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Jakość życia dzieci chorych na astmę oskrzelową

Streszczenie

Wstęp. Astma oskrzelowa jest najczęstszą chorobą przewlekłą układu oddechowego u dzieci. Dane epidemiologiczne wskazują, że wzrasta zarówno częstość, jak i ciężkość jej przebiegu, zwłaszcza u dzieci. Astma, jak każda choroba przewlekła, przyczynia się do pogorszenia jakości życia chorego dziecka i może zaburzać jego rozwój.

Cel pracy. Celem pracy była ocena jakości życia u dzieci chorych na astmę oskrzelową.

Materiał i metody. Badaniami objęto 100 dzieci leczonych z powodu przewlekłej astmy oskrzelowej w Poradniach Pulmonologicznych DSK w Lublinie. Jako narzędzia badawcze wykorzystano: kwestionariusz PAQLQ, kwestionariusz ankiety opracowany dla celów pracy oraz analizę dokumentacji medycznej.

Wyniki badań. Zdaniem 93% ankietowanych dzieci, choroba i jej leczenie ogranicza ich aktywność życiową. Astma zaburzała także funkcjonowanie emocjonalne u 95% dzieci. Analiza statystyczna potwierdziła istotną zależność między stopniem ciężkości choroby a jakością życia dzieci (p=0,037). W ciągu ostatniego roku duży odsetek badanych dzieci (77%) wymagał dodatkowej pomocy medycznej z powodu nasilenia objawów astmy. Analiza zależności ujawniła istotną ujemną korelację pomiędzy częstością korzystania z doraźnej pomocy lekarskiej a jakością życia dzieci (r=-0,332, p<0,001). W omawianej grupie zdecydowana większość dzieci (87%) opuszczała zajęcia lekcyjne z powodu zaostrzenia astmy. Zastosowana analiza korelacji potwierdziła istotny ujemny związek między częstością nieobecności w szkole a jakością życia dzieci (r=-0,207, p<0,05).

Wnioski. W tworzeniu obrazu jakości życia dzieci chorych na astmę oskrzelową, najbardziej istotnym elementem okazał się wpływ zmiennych klinicznych, zaś czynniki społeczno-demograficzne odgrywały tu rolę drugorzędną. Ocena poszczególnych obszarów jakości życia może przyczynić się do opracowania indywidualnych programów terapeutycznych.

Słowa kluczowe: astma oskrzelowa, dzieci, jakość życia.

Quality of life of the children suffering from bronchial asthma

Summary

Introduction. Bronchial asthma is the most frequent chronic respiratory disease in children. Epidemiological data suggest that in some countries the frequency and severity of its course, especially in children, has been increasing. Asthma, like any other chronic disease contributes to the deterioration of quality of life and may impair child's development.

Aim. The purpose of study was to evaluate the quality of life of children suffering from bronchial asthma.

Material and methods. The study covered 100 children treated for chronic bronchial asthma at the Pulmonological Outpatient Clinic, Children's Clinical Hospital, Lublin. The research tools used in the study were: PAQLQ questionnaire, a questionnaire created for the purpose of the study and the analysis of medical records.

Results. According to 93% of surveyed children the disease and the treatment contribute to limiting of life activity. Asthma interfered with the emotional life too (95%). Statistic analysis confirmed significant relationship between the severity of disease and the quality of life (p=0.037). Within the last year high percentage of children (77%) required additional treatment for exacerbated asthmatic symptoms. The analysis confirmed significantly negative correlation between the frequency of emergency ambulant treatment and the quality of life (r=-0.332, p<0.001).

A considerable majority of children (87%) were absent from school because of exacerbated symptoms of asthma. The analysis of correlation confirmed significantly negative relation between the frequency of school absence and the quality of life (r=-0.207, p<0.05).

Conclusions. The contribution of clinical variables in the quality of life of children with BA was the most significant, however socio-demographic parameters were of secondary importance. The evaluation of particular components of the quality of life can help to establish individual therapeutic programs.

Key words: bronchial asthma, children, quality of life.

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INTRODUCTION

Bronchial asthma (BA) is the most frequent chronic respiratory disease in children. Epidemiological data suggest that in some countries the frequency and severity of its course, especially in children, has been increasing [1,2]. Asthma, as any other chronic disease contributes to deterioration of quality of life (QL) and can impair child's development [3-8]. That is the result of necessary systematic administration of drugs and danger of life-threatening exacerbation. There are also other factors involved, i.e. the need of periodic hospitalization, school absence and high costs of treatment [9-11].

AIM

The purpose of the study was to evaluate the quality of life of children suffering from bronchial asthma.

