an irregular intake of anti-ulcer drugs. In this respect answers of men and women were similar (W – 22.5%, M – 25%) (**Table 6**). The surprising fact is that 65% of respondents indicated that heavy physical work reduces the pain associated with the disease. The remaining 35 % of people found the following hard physical work as the cause of intensification of symptoms (**Table 5**).

The use of non-steroidal anti-inflammatory drugs as a factor in the escalating problems indicated only 7.5 % of respondents. In the group of men as much as 5 % were unable to identify any factors that cause discomfort associated with peptic ulcer disease (**Table 6**).

A proper and skilful dealing with stress, according to 35% of respondents, had the greatest impact on reduction of symptoms associated with peptic ulcer disease. In the group of women 41.4% was of this opinion and in the group of men – 28.6%. When patients were asked to assess the impact of stress on the course of peptic ulcer disease, the largest percentage – 91.25% of patients, was able to notice the negative effects of stress. In this group, a definitely negative effects of stress was noticed by 67.5% of women compared to relatively small number of men – 35%.

Rather negative opinions on stress were presented mostly by men – 52.5%, compared to women – 27.5%. According to 5% of respondents, stress does not play a relevant role in the course of peptic ulcer disease, while 3.75% did not have a particular opinion on that subject. Another important factor, according to 28.2% of respondents, was a regular intake of medicines. A proper nutrition has a significant impact on the reduction of symptoms of the disease for 23.2% of respondents. More of these answers were marked by women rather than men. As stated by 16.8% of participants, avoiding any stimulants has a relieving effect on the symptoms of the disease. Women represented slightly smaller group – 15% in comparison to men – 18.6%. Moreover, for 13.6% of all respondents unconventional treatment methods influenced the reduction of symptoms of the disease (**Table 6**).

For the question about the knowledge of applied drugs a majority of respondents (55%), stated that they remember the names of pharmacological agents and is slightly familiar with their action. In this group, a majority was constituted by women – 72.5%, whereas men constituted 37.5%. The same percentage of men – 37.5%, was able to name only some of medicines they used (**Table 7**).

The authors were also interested in nutrition habits of patients and in the way they prepared their meals. A vast majority of respondents (66.25%), preferred fried, smoked and baked food. In this group men were in majority (80%), there were significantly less women (52.5%). Other people preferred boiled, stewed, baked in parchment paper meals. 47.5% of women answered in that way compared to 20% of men. The analysis of the data shows that most of respondents was familiar with meals that were allowed in peptic ulcer and duodenum ulcer disease diet, and which meals should be avoided (**Table 8**).

From the data presented in **Table 9** it can be concluded that after a diagnosed peptic ulcer and duodenum ulcer disease a majority of respondents (57.5%) did not change the current diet. In this group men constituted 70%, and women 45%. Remaining participants (42%) have changed their eating habits. In this group women were in majority (55%), compared to men (30%).

Table 10 indicates that most of respondents provided at least a few sources of obtaining information about peptic ulcer disease, and 63.2% of participants got the knowledge from a doctor. A fact that for 8.9% of respondents self-observation and personal experience were another sources of information is considerably surprising. More than a half of patients gained their knowledge about the disease from conversations with a nurse. Widely available literature was the source of information for 17.1% of

Table 6. Knowledge on factors decreasing pain

Answers	Males		Women		Together	
	N	%	N	%	N	%
Dealing with stress	40	28.6	58	41.4	98	35
Proper nutrition	19	13.6	46	32.9	65	23.2
Regular intake of drugs	29	20.7	30	21.4	79	28.2
Moderate physical activity	20	14.3	12	8.6	32	11.4
Avoidance of stimulants	26	18.6	21	15.0	47	16.8
Unconventional treatment methods	20	14.3	18	12.9	38	13.6
Non-steroidal anti-inflammatory drugs	126	90.0	134	95.7	260	92.8
Other	1	0.7	2	1.4	3	1.1

Table 7. Shortage of knowledge

A lack of knowledge in terms of	Males		Women		Together	
	N	%	N	%	N	%
Causes of a disease	38	27.1	36	25.7	74	17.5
Proper nutrition principles	61	43.6	31	22.1	92	33.7
Prevention of possible complications	71	57.9	50,7	36.4	122	33.7
A proper lifestyle	15	10.7	15	10.7	30	21.4
Pharmacotherapy	11	7.9	9	6.4	20	14.3
A possibility to fight the pain	35	25.0	27	19.3	62	44.3
Prevention of relapses of a disease	24	17.1	23	16.4	47	33.6
I'm not interested in it	9	6.4	4	2.9	13	9.3

Table 8. Way of preparing meal

Meal preparation	Males		Women		Together	
	N	%	N	%	N	%
Fried, Roasted, Smoked	112	80.0	73	52.1	185	66.4
Boiled, Stewed, Baked	28	20.0	67	47.9	95	33.6

