Clinical and nursing problems in Crohn's disease

Problemy kliniczne i pielęgnacyjne w chorobie Leśniowskiego-Crohna

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Słowa kluczowe: choroba Leśniowskiego-Crohna (ChLC), problemy kliniczne ChLC, pielęgnacja w ChLC.

Abstract

Introduction: Crohn's disease (CD) is a transmural, typically granulomatous intestinal inflammation and may affect any part of the gastrointestinal tract, from the mouth to the anus. The complexity of the course of CD along with its complications (fistulas, perforation, and bleeding into the gastrointestinal tract) requires doctors and nurses to have specialised knowledge that conditions the treatment of this disease.
Aim of the research: To present the clinical image and nursing problems of CD patients, based on the analysis of medical documentation of the Clinical Department of General, Oncological and Endocrine Surgery.
Material and methods: The group under study was formed out of 34 patients with diagnosed CD, hospitalised within the years 2003–2011. The criteria for inclusion into the group were as follows: diagnosed CD, age of 18–80, male and female gender. The criteria for exclusion were connected with other inflammatory diseases of the intestines, the age being below 18, or admission due to another reason, e.g. a planned cholelithiasis surgery during a remission of CD.
Results: Analysis of medical documentation concerned 34 patients with CD. There were 15 women (44.1%) and 19 men (55.9%) in the group; the minimal age was 20 and the maximal 77; the average age was 47.2 and the median 47. The minimum length of stay was 1 day, the maximum 32 days, the average 8.29, and the median 6.5. Analysis of the data showed that the duration of hospitalisation increases with age. There is no statistical interrelation between the length of stay at the hospital and the nature of the stay (emergency, planned). The duration of the disease was most often from 2 to 5 years in 12 cases (35.3%), in 7 cases (20.6%) this was 5 to 10 years, and in one person (2.9%) it was above 10 years. In 23.5% of patients, it was aches and pains that were the cause of going to hospital; other symptoms such as bleeding, diarrhoea and vomiting were a separate rarer cause of hospitalisation. During treatment the following complications were encountered: stroke – 1 (2.9%), endocarditis – 1 (2.9%), myocardial infarction – 1 patient (2.9%), shock – 1 (2.9%), deep surgical site infection – 1 (2.9%), and superficial surgical site infection – 2 (5.8%).
Conclusions: In light of our own research, it may be stated that the most frequent causes of going to hospital in the case of CD patients are pain, nausea and vomiting as well as bleeding into the gastrointestinal tract. In the case of CD, for the examined patients, the most frequent locations were the final section of the small intestine and the initial part of the large intestine. The disease resulted, in a significant part of the patients, in the occurrence of complications such as fistulas, perforation and bleeding into the gastrointestinal tract. Such conditions are one of the most difficult clinical problems, for both doctors and nurses. Treatment of CD patients with complications requires doctors and nurses to have specialised knowledge of this disease and to treat its complications.

Streszczenie

Wstęp: Choroba Leśniowskiego-Crohna (ChLC) jest pełnościennym, przeważnie ziarniniakowym zapaleniem jelit i może dotyczyć każdego odcinka przewodu pokarmowego, począwszy od jamy ustnej aż do odbytu. Złożoność przebiegu tego schorzenia oraz jego powikłania (przetoki, przedziurawienie, krwienie do światła przewodu pokarmowego) wymagają od lekarzy i pielęgniarek specjalistycznej wiedzy dotyczącej jego leczenia.
Cel pracy: Przedstawienie obrazu klinicznego ChLC i problemów pielęgnacyjnych na podstawie analizy dokumentacji medycznej Klinicznego Oddziału Chirurgii Ogólnej, Onkologicznej i Endokrynologicznej Wojewódzkiego Szpitala Zespolonego w Kielcach.
Materiał i metody: Grupę badaną stanowiły 34 osoby z ChLC hospitalizowane w latach 2003–2011. Kryteriami włączenia do grupy badanej były: rozpoznanie ChLC, wiek 18–80 lat, płeć męska i żeńska, natomiast kryteriami wyłączenia – rozpo-

znanie innych chorób zapalnych jelit, wiek poniżej 18 lat, przyjęcie chorego z innego powodu, np. z kamicą pęcherzyka żółciowego do planowego zabiegu w okresie remisji ChLC.