MATERIAL AND METHODS

The study covered 100 children treated for chronic bronchial asthma at the Pulmonological Out-patient Clinic, Children's University Hospital in Lublin. Diagnostic survey in the form of a questionnaire was used; the research tool was Polish version of the questionnaire used to examine the quality of life of children suffering from asthma (PAQLQ) by Juniper and questionnaire created for the purpose of study. Apart from that, medical records of patients (Ambulant Treatment Chart from The Pulmonary Out-patient Clinic, spirometric results and skin sensitivity tests) were analysed too. The results were statistically assessed with SSPC 8.0. Significant differences between the parameters were determined by U-Man-Whitney's and Kruskal–Wallis's tests, dependences determined by Spearman coefficient of correlation, $p<0.05$ assumed significant.

RESULTS

The examined group consisted of 64 boys and 36 girls, 8–17 years old (mean age 12.3±2.6); 53% lived in the country and 47% in town. Mean length of disease duration was 8.0±3.6 years (min 1 year–max 12 years). A considerable majority (89%) developed BA before they were 8. PAQLQ includes 23 questions grouped into 3 subscales: "symptoms", "activity" and "emotions". The score of each subscale and total score (global QL) can range 1–7 points: 1 meaning the lowest and 7 the highest QL. Global index of the QL in the examined group was mean x=5.52±1.07 (2.4–7.0). Only one child out of 100 examined assessed its QL as the highest (7 points). According to 93% the disease and the treatment contribute to limiting of life activity. The "activity" subscale score was x=5.41±1.11 (1.4–7.0). Asthma interfered with the emotional life too (95%). The "emotions" subscale score was x=5.76±1.11 (2.3–7.0). Almost all children (99%) experienced asthma of varied intensity. The "symptoms" subscale score was x=5.38±1.17 (1.7–7.0). The analysis of the influence of socio-demographic variables on QL of the children examined revealed that neither sex, age nor characteristics of the family differentiated their QL. The results of statistical analysis confirmed only significant differences in mean QL estimates depending on the level of education and occupational activity of their mothers and father's age (Table 1 and 2). The assumption was that the degree of asthma severity could affect the evaluation of the QL. The analysis of medical records and spirometric results confirmed the prevalence of moderate chronic asthma (51%). Mild chronic asthma was less frequent (45%) and markedly the least frequent was severe asthma (4%). Statistic analysis (Table 1) confirmed significant relationship between the severity of disease and the QL. The analysis involved, among others, the influence of concomitant chronic diseases on the QL. Other chronic diseases were detected in remarkable

TABLE 1. Quality of life vs. selected variables.

Independent Variable	Global QL		
	X	SD	P
Degree of asthma severity:			
mild	5.63	0.92	
moderate	5.49	1.12	0.037*
severe	4.61	1.73	
Concomitant chronic diseases:			
absent	5.60	1.05	0.045**
present	5.15	1.10	
Steroid therapy:			
no	6.10	0.50	0.020**
yes	5.40	1.12	
Mother's education:			
elementary	6.02	0.80	
vocational	5.64	1.12	0.017*
secondary	5.66	1.22	
higher	6.20	0.72	
Mother's occupational activity:			
professional work	5.73	0.98	
unemployed	5.20	1.09	0.017*
disability pension/pension	5.24	0.17	
on leave to bring up children	6.55	0.40	

* – Kruskal-Wallis test
** – U Mann-Whitney test

TABLE 2. Correlation between selected variables and the quality of life.

Independent Variable	Symptoms	Activity	Emotions	Global QL
Duration of treatment by G.P.	-0.228*	-0.238*	-0.145	-0.200**
Number of factors triggering exacerbation	-0.274*	-0.298**	-0.187	-0.286**
Need for emergency procedures	-0.259**	-0.376**	-0.302**	-0.332**
Absence from school	-0.219*	-0.207*	-0.110	-0.207*
Father's age	0.231*	0.152	0.205	0.241*

