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Constipation in pediatric outpatient gastroenterology clinic – epidemiology and clinical presentation

Zaparcie stolca u dzieci w poradni gastroenterologicznej – epidemiologia i prezentacja kliniczna

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S u m m a r y

Introduction. Gastrointestinal disorders are becoming more common for the pediatric population. Among them constipation are one of the most common problems in pediatric gastroenterology.

Aim. The aim of the study was to assess the epidemiology of constipation in pediatric population.

Material and methods. We conducted a retrospective analysis of consecutive visits in the pediatric outpatient gastroenterology clinic. Authors rated why patients reported to the clinic and what percentage of all visits concerned constipation. Then, an analysis of the most commonly reported symptoms among patients with constipation and the medical treatment were performed.

Results. Total number of 1091 consecutive children reported on a visit to the outpatient clinic up to 2015 were enrolled to retrospective study. Patients aged between one month old up to 18 years old. Among them 400 (36.9%) patients signed up for a visit because of constipation. Mean age at the time of first visit was 5.46 years. Mean time from the onset of symptoms to the visit in outpatient clinic was 1.38 y. Less than 3 bowel movements per week occurred in 39.7% patients. The most commonly reported symptoms were: abdominal pain 61.6% and defecation with effort 66.7%. Retention of fecal masses felt during the abdominal palpation in 55.1%. There were several course of treatment, almost every patient were asked for using fiber-rich diet – 91.4%.

Conclusions. Constipation is one of the most common gastrointestinal disorders in outpatient gastroenterology clinic. Abdominal pain and painful defecation are the most common symptoms of constipation in children.

S t r e s z c z e n i e

Wstęp. Choroby przewodu pokarmowego coraz częściej dotyczą populacji pediatrycznej. Wśród nich zaburzenia defekacji, a zwłaszcza zaparcie stolca, są jednymi z najczęstszych problemów w gastroenterologii dziecięcej. Według danych z literatury amerykańskiej problem dotyczy 1,5-7,5% populacji pediatrycznej. Uważa się, że ok. 25% porad gastroenterologicznych dotyczy zaparcia.

Cel pracy. Celem badania była ocena epidemiologii zaparcia stolca w populacji pediatrycznej.

Materiał i metody. Przeprowadzono retrospektywną analizę wizyt w Poradni Gastroenterologii Dziecięcej. Autorzy ocenili, z jakiego powodu pacjenci zgłaszali się do poradni i jaki procent wszystkich wizyt dotyczył zaparcia stolca. Następnie, przeanalizowano, jakie były najczęściej zgłaszane objawy wśród pacjentów z zaparciem stolca oraz sposób leczenia.

Wyniki. Do badania włączono 1091 pacjentów w wieku od 1 miesiąca do 18. roku życia, którzy zgłosili się na wizytę do poradni do 2015 roku. U 400 (36,9%) pacjentów powodem wizyty było zaparcie stolca. Średni wiek w czasie pierwszej wizyty wynosił 5,46 roku. Średni czas od początku objawów do czasu wizyty w poradni wynosił 1,38 roku. Mniej niż 3 wypróżnienia w tygodniu wystąpiły u 39,7% pacjentów. Najczęściej zgłaszanymi objawami były: ból brzucha (61,6%) oraz defekacje z wysiłkiem (66,7%). Zalegające masy kałowe

wyczuwalne podczas badania palpacyjnego brzucha obecne były u 55,1%. Odnotowano kilka schematów leczenia. Prawie każdemu pacjentowi zalecono stosowanie diety bogatoreszkowej (91,4%).

Wnioski. Zaparcie stolca jest jednym z najczęstszych powodów zgłaszania się pacjentów na wizytę do poradni gastroenterologicznej. Ból brzucha i bolesne wypróżnienia są najczęstszymi objawami zaparcia u dzieci.

INTRODUCTION

Gastrointestinal disorders, especially constipation is one of the most common problems in pediatric gastroenterology. Constipation is defined as bowel movements less frequently than 3 times a week, with effort and feeling of incomplete defecation, hard stool and large volume of stool – sometimes clogging the toilet (1, 2). According to the United States data, the problem concerns 1.5-7.5% of the pediatric population (1). It is believed that 25% of gastroenterological outpatients visits concern constipation (2, 3).