Table 9. Change of diet caused by the disease

Answers	Males		Women		Together	
	N	%	N	%	N	%
Yes	42	30.0	77	55.0	119	42.5
No	98	70.0	63	45.0	161	57.5
Together	140	100.0	140	100.0	280	100.0

Table 10. Sources of information concerning the disease

Sources of information	Males		Women		Together	
	N	%	N	%	N	%
Widely available literature	14	10.0	34	24.3	48	17.1
TV programs	16	11.4	16	11.4	32	11.4
Doctor	83	59.3	94	67.1	177	63.2
Nurse	58	41.4	72	51.4	155	55.4
Other people with a disease	6	4.3	12	8.6	18	6.0
Self-observation	11	7.9	14	10.0	25	8.9
Family members	-	-	1	9.7	1	0.7
I don't look for any information	12	8.6	1	0.7	3	1.1

respondents. Another information sources for 11.4% of patients were TV programs related to medical subjects. 3 people from all respondents did not use any accessible sources of information about the disease.

83.7% of respondents confirmed that they would like to be provided with more information about peptic ulcer disease, while remaining participants (16.3%), did not exhibit such interest (22.5% of men and 10% of women). The highest percentage of participants (43.6%), wanted to expand their knowledge about the disease in the area of possible complications prevention. The knowledge related to the nutrition and preferable diets would like to deepen 32.9% of respondents. Slightly less respondents, respectively 22.1% and 21.4%, would like to gain more information on how to deal with the pain and a proper lifestyle (Table 7).

Discussion

The purpose of health education is to create proper attitudes towards health and to provide knowledge necessary to maintain this health. The quality of patient care and self-care of patients depends mainly on the level of knowledge possessed and represented by medical staff. The knowledge transferred to patients helps to create healthy behaviors and to eliminate destructive behaviors.

According to scientists, the main factor that enhances the development of ulcers is *Helicobacter pylori* bacteria which occurs in a majority of patients suffering from peptic ulcer and duodenum ulcer disease. It produces several factors that are toxic to mucous membrane and its protective barrier. As the infection prolongs, an inflammation develops, it results in erosions, and consequently ulcers appear. An important role of *Helicobacter pylori* in the pathogenesis of peptic ulcer disease is indisputable. However, it should be also noted that peptic ulcers may appear among people not infected by the bacteria, it might likewise happen that ulcers will never develop and appear among infected people [1, 2, 3, 11-16].

According to numerous authors, non-steroidal anti-inflammatory drugs (NSAIDs), are the second after *Helicobacter pylori* most common factor causing ulcer disease. These ulcers frequently do not result in clinical symptoms, thus among nearly 60% of people only complications are considered as the first sign of the damage of gastrointestinal tract. S. Rosenstock and others in their work [17], presented the results of their survey conducted on a group of patients between 1982-1994; they indicated that for the main risk factors resulting in peptic ulcer disease we can include: *Helicobacter pylori* infection (odds ratio 4.3), smoking (odds ratio 12.7), an excessive intake of alcohol

(odds ratio 2.4) and the use of weak tranquilizers (odds ratio 3.0). On the other hand, according to the authors, the use of non-steroidal anti-inflammatory drugs does not increase the risk of the disease (odds ratio 0.4). Moreover, a protective effect of physical activities and consumption of small amounts of wine or beer has been proved. These factors increase protection against peptic ulcer disease.

Opinions related to other risk factors as stress, strong coffee, tea are divided and much less attention is paid to them [4, 5].

The most controversial factor that appeared in the study is smoking. As stated by several people who took part in the study, smoking was one of the most frequently mentioned factors that enhance the development of ulcers. Some people argue that smoking has no influence on the occurrence of peptic ulcer disease, however, there are researchers who represent a completely different opinion [1, 6].

According to a vast majority of respondents, the most relevant factor that predisposes the formation of peptic ulcer disease and triggers the pain is stress. Nonetheless, in the medical literature opinions on the importance of stress are divided. Some of the authors presented the relationship between overstimulation of the central nervous system and the creation of ulcers. It has been observed that people characterized by a personality model type A, it means people highly ambitious in terms of professional and material issues, with a tendency to be competitive, living in a rush, willing to work in spite of fatigue, who tend to react aggressively, are more prone to suffer from peptic ulcer disease in comparison to people with opposite traits. Thus, it can be assumed that with personality type A are a risk factor for peptic ulcer disease. It has been widely accepted that the etiology of peptic ulcer disease is multi-factorial. The data on the impact of individual risk factor are rare. In the study [17], it has been proved that among Danish adults physical activity helps to protect against peptic ulcer disease in people infected by *H. pylori*.

On the other hand, a group of Taiwanese scientists assessed the risk of osteoporosis in patients suffering from peptic ulcer disease, using Cox proportional hazards model. The study was conducted on a group of 27,132 participants aged between 18-70 years old. Osteoporosis was diagnosed in 9.35% of respondents with peptic ulcer disease, whereas in a group without peptic ulcer disease in 8.33%. A relationship between peptic ulcer disease and the risk of osteoporosis has been indicated [18].