* – $p<0.05$
** – $p<0.001$

majority of cases (82%). Other allergic diseases (allergic rhinitis, dietary allergy, atopic dermatitis) were found in three-fourth of children (74%). Chronic nonallergic diseases (circulatory, urinary, neurological) were diagnosed in 17% of cases. Only 18% children had no other chronic diseases detected. Statistic analysis (Table 1) confirmed significant influence of that factor on the QL. The study also analyzed the effects of continuous therapy of glycosteroid inhalants on the QL. The results showed that remarkable majority (83%) received that kind of treatment, the other 17% did not. Statistical analysis (Table 1) confirmed significant influence of that parameter on the QL. The study also aimed to establish the relation between duration of treatment by G.P. and the QL and between the duration of treatment by specialist (pulmonologist, allergologist) and the QL. The results indicated that children were longer treated by the specialist (6.8=3.8 years) than by G.P. The analysis of correlation (Table 2) confirmed a negative relationship between the period of treatment provided by G.P. and the QL. Other parameter tested concerned the effects of the number of factors responsible for the exacerbation of asthma and the QL. The analysis of the correlation (Table 2) confirmed significantly negative relation. Most frequent factors responsible for the exacerbation of symptoms included: respiratory infection (89%), allergens (81%), physical effort (67%) and changing weather conditions (53%). Totally 1–12 factors were identified. Almost all children (99%) experienced the exacerbation of symptoms caused by more that one of them. The evaluation of another negative factor likely to influence the QL indicated that within the last year a high percentage of children (77%) required additional treatment for exacerbated asthmatic symptoms. The analysis indicated that within a year prior to the study almost every tenth child (9%) was hospitalized for at least one day, 13% were seen at the outpatient's clinics, 3% called for emergency home visit, 62% had to make an additional appointment and 28% received telephone consultation. The analysis (Table 2) confirmed significantly negative correlation between the frequency of emergency ambulant treatment and the QL. The study also analyzed the frequency of school absence over the last year as a result of exacerbated symptoms of asthma. A considerable majority of children (87%) were absent from school. Almost half of them (47%) had 7 day absence per year and 40% had longer than 7 day absence per year. The analysis of correlation (Table 2) confirmed significantly negative relationship between the frequency of school absence and the QL.

DISCUSSION

In recent years medical sciences have paid more and more attention to the issue of the quality of life (QL) because the need to approach the patient more as a subject of treatment has been recognized [5-8]. Studies of the quality of life are useful especially for the patients who are chronically ill, where the nature of disease exerts a long term strong influence on all aspects of everyday life. According to Kunsebeck, socio-demographic factors are objective parameters that affect QL [12]. Our results confirmed significantly higher QL estimates among the children of elder fathers, which can be explained by father's stable economic status, which in turn can increase the feeling of security. Mothers who have higher education create conditions of better quality of life for their children than mothers with secondary and lower level of education. The highest level of QL was noted among the children whose mothers were on the leave to bring up the children, which results from better control and monitoring of asthma. In the last years more and more attention has been paid to the evaluation of the degree of disease severity on the basis of not only the objective clinical and laboratory parameters but also subjective evaluation done by the patient [11]. Our study found significantly decreased QL with increased degree of asthma severity, which complied with the observation by other authors [5,7,8]. Many articles underline that concomitant chronic disease deteriorates the QL of children suffering from BA [7]. That is likely to be connected with the necessity to follow the dietary regimen, taking additional medicines, and extra check-ups or consultations. The results confirmed the observation made by other authors that BA is often accompanied by allergic rhinitis (74% cases in our results), which is a factor contributing to the decreased QL [7]. The studies on the quality of life provide evaluation of subjective advantages of treatment applied and are of immense impact for therapeutic decisions [5-8]. Data reported in literature suggest that proper management positively influences the QL [7,8,13]. Baxter–Jones's found that the administration of inhaled glycosteroids reduces symptoms, prevents exacerbation of asthma and sleep disorders, diminishes the need for emergency procedures and leads to better QL [13]. Our results indicate that continuous administration of glycosteroid inhalants significantly lowers the QL, which is a finding different from others, most frequently described in literature [2,9,10]. That is likely to be connected with the fact that over half of the children (59%) developed local side effects of steroid inhalants and certain discomfort due to regular administration of drugs. Data from the literature suggest that duration of disease is also an important factor as well as the fact whether the therapy is provided by the specialist [4,9,10]. Storms and Vilar proved that management of asthmatic children by specialists (allergologist or pulmonologist) positively influenced the QL, probably due to increased security [14,15]. The presented material revealed that the therapy provided by G.P. was related to decreased QL. The results confirmed what other authors observed too, i.e. significantly negative correlation between the number of specific and nonspecific factors triggering asthmatic symptoms and the QL [16]. Factors responsible for the exacerbation of asthma (respiratory infection, allergens, physical effort) comply with the results obtained by other authors [17]. One of the most serious consequence of asthma exacerbation is hospitalization; other consequences include: emergency visits at the outpatient clinics, emergency calls or emergency appointments with the managing doctor [18,19]. Our results found 77% children required emergency ambulant procedures. To compare: AIRE studies found that in Western Europe 30% adult asthmatics required extra medical treatment [19]. In Poland 49% adult patients and 46% children with bronchial asthma received emergency consultation [18]. Our results correspond with those by other authors who found that factor significantly worsened the QL [5,7,8]. In addition to that, Badia and Osman found that initially low QL produced prognosis of exacerbation of asthma and increased the need for emergency ambulant

treatment [5,8]. Intensified symptoms and frequent hospital stays exclude school education and contact with peer group, which probably results in changed QL [3,9,20]. In the group examined a considerable majority of children (87%) reported school absence due to asthma (AIRE results: 43% children in Western Europe and 49% in Poland), which significantly negatively correlated with their evaluation of the QL [18,19]. Coover and Lala observed that, too [11,20].