Only around 10% of cases are caused by an organic disease, like Hirschsprung disease, anatomical abnormalities, metabolic or endocrine problems (4-7). In the majority of children, constipation is a functional disorder. There are several mechanisms of functional constipation: slow movement of faeces through the large intestine (slow transit constipation) and slow transit in the sigmoid colon and rectum (outlet obstruction) – caused by abnormal defecation dynamics, which is contraction of the external anal sphincter and the lack of pelvic floor muscle relaxation (8-12). The second one, called pelvic floor dyssynergia (PFD), is responsible for approximately 30-50% of cases of functional constipation (8). We should also remember about constipation in the irritable bowel syndrome (10). Very often problem starts at the time of toilet training. Incident of pain during defecation can induce retention attitude in child. Changes in a diet and stress may also be one of the reasons for functional constipation. Functional constipation is diagnosed according to the Rome III Criteria (7). Precise medical history and complete physical examination is usually sufficient to confirm diagnosis of functional constipation. In case of doubts, it is obligatory to use laboratory or other imaging studies to exclude with proper amount of fluid organic problem. The treatment includes high fiber diet, patient education, pharmacotherapy, and in some cases the biofeedback therapy (5).

AIM

The aim of the study was to assess the epidemiology of constipation in pediatric population.

MATERIAL AND METHODS

Total number of 1091 consecutive children (576 M, 515 F) who reported on a visit to the outpatient gastroenterology clinic up to 2015 were enrolled to the retrospective study. Authors analyzed the reasons of which patients came to visit the gastroenterolo-

gist to gastroenterologist. From all groups were selected children who reported an appointment due to constipation. In this group of patients the following data were retrospectively gathered and analyzed: number of bowel movements per week, stool consistency, accompanying symptoms and treatment manner was applied.

Diagnostic criteria for functional constipation are included in Rome III Criteria. According to them, at least two of the following problems have to be reported: 2 or fewer defecations per week, at least one episode of fecal incontinence per week (if the child consciously controls bowel movements), a history of retention of faeces, painful bowel movements or tough stools, presence of large amounts of stools in the rectum and large volumes of stool that may obstruct the toilet. For children up to 4 years of age complaints must be present for a month or longer, and for children over 4 years of age complaints must occur at least once a week for at least two months (2, 7, 8). The data were reported as mean \pm standard deviation, or as median and range of continuous variables.

RESULTS

A total of 1091 children (576 M, 515 F) were enrolled to retrospective study. The youngest patient was aged one month old and the oldest was 18 years old. Among them 400 (36.9%) patients (188 M, 212 F) signed up for a visit because of constipation. Mean age at the time of first visit was 5.46 y (median 5.0; $3.59 \pm$ SD). Mean time from the onset of symptoms to the visit in outpatient clinic was 1.38 y (median 1.0; $1.83 \pm$ SD). Less than 3 bowel movements per week occurred in 39.7% patients. The most commonly reported symptoms are presented in the table 1. Moreover, 63.6% of patients had poor diet.

Tab. 1. The most frequently reported symptoms in patients with constipation

Symptom	% of patients
Defecation with effort	66.7
Abdominal pain	61.6
Painful defecation	45.5
Blood on the stool	25
Encopresis	23.2
Large stool volume	22.4
Bloating	4.8
Vomiting	3.8

During the physical examination retention of fecal masses felt during the abdominal palpation were observed in 55.1%, anal fissures in 23.5%, haemorrhoids in 2.3%, prolapsed in 0.5%. Additionally, 1.5% of patients presented attitude of retention due to fear of defecation. Psychological problems reported 0.5% of patients. There were several course of treatment. Almost all patients were asked for using fiber-rich diet – 91.4%. Among medications the most common was macrogol in 87.8%, lactulose in 24%, fiber products in 68.5%. Combination therapy with fiber-rich diet + macrogol + fiber products were used in 45.3%, secondly fiber-rich diet + macrogol in 20.4%, then fiber-rich diet + macrogol + lactulose + fiber products in 6.7% of patients. Other, less frequently recommended treatment regimens are shown in figure 1.