In addition, the occurrence of stress ulcer in patients who experienced severe mental traumas, accidents, burns, immobilizations has been observed. However, stress as

factor responsible for the development of duodenum ulcer has not been proved. It plays an important role in the development of the disease since it worsens its course, nevertheless, by several researchers it is not considered as a factor that directly causes the occurrence of ulcer [1, 7].

From the conducted self-study it can be concluded that numerous respondents indicated an improper nutrition as a following risk factor for peptic ulcer disease. Food hard to digest, alcohol, strong coffee cause dyspeptic symptoms and are considered to be factors modifying the course of the disease. It has not, however, been proved that irrational nutrition is a causative and direct factor resulting in a creation of ulcer disease. Previously, there were important views on the dietary treatment but now it is believed that diet has only a supporting effect on pharmacological treatment. Some authors point out that nowadays diet has no significant value on the level of pharmacotherapy, and the use of modern drugs allows patients to eat everything. Nonetheless, there are meals that increase or decrease the level of stomach juice production and drugs are prescribed for only particular period of time, not for an entire life. It is believed, however, that people cannot be left in a false belief that diet or stimulants have no impact on the disease because patients themselves report pains after dietary mistakes and errors.

Since the detection of *H pylori* bacteria there is a tendency to pay less attention to other risk factors. Although *Helicobacter pylori* is the most relevant factor, it is not the only one. Remaining risk factors as: stress, non-steroidal anti-inflammatory drugs, alcohol, cigarettes, coffee, improper nutrition are very important because they can simply be avoided and eliminated [9, 10-16].

It is commonly known that one of possible ways of raising the health awareness is education devoted to health issues. Health education among patients suffering from peptic ulcer disease is extremely desirable since it affects mainly young people in the working age. Every disease is connected with physical, mental and social disturbances.

In the present paper the knowledge of patients related to risk factors, complications of the disease, the principles of nutrition, the ability to deal with stress, avoidance of stimulants, as well as a desire to gain information about peptic ulcer disease has been taken into account.

Presented and discussed studies suggest that knowledge of patients in terms of peptic ulcer disease is relatively large. In some aspects, however, it is necessary to supplement educational activities, especially devoted to complications of the disease, stress management, avoiding stimulants, but mainly in developing a responsibility for one's own health.

Most of respondents was familiar with the rules of peptic ulcer disease diet, and yet they did not apply it. Similarly, nearly all patients were aware of the negative impact of stimulants, however, some of them used them. A fact that despite a broad knowledge on the subject of peptic ulcer disease most patients expressed a desire to deepen it seems to be encouraging.

Health education should be fundamental at work of medical staff and be an integral part the healthcare of patients suffering from peptic ulcer disease.

It is especially important for the nursing staff, as for people who spend a lot of time with patients, observe them and recognize their needs. An identification of patients' needs, including educational needs, is one of the most important tasks of medical staff. The effect of educational process depends on the staff itself since they are responsible for all particular phases of it (diagnosis, planning, realization, evaluation). Appropriately selected methods, means, as well as the way of delivering the information play a significant role in this process. The results of education depend on the commitment of recipients, their level of knowledge, an attitude to acquire the knowledge and motivation to do so [7].

Frequently it can be observed that people who live in favorable conditions, who possess an adequate level of knowledge display various destructive unhealthy behaviors. Very often they appreciate the value of health when they experience the disease, suffering, and even life-threatening situations. It should be noted that widely understood health education would be more beneficial than an expensive treatment, especially when it comes to people of working age.

To sum up, the results of the study showed a relatively high level of knowledge of respondents concerning the issue of peptic ulcer disease. Nevertheless, in some aspects it seems to be necessary to supplement the educational activities in the following areas: complications of the disease, stress management, avoiding stimulants and primarily in terms of taking responsibility for one's own health. A difference between the level of knowledge of patients about the rules of healthy lifestyles and an actual following of these rules has been observed. Respondents assessed their current knowledge as sufficient to live effectively with the disease, nonetheless, they expressed a desire to deepen their knowledge related to peptic ulcer disease.

Conclusions

1. Most of respondents was able to name at least one factor that has a negative impact on the course of peptic ulcer disease

2. A vast majority of participants possessed a sufficient knowledge about the symptoms of peptic ulcer disease
3. Further education in terms of complications of the disease and their prevention is necessary
4. Patients should be taught to take responsibility for their own healthy behaviors.

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Adres do korespondencji

Mieczysława Jurczyk
Katedra Zdrowia Matki i Dziecka
Zakład Praktycznej Nauki Położnictwa
Uniwersytet Medyczny im. Karola Marcinkowskiego w Poznaniu
ul. Polna 33
60-535 Poznań
tel.: 664 901 707
e-mail: mjur@poczta.onet.pl