CONCLUSIONS

1. The contribution of clinical variables into the perception of QL of children with BA was the most significant, however socio-demographic parameters were of secondary importance.
2. The evaluation of particular components of the QL can help establish individual therapeutic programs.

REFERENCES

1. Johansson S, Haahtela T. Prevention of allergy and allergic asthma. World Allergy Organization Project Report and Guidelines. Chemical Immunol Allergy. 2004;84:13-9.
2. Światowa strategia rozpoznawania, leczenia i prewencji astmy. Raport NHLBI/WHO. Aktualne wytyczne Global Initiative for Asthma (GINA 2005). Med Prakt. 2006;1.
3. Kuiper S, Maas T, van Schayck CP, Muris JW, Schönberger HJ, Dompeling E, Gijsbers B, Weel C, André Knottnerus J. The primary prevention of asthma in children study: design of a multifaceted prevention program. Pediatr Allergy Immunol. 2005;16(4):321-31.
4. Weiss K, Haus M, Iikura Y. The coast of allergy and asthma and potential benefit of prevention strategies. Chem Immunol Allergy. 2004;84:184-92.
5. Badia X, Garcia-Hernandez G, Cobos N, López-David C, Nocea G, Roset M. Vality of the Spanish version of the Pediatric Quality of Life Questionnaire for evaluating quality of life in asthmatic children. Med Clin. 2001;116:565-72.
6. Eiser C, Vance Y, Seamart D. The development of a theoretically driven generic measure of quality of life for children aged 6-12 years: a preliminary report. Child: Care, Health and Development. 2000;26:445-56.
7. Juniper E. Quality of life in adults and children with asthma and rhinitis. Allergy. 1997;52:971-7.
8. Osman L, Calder C, Robertson R, Friend JA, Legge JS, Douglas JG. Symptoms quality of life and health service contact among young adults with mild asthma. Am J Respir Crit Care Med. 2000;161:498-503.
9. Volovitz B, Vichyanond P, Zhong NS. Allergy and asthma education. Chem Immunol Allergy. 2004;84:163-83.
10. Hederos C, Janson S, Hedlin G. Group disscusions with parents have long-term positive effects on the management of asthma with good cost-benefit. Acta Paediatr. 2005;94(5):602-8.
11. Lal A, Kumar L, Malhotra S. Socioeconomic burden of childhood asthma. Indian Pediat. 1994;31:425-8.
12. Kunsebeck H, Korber J, Freyberg H. Quality of life in patients with inflammatory bowel disease. Psychother Psychosom. 1990;54:110-6.
13. Baxter-Jones A, Helms P. Early introduction of inhaled steroids in wheezing children presenting in primary care. A pilot study. EASE Study Group. Clin Exp Allergy. 2000;30:1618-26.
14. Storms B, Olden L, Nathan R, Bodman S. Effect of allergy specialist care on the quality of life in patients with asthma. Ann Allergy Asthma Immunol. 1995;75:491-4.
15. Vilar M, Reddy B, Silverman B, et al. Superior clinical outcomes of inner city asthma patients treated in an allergy clinic. Ann Allergy Asthma Immunol. 2000;84:299-303.
16. Cote J, Cartier A, Robichaud P, Boutin H, Malo JL, Rouleau M, Boulet LP. Influence of asthma servity, quality of life and environmental control. Can Respir J. 2000;7:395-400.
17. Asher I, Daghli E. Enviromental influences on asthma and allergy. Chem Immunol Allergy. 2004;84:37-111.
18. Kowalski M. Leczenie astmy w Polsce a międzynarodowe wytyczne. Wyniki badania AIRE. Alerg Astma Immunol. 2001;6 Suppl 1:S37-8.
19. Rabe K, Vermeire P, Soriano J, Maier W. Clinical management of asthma in 1999: the Asthma Insights and Reality in Europe (AIRE) Study. Eur Respir J. 2000;16:802-7.
20. Coover L, Vega C, Persky V, et al. A collaborative model to enhance the functioning of the school child with asthma. Chest. 1999;116 Suppl 1:S193-5.

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