DISCUSSION

The aim of the study was to assess the epidemiology of constipation in pediatric population. The reports shows that constipation is highly prevalent what also generate costs to society (13). In the United States, all constipation accounts for 2.5-6.3 million physician visits annually and 700 000 hospital discharges and total health care cost of \$2.752 per treated patient (14, 15). Peppas et al. (15) in the study review prevalence of constipation in 34 different population groups ranging widely from 0.7 to 81%. In the general population in

Europe the mean value of constipation rates in 17.1% and the median value is 16.6%. Among the studies conducted in Oceania, the mean value of constipation prevalence was 15.3%. The spread of constipation in Europe and Oceania are consistent with the epidemiology of the disorder in North America (15, 16). Among pediatrics studies conducted in Europe, Ludvigsson et al. (17) made a prospective cohort study, conducted by questionnaire survey reported by parents. Authors described group of 8341 (38.4% of responders) children, 2.5-years old from a birth cohort, with prevalence of constipation 6.5%. Iacono et al. (18) carried out a prospective study where 2879 (96% of responders) newborns up to 6 months of age were included. Data were obtained from 150 pediatricians, as definition of constipation was adopted one bowel movement every 3 days or more. Authors reported frequency of constipation in this group as 17.6%. The biggest group of 9660 children at the age of 0-12 years old, described Miele et al. (19) in the prospective study were authors assessed prevalence of functional gastrointestinal disorders (FGIDs). Data were obtained from 13 randomly selected paediatricians. A total of 194 children initially met criteria for at least 1 FGIDs. Among them 66 (34.1%) had functional constipation or other defecation disorders. As the applicable criteria of constipation were adopted Rome Criteria. This may be due to the fact that above study gain data from 13 sites.