Wyniki: Analiza dotyczyła dokumentacji medycznej 34 osób z ChLC. W grupie badanej było 15 kobiet (44,1%) i 19 (55,9%) mężczyzn, minimalny wiek wynosił 20 lat, maksymalny 77 lat, średnia 47,2 roku, a mediana 47 lat. Minimalny czas pobytu w szpitalu wynosił 1 dzień, maksymalny 32 dni, średnia 8,29 dnia, a mediana 6,5 dnia. Analiza danych wykazała, że wraz z wiekiem zwiększał się czas hospitalizacji. Nie istnieje statystyczna zależność pomiędzy czasem pobytu w szpitalu a charakterem pobytu (nagły, planowy). Najczęściej czas trwania choroby wynosił 2–5 lat – u 12 pacjentów (35,3%), u 7 (20,6%) od 5 do 10 lat, a u 1 osoby (2,9%) powyżej 10 lat. U 23,5% chorych przyczyną zgłoszenia się do szpitala były dolegliwości bólowe. Inne objawy, takie jak krwawienie, biegunka, wymioty, stanowiły oddzielnie rzadszą przyczynę hospitalizacji. W trakcie leczenia wystąpiły następujące powikłania: udar – 1 (2,9%), zapalenie wsierdzia – 1 (2,9%), zawał – 1 (2,9%), wstrząs – 1 (2,9%), głębokie zakażenie miejsca operowanego – 1 (2,9%), powierzchowne zakażenie miejsca operowanego – 2 (5,8%).

Wnioski: Najczęstszą przyczyną zgłaszania się do szpitala w przypadku pacjentów z ChLC jest ból, nudności, wymioty oraz krwawienie do światła przewodu pokarmowego. U badanych pacjentów z ChLC najczęstszymi miejscami lokalizacji zmian chorobowych były końcowy odcinek jelita cienkiego oraz początkowa część jelita grubego. Choroba spowodowała u znacznej części pacjentów wystąpienie takich powikłań, jak: przetoki, przedziurawienie, krwawienie do światła przewodu pokarmowego. Stany te należą do najtrudniejszych problemów klinicznych – lekarskich i pielęgniarskich. Leczenie osób z ChLC z powikłaniami wymaga od lekarzy i pielęgniarek specjalistycznej znajomości tej jednostki chorobowej oraz leczenia jej powikłań.

Introduction

In the past few decades a significant increase in the incidence of Crohn's disease (CD) could be observed. Most of the cases occur in countries of Western Europe and North America, less frequently in Central and Eastern Europe, Asia, South America, Africa and the Pacific region. It is estimated that currently CD incidence in Western European and North American countries is at a rate of 5–10 cases/100,000/year and shows a stable incline tendency [1, 6]. Data from Poland, although no detailed analysis concerning the incidence of CD was made, seem to correspond to the demographical characteristics of the Western European population and confirms the growing number of patients with diagnosed CD in the recent decades [1, 5, 6]. In recent years, there has been a significant advance in the understanding of factors behind non-specific inflammatory bowel diseases. These factors can be divided into the following four groups: environmental factors, genetic predispositions, bacterial flora of the gastrointestinal tract, and the intestine immune system [6, 7, 10, 11].

