

Knowledge of parents or guardians about children's bronchial asthma. Participation of a nurse in health education of parents or guardians and a sick child

Wiedza rodziców lub opiekunów na temat astmy oskrzelowej u dziecka. Udział pielęgniarki w edukacji zdrowotnej rodziców lub opiekunów oraz chorego dziecka

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Słowa kluczowe: astma oskrzelowa, edukacja zdrowotna, wiedza o chorobie.

Abstract

Aim of the research: To verify and assess the influence of the level of parental/guardian knowledge about a child's bronchial asthma on the effectiveness of treatment and to define the role of health education in chronic bronchial asthma and participation of a nurse in education of parents/guardians of a child suffering from asthma.

Material and methods: The method used in this thesis was a diagnostic survey. The research technique was questionnaire. The tool used in the research was a questionnaire form which consisted of 30 questions preceded by instructions. The survey was carried out among 75 parents of sick children.

Results: Parental knowledge concerning children's illness is not satisfactory, although they declare they have appropriate, good knowledge about this illness.

Conclusions: Based on the analysis of the results of the research which was carried out, it is stated that because of the chronic nature of bronchial asthma it is necessary to include health education into comprehensive treatment and nursing procedures concerning children with bronchial asthma. It is also stated that participation of a well-qualified nurse in the education process is essential. It is observed that the level of parental knowledge does not depend on the length of the illness but on the effectiveness of health education. A satisfactory level of parental knowledge influences the effectiveness of treatment of bronchial asthma as an important part in prevention of exacerbations and complications.

Streszczenie

Cel pracy: Weryfikacja i ocena wpływu poziomu wiedzy rodziców lub opiekunów na temat astmy oskrzelowej u dziecka na efektywność leczenia oraz określenie roli edukacji zdrowotnej w przewlekłej astmie oskrzelowej i udziału pielęgniarki w edukacji rodziców lub opiekunów dziecka chorego na astmę.

Materiał i metody: W badaniu zastosowano metodę sondażu diagnostycznego. Wykorzystano kwestionariusz ankiety własnego opracowania składający się z 30 pytań poprzedzonych instrukcją. Ankiety przeprowadzono wśród 75 rodziców dzieci chorych na astmę oskrzelową.

Wyniki: Wiedza rodziców nie jest zadowalająca, chociaż rodzice deklarują dobrą znajomość problematyki związanej z chorobą dziecka.

Wnioski: Ze względu na przewlekły charakter astmy oskrzelowej istnieje konieczność włączenia edukacji zdrowotnej do kompleksowego postępowania leczniczo-pielęgnacyjnego u dzieci chorych na astmę oskrzelową. Stwierdzono także istotny udział wykwalifikowanej pielęgniarki w procesie edukacji. Zaobserwowano, że na poziom wiedzy rodziców nie wpływa czas trwania choroby, ale efektywność edukacji zdrowotnej. Zadowalający poziom wiedzy rodziców koreluje z efektywnością leczenia astmy oskrzelowej u dziecka. Edukacja zdrowotna stanowi istotny element profilaktyki powikłań astmy.

Introduction

According to the guidelines of Global Initiative for Asthma (GINA), bronchial asthma is defined as "a chronic inflammatory disorder of the airways, with the participation of numerous cells and the substances

secreted by them. Chronically inflamed airways are hyperresponsive, causing recurring episodes of wheezing, breathlessness, chest tightness and coughing, particularly at night or in the early morning. Such episodes are usually accompanied by diffuse, variable limitation of

airflow in the lungs, which usually subsides spontaneously or with treatment" [1].

Bronchial asthma is a major health problem not only because of its chronic nature but also because of the number of cases. In recent decades, a continuous increase in the frequency of bronchial asthma occurrence may be observed. According to World Health Organization (WHO), 300 million people in the world are presently suffering from bronchial asthma. In Poland, the occurrence of bronchial asthma is estimated at around 4–5 million people. It most often concerns children and is considered the most common chronic disease of childhood. According to epidemiological data, 8.6% of children in Poland suffer from bronchial asthma [2].

Due to the chronic character of the disease, health education plays a very important role in the treatment of bronchial asthma. It should involve patients of any age, and in the case of small children, education should be directed at the parents/guardians [1, 3, 4]. The level of parental knowledge influences the effectiveness of treatment and the sick child's quality of life [5]. The nurse plays a major role in the process of health education [6].

Health education aims at, among other things, providing information about health and the conditions of its maintenance, and disease prevention. It influences the mental and emotional condition of the patient in a positive manner. It decreases the fear of the disease. Effective health education should not only be based on providing information but above all on forming proper attitudes and behaviours [4]. Education affects both the improvement of the health state and the patient's quality of life [5].