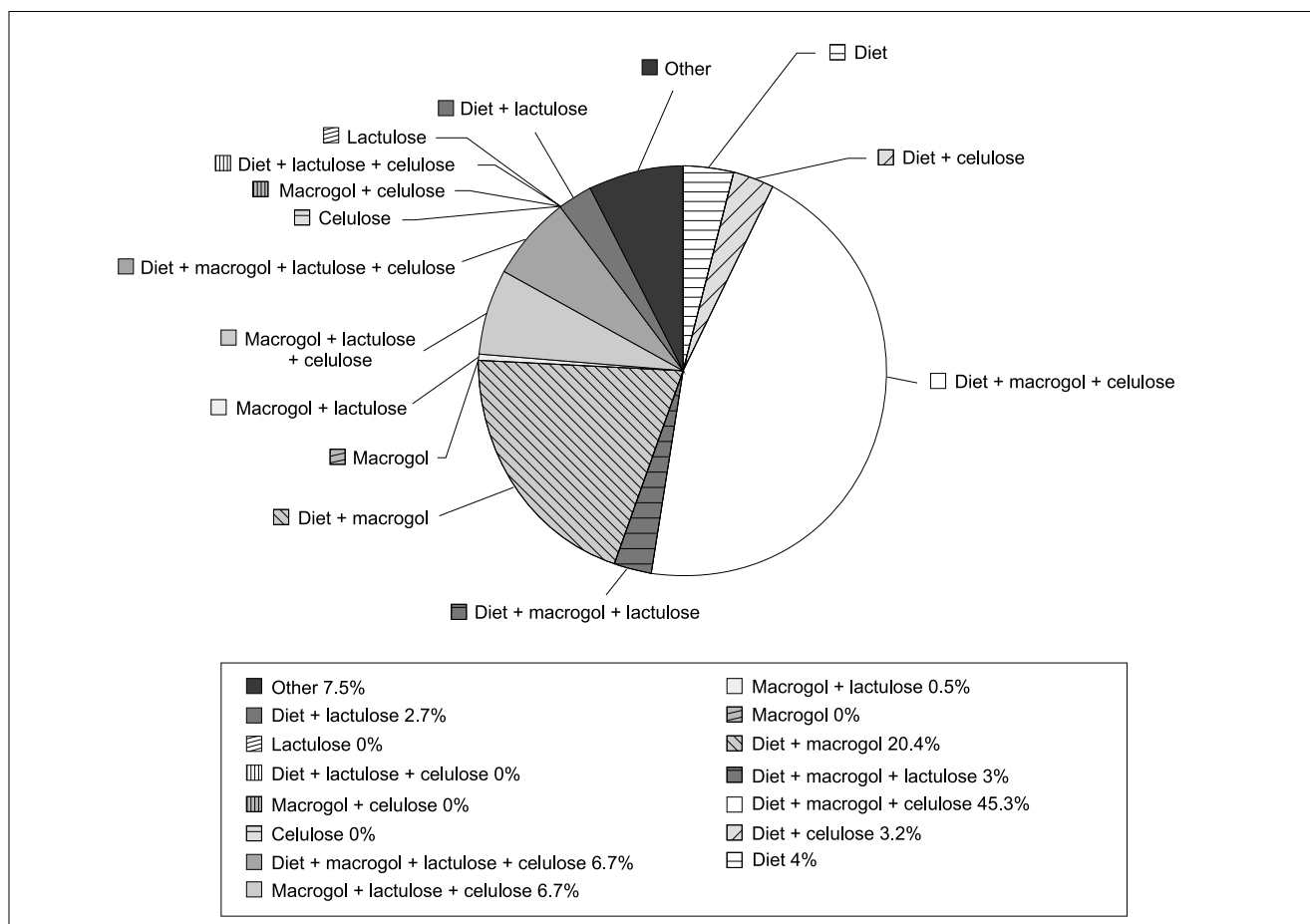


Fig. 1. Combination therapy for constipation

Our Institute has the highest degree of referentiality. Furthermore, the number of patients included in our study is lower than the above mentioned, however, it is still a large studied group.

Another important aspect that needs attention is the age of occurrence of constipation and the time from onset of symptoms to visits in outpatient clinic. According to results from our study, mean age at the time of first visit were 5.46 years (median 5.0; $3.59 \pm SD$). Patients were referral to our clinic after mean 1.38 years (median 1.0; $1.83 \pm SD$) from the onset of symptoms. Malowitz et al. (20) performed a retrospective review of patients admitted to gastroenterology clinic, and from them, children with functional constipation. From 538 children, median onset age was 2.3 years, the duration before referral to specialist was 1.8 years. Almost two years is a very long period, especially for children, without treatment. That is why early recognition of symptoms is crucial. Our study shows that the most commonly reported symptoms were: defecation with effort – 66.7%, abdominal pain – 61.6%, painful defecation – 45.5%, blood on the stool – 25% and large stool volume – 22.4%. These results are similar to one presented by Kilincaslan et al. (21) where the most common symptoms were: abdominal pain – 65%, painful defecation – 54% and large-diameter stools – 19%. During the physical reten-

tion of fecal masses felt during the abdominal palpation occurred in 55.1%, compared to the above-mentioned study large fecal mass in the rectum was detected in 11% of patients. Kilincaslan et al. reported that 68% of children with holded defecation (21). Additionally, we reported that only 0.5% had psychological problems, which is different from Malowitz et al. (20) report, where 11% of patient had behavioral disorders. Another aspect which is clearly visible as associated with constipation is poor diet. Therefore, fiber-rich diet is the first and most important therapeutic recommendation. In 2014 ESPGHAN and ESPGHAN issued guidelines for the management of functional constipation stool in infants and children (7). Nevertheless, there are still a lot of combined therapy, what was presented in our study.

CONCLUSIONS

The high prevalence rates, economic costs and adverse implications on the quality of life make constipation a major public health issue. Our results shows that constipation is a large problem in the polish pediatric population. Because of these facts, physicians should be aware of magnitude of problem. Prompt diagnosis and early treatment is necessary, because constipation affect on every sphere of society life.

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