Diagnosis of CD requires a clinical assessment and association of endoscopic, histopathological, radiological and biochemical examinations [2]. The disease usually begins insidiously, and non-specific symptoms usually impede or delay diagnosis even by a few years. The following are clinical features of CD: stomach aches located in the right iliac fossa; abdominal bloating; chronic diarrhoea, often with an admixture of mucus, but usually without blood; weight loss; and chronic fatigue. General symptoms include low-grade fever or fever, and in children – delay of growth and pubertal development. Special attention should be paid to the physical examination of the abdominal cavity. There might not be any deviation from the norm, usually however, there is sensitivity on palpation or the presence of a tumour in the location of the pathological changes, most often in the right iliac fossa (varying from appendicitis) [1, 12]. Colonoscopy with assessment of the distal ileum is a recognized diagnostic method of first choice in the case of suspected CD. The distal ileum is occupied in 40–50% of the patients, while in 30–40% the changes occur both in the small and large intestines. Endoscopic examinations allow to determine the type and extent of the changes, their location and activity, as well as to sample tissues for histopathological examination.

Routine blood tests are made to confirm the inflammatory condition, to determine the degree of deficiencies, dehydration and nutritional deficiencies. Erythrocyte sedimentation rate (ESR) and C-reactive protein (CRP) concentration are standard indicators of inflammation [13]. C-reactive protein is also one of the parameters used in prognosis of exacerbation of the disease.

The initial outline of the clinical and nursing problems shows the need for analysis of these issues in selected groups of patients.

Aim of the research

The aim of the research was to analyse the most important clinical and nursing problems of CD patients, based on the analysis of medical documentation of the Clinical Department of General, Oncological and Endocrine Surgery of the PPH in Kielce.

Material and methods

The group under study was formed of 34 patients with diagnosed CD, hospitalised at the Clinical Department of General, Oncological and Endocrine Surgery during the years 2003–2011. There were 15 women and 19 men in the examined group; the minimal age was 20 and the maximal 77, the average age was 47.2 and the median 47.

The criteria for inclusion into the group were as follows: diagnosed CD, age of 18–80, male and female gender. The criteria for exclusion were as follows: diagnosis of other inflammatory diseases of the intestines,

age below 18 and above 80, admission of the patient due to another reason, e.g. a planned cholelithiasis surgery during a remission of CD.

In the case of CD patients, the length of stay at the hospital can depend, amongst others, on the degree of activity of the disease, a possible need for surgical treatment and the age of the patient. The minimum length of stay was 1 day, the maximum 32 days, the average 8.29 and the median 6.5.

In order to analyse the clinical and nursing problems, retrospective studies, based on the assessment of the medical documentation from the doctors and nurses as well as that of the fate of the patients, were used in the research.

The following were subjected to analysis in the medical documentation:
• medical histories of the patients, on the basis of which information was obtained on the following: the clinical diagnosis consisting of the underlying disease and co-morbidities, the performed diagnostic examinations, and the type of treatment used;
• personal medical prescription sheets where the type and manner of administered drugs were taken into consideration, amongst others that of analgesics, antibiotics, anticoagulants, the prescribed diet (type, number of days, manner of administration), nutritional therapy (enteral and parenteral nutrition) and prescribed examinations and medical consultations;
• the patients' fever examination charts, fluid balance charts, and observation charts, which contained the following monitored parameters: blood pressure, heart rate, and temperature.

The analysis also concerned nursing documentation: an assessment chart regarding the patient's state, a plan of care and nursing activities.

This allowed for an assessment of the nursing actions used on the patients while they were at the department.

Statistical analysis

The results of the study design obtained during calculations were presented in the form of the following distribution parameters: arithmetical mean,

Table 1. Arbitrary definition of the strength of relationship

The range of the r_p variable	Definition of the strength of relationship
$R_p = 0$	None
$0 < r_p < 0.1$	Faint
$0.1 < r_p < 0.3$	Weak
$0.3 < r_p < 0.5$	Moderate
$0.5 < r_p < 0.7$	High
$0.7 < r_p < 0.9$	Very high
$0.9 < r_p < 1.0$	Almost perfect
$R_p < 1.0$	Perfect

median, standard deviation, min – minimum, max – maximum. The χ^2 test is the most important nonparametric test which gives basis for forming general conclusions. The great importance of this test results from the fact that it has a multitude of uses. So the χ^2 test is used to compare the results obtained, based on a sample with a specific hypothesis, when comparing two or more structures or in study of normal distribution, etc. (Table 1).