According to GINA's guidelines, health education should be an integral part of all interactions between the doctors and other health care employees, and the patients [1]. Educational programmes can be of an individual or group nature, and can be led by different people, e.g. a specialist doctor or a qualified nurse [4]. According to Dolińska *et al.*, the key role in the education of an asthma patient should be played by the nurse. Research has shown that a major part of the respondents expressed their willingness to participate in an educational programme led by a nurse. The recommended form of educational courses is group work within the so-called asthma patients' schools. Patients, their families and their guardians can participate in them. However the disadvantage of this type of courses is their low availability to patients from small towns, because they are usually organised in large cities, close to academic institutions [6].

According to GINA's guidelines, education should consist of the following: an initial visit, a personal plan of action, control visits and education of other people [1]. During the first visit, the bronchial asthma patient should receive information about the nature of the disease, prevention of clinical symptoms, treatment, the

kinds and effects of medication (including adverse effects), ways of taking medication, factors exacerbating symptoms and the strategies for avoiding them. The patient can also be introduced to various types of inhalers and can be helped in choosing the most suitable one for a given person. The visit should also include education in self-control – monitoring and interpretation of peak expiratory flow (PEF) measurements and drawing conclusions based on their results [1, 3, 4].

From the very beginning the patient should have a sense of partnership relations with the medical personnel, which results in greater confidence, a higher degree of satisfaction with the results of treatment and care, and stricter adherence to medical recommendations. The patients should openly present their expectations of the treatment before the doctor, so that they can be confronted with the possibilities of therapy, whereas the doctor should explain to the patient the main goal of the treatment [1, 4, 7].

Devising an individual plan of action for the patient, containing instructions for procedures depending on symptoms and parameters, is very helpful in the process of treatment and education. This lets the patient take an active part in the treatment. Implementing self-management should concern patients of all ages. In the case of children, parents/guardians should also take an active part in it. Control visits, during which an examination and evaluation should be made of the way of using the inhaler and of the patient's adherence to recommendations concerning medication and decreasing exposure to risk factors, play an important role. Notes from the self-control diary should also be analysed. During the control visits, the education provided so far should also be analysed and certain information should be repeated and consolidated, or supplemented with new information, should the need arise [1, 4, 6].

Aim of the research

The main aim of the following research was to verify and evaluate the influence of the level of parental/guardian knowledge about bronchial asthma in a child on the effectiveness of treatment as well as to determine the role of health education in chronic bronchial asthma and the participation of the nurse in educating the parents/guardians of a child suffering from asthma.

Detailed aims were as follows:

- Comparison of how parents assess the level of their knowledge about the child's disease and the actual state of knowledge verified using a questionnaire survey.
- Verification and assessment whether parents are able to define the child's disease, recognising its inflammatory nature.
- Verification and assessment of the knowledge about the symptoms of the disease, its exacerbations and

the causes of shortness of breath and the exacerbations of the disease.

- Verification and assessment of the procedures in the case of exacerbations in household conditions.
- Verification and assessment of the knowledge about basic tools and methods of measurement along with an assessment of the knowledge about basic measures.
- Verification and assessment of the influence of the level of knowledge on the effectiveness of treatment and the frequency of hospitalisation due to exacerbations.
- Verification and assessment of the influence of diagnosis of the disease on the child's physical activity.
- Verification of the sources where the parents obtain their information on the child's disease.
- Verification whether the parents recognise the importance of the role of health education in a chronic disease.
- Verification whether parents declare their willingness to continue or start health education.
- Determining the role of the nurse in the process of health education according to parental opinions.

Material and methods

The method of a diagnostic poll was used in the following study. A questionnaire was the research technique. A questionnaire devised by the author was the tool used in the research.

The questionnaire contained 30 questions preceded by instructions. The questionnaire contained 7 questions concerning the characteristics of the population under study, where three of those were open-ended questions and four were closed questions. Among the questions in the questionnaire, 17 were questions verifying the actual state of parental knowledge about the child's bronchial asthma. They concerned knowledge about the nature of the disease, the symptoms, risk factors, treatment, monitoring, and self-control. The questionnaire also contained 6 closed questions investigating the parental opinions on the role of health education and the participation of the nurse in the process of education.

Organisation and course of the study

The questionnaire survey was conducted between October and November 2011 at the Pulmonary Clinic for Children at the Władysław Buszkowski Provincial Specialist Children's Hospital located at 2 Langiewiczza Street in Kielce. The survey was carried out among 75 parents of children suffering from bronchial asthma. Participation in the survey was voluntary and anonymous.