Results

Characteristics of the patients

The group under study was formed of 34 patients with diagnosed CD, hospitalised at the Clinical Department of General, Oncological and Endocrine Surgery during the years 2003–2011. There were 15 women and 19 men in the examined group; the minimal age was 20 and the maximal 77, the average age was 47.2 and the median 47 (Table 2).

Detailed analysis showed that there is no statistical relationship between the age of the examined and their gender. The real value of 2, being 3.42, is lower than the critical value which with three degrees of freedom and a level of significance of 0.05 amounted to 7.815. Among the 34 patients whose data were analysed, 11 (32.4%) live in the countryside and

Table 2. The patients' age and gender

Age [years]	Female		Male		Total	
	n	%	n	%	n	%
Up to 20	0	0	1	3.0	1	3.0
21–40	7	20.5	4	11.8	11	32.3
41–60	4	11.8	9	26.4	13	38.2
Above 60	4	11.8	5	14.7	9	26.5
Total	15	44.1	19	55.9	34	100.0

$\chi^2 = 3.42 < \chi^2_{0.05; 3} = 7.815, H = 0$

Table 3. Length of stay at the hospital and the age of the patients

Length of stay [days]	Up to 20		21–40		41–60		Above 60		Total	
	n	%	*n*	%	*n*	%	*n*	%	*n*	%
Up to 5	1	3.0	7	20.6	7	20.6	1	3.0	16	47.0
6–10	0	0	1	3.0	1	3.0	2	5.9	4	11.8
11–15	0	0	3	8.8	5	14.7	2	5.9	10	29.4
16–20	0	0	0	0	0	0	3	8.8	3	8.8
Longer than 20	0	0	0	0	0	0	1	3.0	1	3.0
Total	1	3.0	11	32.3	13	38.2	9	26.5	34	100.0

$\chi^2 = 11.97 < \chi^2_{0.05; 9} = 16.919$, H = 0

23 (67.6%) in the city. Among the urban inhabitants, 7 (20.6%) people are aged 21 to 40, and 8 (23.5%) are aged 41 to 60 and above 60. In the case of rural inhabitants, 1 person (3.0%) is aged up to 20, 4 (11.8%) are aged 21 to 40, 5 (14.7%) are aged 41 to 60 and 1 (3.0%) is aged above 60.

Detailed analysis showed that there is no statistical relationship between the place of residence and the gender. The real value of χ^2, being 0.4, is lower than the critical value which with one degree of freedom and a level of significance of 0.05 amounted to 3.841.

In the patients' case, there can be several disease entities present, which will affect their overall state of health. That is why information about the presence of co-morbidities was analysed.

In the case of CD patients the length of stay at the hospital can depend, amongst others, on the degree of activity of the disease, a possible need for surgical treatment and the age of the patient. Own research showed that the respondents stayed at the hospital most often up to 5 days: 16 (47.0%), 4 (11.8%) people stayed at hospital for 6–10 days, and 10 (29.4%) for 11–15 days. Only 1 (3.0%) person stayed at the hospital for longer than 20 days (Table 3).

Analysis of the data showed that the length of stay at the hospital increases with age. Statistical analysis did not show, however, any statistical significance between the length of stay at the hospital and the age of the patients.

Detailed analysis showed that there is no statistical interrelation between the length of stay at the hospital and the nature of the stay (emergency, planned). The real value of χ^2, being 0.95, is lower than the critical value which with four degrees of freedom and a level of significance of 0.05 amounted to 0.95. In the case of CD patients, the length of the stay duration can vary, depending among others on the age of the patient. Our own research showed that the respondents have suffered from CD most often for 2 to 5 years – 12 (35.3%). Eight (23.5%) patients were in the course of diagnosis, and 6 patients have been already ill for 1 year. Only 1 person (2.9%) has been ill for longer than 10 years, and 7 (20.6%) were ill for between 5 and 10 years (Table 4).

There is no statistical interrelation between the duration of the disease and the age of the patients. Analysis of the data showed that with age the duration of the stay at the hospital increases, but there is no statistical relation between the duration of the

Table 4. Duration of the disease and the age of the patients

Duration	Up to 20		21–40		41–60		Above 60		Total	
	n	%	*n*	%	*n*	%	*n*	%	*n*	%
Diagnosis	0	0	1	3.0	6	17.6	1	2.9	8	23.5
Up to 1 year	1	2.9	3	8.8	1	3.0	1	2.9	6	17.6
2–5 years	0	0	4	11.8	5	14.7	3	8.8	12	35.3
5–10 years	0	0	3	8.8	1	3.0	3	8.8	7	20.6
Longer than 10 years	0	0	0	0	0	0	1	2.9	1	2.9
Total	1	2.9	11	32.3	13	38.2	9	26.5	34	100.0

$\chi^2 = 7.71 < \chi^2_{0.05; 12} = 21.026$, H = 0

Table 5. The concentration of iron in the serum, and the concentration of total protein and albumin

Parameter	Concentration of iron in the serum [µg/dl]	Total protein concentration [g%]	Albumin concentration [g%]
Minimum	16	3.8	1.8
Maximum	61	6.6	5.8
Mean	42.75	5.55	4.25
Standard deviation	16.43	0.91	1.14
Median	49.5	5.8	4.5

disease and the procedure of admission to the hospital (planned, emergency). The real value of χ^2, being 3.15, is lower than the critical value which with four degrees of freedom and a level of significance of 0.05 amounted to 9.488.

Confirmation of the diagnosis of the disease is a complex procedure. It requires clinical assessment and association of endoscopic, histopathological, radiological and biochemical examinations.

Ultrasonography (USG) is the first-line test in patients with a suspicion of CD. Depending on the phase of the disease, it may show thickening and congestion of the intestine wall, especially in the typical location of the disease, dilation of mesenteric vessels, enlarged lymph nodes, and presence of a pathological interloop fluid reservoir.

Analysis of documentation showed that USG was performed in 58.8% of patients. Among the widely available radiological tests in CD diagnosis, X-rays of the thorax are, among others, the ones that can be performed as diagnostic procedures differentiating intestine changes from tuberculosis or as a diagnosis of pulmonary complications. The chest X-ray was performed in 20.6% of patients.

Among the radiological examinations, the one that provides a wealth of information is the inspection picture of the abdominal cavity, helpful in diagnosis of CD complications such as obstructions, perforations or *megacolon toxicum*. It is applicable especially in emergencies. Lower gastrointestinal series (a single-contrast small intestine enema) – the diagnostic value of this examination is that it determines the extent of the pathological changes and their location, and it visualises the changes, the type of narrowing or widening, or the presence of an active fistula, as well as the speed of intestinal content passage. Gastrointestinal series were performed in 7 (20.6%) patients in the group under study.

Computed tomography (CT) is an imaging method of choice in the diagnosis of CD, especially CT in the intestine option, that is with admission of the fluid through a gastric tube. The examination allows to verify any narrowing, also asymptomatic, to assess the extent of the changes, and the presence of fistulas. Good correlation with results of endoscopic and histopathological examinations is an additional advantage of this examination. Computed tomography was

performed in 4 (11.8%) patients. Endoscopic examination with biopsy for histopathological testing has a decisive meaning in diagnosis of CD. Gastroscopy is not performed on a routine basis. It is recommended to patients with symptoms of the upper gastrointestinal tract. The changes in a gastroscopic image do not differ from those encountered in the small and large intestines and are non-specific inflammatory changes. The study showed that gastroscopy was performed in 9 (26.5%) patients. Computed tomography of the head was performed in one patient, who showed symptoms of a transient ischaemic attack. Colonoscopy was performed in 29.4% of the patients; and gastroscopy in 26.5% of the hospitalised patients. The remaining patients had endoscopic examinations shortly before hospitalisation or had a set date for the examinations in the nearest future after ending hospitalisation.