Results

The gathered material was subjected to descriptive analysis. The results are presented using numbers and percentages.

The social and demographical characteristics of the population

Women were a significant majority among the respondents under study. Among the 75 parents taking part in the study, 71 were women (94.7%) and 4 respondents (5.3%) were men. The average age of the parents was 34.7. The maximum age was 49 and the minimum was 26. Among the respondents, the most numerous group consisted of inhabitants of small towns – 33 people (44%); and the least numerous consisted of inhabitants of villages – 18 people (24%). The remaining 24 people (32%) were inhabitants of large cities. The most numerous group in regard to education consisted of respondents with vocational education – 36 people (48%); the least numerous consisted of those with primary education – 3 people (4%). Eleven people had secondary education (14.7%) and 25 people (33.3%) had higher education. Among the sick children of the parents taking part in the research, 43 children (57.3%) were girls and 32 children (42.7%) were boys. The arithmetical mean value of the age of the sick children was 7.2 years old. The maximum was 16 and the minimum 4. The average duration of the disease in a child was 5.8 years. The maximal value was 10 years and the minimal one year.

Collective results

As many as 41 of the respondents (54.7%) answered the question how parents assess their own knowledge about the child's disease that the knowledge they possess is fully sufficient. Among the respondents, 21 (28%) believed that they possess the essential information but would like to broaden their knowledge, while 13 amongst the respondents (17.3%) replied that they do not know anything about bronchial asthma.

The research carried out shows that parents are unable to properly define bronchial asthma. As many as 39 respondents (52%) gave wrong answer to the question concerning the notion of bronchial asthma, that bronchial asthma is COPD – chronic obstructive pulmonary disease. Only 11 amongst the respondents (14.7%) answered correctly that it is a chronic inflammatory disorder of the airways. Detailed results are presented in Table 1. It thus results that the majority of parents are not familiar with the inflammatory background of the disease. They only identify the disorder with obstruction. Thus, the conclusion can be drawn that due to the lack of knowledge about the basis of the disease they are unable to take proper care and treatment actions for their child.

The parents were able to define the typical symptoms of the disorder – 39 respondents (52%) answered correctly that these are coughing and wheezing. Thirteen respondents (17.3%) believed the main symptoms to be total intolerance of physical activity and

Table 1. The notion of bronchial asthma

Bronchial asthma is:	Number	Percentage
A chronic inflammatory disorder of the airways	11	14.7
A chronic atrophic disorder of the airways	8	10.7
COPD – chronic obstructive pulmonary disease	39	52.0
I do not know	17	22.6
Total	75	100.0

Table 2. Environmental factors which may induce symptoms of bronchial asthma

Environmental factors which may induce symptoms of bronchial asthma	Number	Percentage
Cockroach allergens	0	0
House dust mites	61	81.3
A diet low in polyunsaturated fatty acids, and high in processed foods	3	4.0
All of the above mentioned factors	11	14.7
Total	75	100.0

Table 3. Parental interventions in the case of an exacerbation at home

Action taken in the case of an exacerbation at home	Number	Percentage
Administering 2 × 100 mg of antihistamines by mouth	15	20.0
Administering a leukotriene antagonist by inhalation for 15 min	17	22.7
Administering a fast-acting β-adrenergic agonist by inhalation every 20 min for the first hour	15	20.0
I do not know, no one explained it to me	28	37.3
Total	75	100.0

sleeplessness. Fourteen respondents (18.7%) gave the answer “I do not know”.

The parents declared good knowledge of factors, inducing the symptoms of the disease and its exacerbations. Among the respondents, 57 (76%) answered that they know these factors and know how to minimise them. Amongst the respondents, 10 (13.3%) answered that they know these factors but do not know how to minimise them, and 8 respondents (10.7%) an-

swered that they do not know these factors and they do not know how to minimise them.

As the answer to the question concerning environmental factors favourable to symptoms of bronchial asthma, most of the respondents, 61 (81.3%), indicated house dust mites. Detailed results are presented in Table 2. Results of the research carried out show that for the most part, the respondents connect the presence of asthma symptoms mainly with house dust mites. As many as 56 respondents (74.7%) indicated physical exercise as the answer to the question concerning the factors which cause shortness of breath in asthma. Change in temperature was chosen by 8 respondents (10.7%). Lack of proper treatment was chosen by 7 respondents (9.3%). It can thus be concluded that by not knowing the factors which cause the symptoms of the disease and its exacerbations, they are unable to minimise them in the nearest surroundings of the child, which may lead to frequent exacerbations, and hospitalisation because of it.