The CRP test is a test for protein produced by the liver as a response of the immune system to the presence of an infection in the body. The concentration of CRP in mg/ml correlates well with the activity of the disease; its short half-life makes this parameter perfect for monitoring activity. C-reactive protein is also one of the parameters used in prognosis of exacerbation of the disease. The test was performed in all of the patients. The minimal result was 2.1 and the maximal 21.7. Among the basic indicators of blood count, the test of erythrocytes and the haemoglobin (Hb) they contain should be mentioned. Thanks to the results of Hb, the general state of the patient, any infections and other pathological conditions can be determined. The proper concentration of Hb under physiological conditions is 7.4–9.9 mmol/l (12–16 g/dl) in women and 8.0–11.0 mmol/l (13–18 g/dl) in men. The minimum was 7.14 and the maximum 15.6. Analysis of individual results allowed to state that a result below the norm was observed in 4 people (Table 5).

Iron (Fe^{2+}) is an important component of metalloproteins (haemoglobin) which participate in the transportation of oxygen as well as some of the redox enzymes. Its concentration depends among others on iron absorption in the gastrointestinal tract and iron loss through the gastrointestinal tract. A proper overall concentration of iron is 12.5–26 µmol/l (70–150 µg/dl). A lowered concentration of iron in the serum, in the case of CD patients, may be caused by nutritional de-

Table 6. CEA and Ca 19-9 concentrations in the serum

Parameter	Serum concentration of CEA [ng/ml]	Serum concentration of Ca 19-9 [U/ml]
Minimum	1.2	2.9
Maximum	2.3	40.1
Mean	1.87	14.4
Standard deviation	0.59	12.44267
Median	2.1	9.8

Table 7. Surgical treatment used

Surgical treatment	n	%
Partial resection of the small intestine	6	46.1
Right hemicolectomy	4	30.8
Incision of an abscess in the rectal area	3	23.1
Total	13	100.0

ficiencies, malabsorption, diarrhoea or inflammation. A concentration of Fe^{2+} below the norm was stated in 3 people (Table 6).

Carcinoembryonic antigen (CEA) was initially considered a marker for intestine cancer. However, further research showed that the levels of this marker increase in the serum in the case of both cancerous and non-cancerous changes in the system. Highly elevated CEA concentration (usually up to 20 ng/ml) may indicate cancerous changes with various initial locations, e.g. cancer of the large intestine, rectal cancer, or lung cancer. In the case of non-cancerous changes (CEA concentration usually up to 10 ng/ml) it is present in diseases of the gastrointestinal tract, liver diseases (inflammation, cirrhosis), and inflammation of the pancreas and intestines. The minimal result was 1.2 and the maximal 2.3. Analysis of individual results allows to state that a result in the 1.2–2.3 range was obtained by 7 people. The CA 19-9 antigen is a glycoprotein present in the epithelial cells of the pancreas, stomach, liver, gallbladder, colon and lungs. The concentration of this antigen grows in cancerous

and non-cancerous changes of these organs. Levels of this antigen between 1.2 U/ml and 10.0 U/ml were stated in four people and in three people they were above 10.0 U/ml. In most of the patients, CEA and Ca 19-9 antigen concentration was within the limits of the reference values.

The minimum value of total protein among the examined patients was 3.8 g% and the maximum was 6.6 g%. The minimum value of albumin among the examined patients was 1.8 and the maximum 5.8 g%. In CD, aminosalicylic acid (ASA) preparations and steroids, Encorton, azathioprine, infliximab and cephalosporin antibiotics, metronidazole, ciprofloxacin, tigecycline, and piperacilline were used as the main treatment. Antibiotic therapy was used in 30 (88.2%) patients. Surgical treatment was used in the case of 13 (38.2%) patients (Tables 7 and 8).

There is no statistical interrelation between the age of the patients and the use of surgical treatment, however in the examined group, older patients were operated on more often.

There is a statistical interrelation between the gender and the use of surgical treatment. Men were operated on more often, surgery was performed less frequently in women. The real value of χ^2, being 9.19, is higher than the critical value which with one degree of freedom and a level of significance of 0.05 amounted to 9.841. Relationship strength was determined to be moderate, $R_c = 0.46$.

In 23.5% of patients it was aches and pains that were the cause of going to hospital; in 8.8% of patients these were diarrhoea and vomiting.

During treatment the following complications were encountered: stroke – 1 person (2.9%), endocarditis – 1 (2.9%), myocardial infarction – 1 (2.9%), shock – 1 (2.9%), deep surgical site infection – 1 (2.9%), and superficial surgical site infection – 2 (5.8%).

Discussion

Crohn's disease is a disease characterised by a chronic inflammatory condition, which may affect any section of the gastrointestinal tract. The most frequent locations of this disease are the final section of the small inte-

Table 8. The age of the patients and the use of surgical treatment

Age [years]	Use of surgical treatment				Total	
	Yes		No			
	n	%	n	%	n	%
Up to 20	0	0	1	3.0	1	3.0
21–40	3	8.8	8	23.6	11	32.3
41–60	7	20.6	6	17.6	13	38.2
Above 60	3	8.8	6	17.6	9	26.5
Total	13	38.2	21	61.8	34	100.0

$\chi^2 = 2.61 < \chi^2_{0.05;\ 3} = 7.815,\ H = 0$

stine and the initial part of the large intestine [41]. As a result, the disease may lead to such complications as fistulas, perforation of the intestines, megacolon toxicum and bleeding. Complications occur most often in patients with a long-term course of the disease [42, 43]. In patients who were operated on due to perforation or narrowing of the intestine (75%), inflammatory changes in the area of the intestinal anastomosis usually develop within a year. Reduction of the inflammation and curing the mucosal changes of inflammatory origin have become one of the aims of present-day CD treatment. Mucosal healing is defined as a reduction in the number or total curing of the ulcers observed in the baseline examination, to which further examinations are referred [41]. Due to not fully understood pathogenesis of CD, there is no causal treatment; there is no effective manner of curing the disease either, both with conservative treatment and surgical methods. Effective therapy depends on the precise diagnosis, determination of the location and extent of the inflammatory changes, the degree of activeness of the disease and presence of complications. The goal of the treatment is to reduce the inflammatory condition in the intestine (inducing remission), restoring the proper state of nutrition and the prevention of relapse, meaning supportive care. Conservative treatment of CD often allows to soothe the acute inflammatory symptoms. It is a valuable addition to surgical treatment and helps to maintain long-term remission [1, 15, 22].

Pharmacological treatment in CD is applied in accordance with the so-called *step-up* idea, meaning that stronger medicine is introduced gradually as the severity of inflammation increases. The available conservative treatment in CD consists of the following: 5-aminosalicylates, glucocorticoids (GC), immunosuppression and biological treatment. Antibiotics are used in selected forms of the disease, especially in infectious complications.

The advance of immunogenetic techniques allowed to identify the molecules in the chain of reactions responsible for maintaining the chronic inflammatory process in the gastrointestinal tract; biological therapy is aimed at one of its links. Biological medicaments are recombinant proteins of a monoclonal antibody nature, blocking the functioning of the mediators of the inflammation or having anti-inflammatory effects. Pro-inflammatory cytokines, especially tumour necrosis factor (TNF), are the key mediators in the inflammatory reaction in the course of CD [1, 22].

Biological medicines used allow for relieving symptoms as well as attaining full remission, along with mucosal healing. Mucosal healing is defined as a reduction in the number or total curing of the ulcers observed in the baseline examination, to which any further examination is referred. Infliximab (IFX) is a biologic agent registered and used in Poland in CD therapy. This is a chimeric, that is human-murine, class

IgG1 monoclonal antibody, where the murine component constitutes 25% and the human one – 75%; it is directed against the tumor necrosis factor-α (TNF-α) pro-inflammatory cytokine, neutralising its biological activity [1, 23]. Remicade, the IFX preparation, is administered as an intravenous infusion over 2 h at a dose of 5 mg/kg of body mass, usually at a regimen of 0–2–6 week. During the therapy, a rapid clinical improvement, a high effectiveness of supportive therapy, as well as high effectiveness in the treatment of parenteral manifestations may be observed [44, 50].

A depressive condition, especially that accompanied by symptoms of anxiety, may have a negative influence on the course of non-specific intestinal inflammatory diseases. In prospective studies conducted [51], the factors which may be significant in the frequency of relapse were assessed. The group under study consisted of 60 patients (37 women and 23 men) with one of the non-specific inflammatory diseases of the intestines which were clinically inactive (n = 47/78% – CD; n = 13/22% – colitis ulcerosa). The symptoms of a depressive syndrome were measured using the BDI (Beck Depression Inventory) questionnaire. The severity of the depression correlated with the time of the first relapse of the depression syndrome ($p < 0.05$). The presence of anxiety and a low HRQOL (health-related quality of life) especially impacted a higher frequency of relapses ($p < 0.05$ and $p < 0.01$) [51].

During the study of our own material, numerous diseases were revealed, such as diabetes, hypertension, myocardial infarction, nephrolithiasis, a condition after cholecystectomy, and a condition after appendectomy. Our own study showed that the respondents most often stayed at the hospital up to 5 days. There were 16 such people (47.0%). Four people (11.8%) stayed at the hospital from 6 to 10 days, and 10 people (29.4%) stayed from 11 to 15 days. Only 1 (3.0%) person stayed at the hospital longer than 20 days. Further analysis showed that the length of stay at the hospital increases with age. There is no statistical interrelation between the length of stay at the hospital and the nature of the stay (emergency, planned). Our own research revealed that the respondents have suffered from CD most often from 2 to 5 years – 12 (35.3%). Eight (23.5%) patients were in the course of diagnosis, and 6 patients have been already ill for 1 year. Only 1 person (2.9%) has been ill for more than 10 years, and 7 (20.6%) have been ill between 5 and 10 years. Based on the results of the studies made, it can be stated that 23.5% of the patients felt pains and aches which were the cause of their going to hospital. Severe diarrhoea was the cause of going to hospital in 8.8% of the patients, and 8.8% of them suffered from severe nausea and vomiting which were the cause of their going to hospital; and 8.8% of the patients suffered from bleeding into the gastrointestinal tract which was the cause of their going to ho-

spital. During treatment the following complications were encountered: stroke – 1 person (2.9%), endocarditis – 1 (2.9%), myocardial infarction – 1 (2.9%), shock – 1 (2.9%), deep surgical site infection – 1 (2.9%), and superficial surgical site infection – 2 (5.8%). Owing to surgical treatment, it was possible to reduce pain and eliminate the symptoms of subileus as well as the septic condition in 13 patients among the 34 in the group.

The complexity of the course of CD along with its complications requires the doctors and nurses to have specialised knowledge that conditions the treatment of this disease. Due to the chronic nature and recurrence rate, the patient should not be deluded with a vision of curing the disease. But a proper algorithm of procedures, with special attention to compliance, allows for curing the complications and obtaining remission. Maintaining it for as long as possible is a challenge for the patient and the employees of the health service.

Conclusions

In light of our own research, it may be stated that the most frequent causes of going to hospital in the case of CD patients are pain, nausea and vomiting as well as bleeding into the gastrointestinal tract. In the case of CD, for the examined patients, the most frequent locations were the final section of the small intestine and the initial part of the large intestine. The disease resulted, in a significant part of the patients, in the occurrence of complications such as fistulas, perforation and bleeding into the gastrointestinal tract. Such conditions are one of the most difficult clinical problems, for both doctors and nurses. Treatment of CD patients with complications requires the doctors and nurses to have specialised knowledge of this disease and to treat its complications.

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