As a reply to the question concerning the frequency of the child's hospitalisation due to asthma exacerbations, as many as 27 respondents (36%) selected “yes, often”. The “yes, once” answer was given by 17 respondents (22.7%). Among the respondents, 31 (41.3%) replied “never”. It can be concluded based on this result that parents do not adhere to the recommendations concerning care and treatment actions and thus exacerbations which require hospitalisation may occur.

Most of the respondents, 27 (36%) chose coughing as the reply to the question concerning symptoms of an oncoming exacerbation of asthma in children. Seventeen respondents (22.7%) gave the answer “I do not know”.

The study showed that parents do not know the rules of procedure for exacerbations at home. To the question concerning how to act in the case of an exacerbation at home, 28 respondents (37.3%) replied that they do not know because no one told them. Only 15 respondents (20%) chose the correct answer – administering a fast-acting β-adrenergic agonist by inhalation every 20 min for the first hour. Detailed results are presented in Table 3. Based on this result it can be stated that in the case of an exacerbation, which is a life-threatening condition, most of the parents are unable to help their child at home.

The results of the research carried out evidence a big deficit in parental knowledge about the basic measures and measurement tools. As many as 41 respondents (54.7%) replied that they do not know what a *pikflometr* (Polish term for the peak expiratory flow meter) was to the question concerning knowledge of the notion and use of a *pikflometr*. Only 9 respondents (12%) gave the correct answer that it is a device used to measure peak expiratory flow. Among the respondents, 13 (17.3%) indicated that it is a device used for

accurately measuring the desired dose of a drug, and 12 respondents (16%) indicated that it is a kind of inhaler used to administer medication. As many as 60 respondents (80%) answered the question concerning knowledge about the manner of using a *pikflometr* that they do not know how to use it. As many as 61 respondents (81.3%) gave the answer "I do not know, no one told me about it" to the question concerning indexes used in monitoring bronchial asthma. Only 8 respondents (10.7%) chose PEF correctly.

As many as 34 respondents (45.3%) chose regular visits to a specialist as the answer to the question concerning the term "control" in asthma. Sixteen respondents (21.4%) gave the answer "I do not know". Thirteen respondents (17.3%) indicated monitoring of symptoms. Twelve respondents (16%) indicated minimizing symptoms.

As many as 41 respondents (54.7%) indicated pharmacotherapy as the answer to the question about what is most important in treating bronchial asthma. Twenty-eight respondents (37.3%) selected complete elimination of physical activity. Only 6 respondents (8%) chose consistency and self-control.

The study carried out shows that parents have a false image about the physical activity of a child with bronchial asthma. When given the question concerning the influence of physical exercise on a child with asthma, 20 respondents (26.7%) indicated that it is a threat causing shortness of breath and the child should be fully excused from physical education classes. To the question concerning whether diagnosis of the disease affected the present physical activity of the child, as many as 45 respondents (60%) answered that yes it did and the child has completely stopped exercising during physical education classes.

The results of the research show that parents see a need for the participation of a nurse in health education. Seventy-one respondents (94.7%) replied affirmatively to the question concerning whether nursing personnel should be responsible for the education of a sick child and their parents/guardians as a complement of visits to a doctor. Among the respondents, four (5.3%) had no opinion on the subject. Twenty-seven respondents (36%) answered yes to the question if they had used the advice of a nurse during the treatment of the child. To the question concerning how the respondents assess the role of a qualified nurse in the education of parents/guardians and the child, 73 respondents (97.4%) indicated that it is necessary in order to provide information concerning asthma and nursing care in this disorder. When given the question whether properly conducted health education has a motivating effect on the sick child and the parents/guardians, 73 respondents (97.3%) replied affirmatively and two respondents (2.7%) had no opinion on the subject.

When given the question concerning the sources of knowledge about the child's disease, the respondents most often indicated a specialist doctor (36 respondents (48%)). Mass media was indicated by 10 respondents (13.3%). Leaflets and brochures were indicated by 10 respondents (13.3%). A general practitioner was indicated by 7 respondents (9.3%). A qualified nurse was indicated by 7 respondents (9.3%). Other parents were indicated by 5 respondents (6.7%).

Discussion

The results of the authors' own research show that parental knowledge is not satisfactory, despite the parents declaring knowledge of the information about the child's disease. A similar study published in 2008 by Korzekwa and Obuchowicz shows how important parental knowledge about a child's bronchial asthma is. It turned out that parental knowledge is varied and most often insufficient. Parents declared good knowledge of the factors inducing and exacerbating the disease but their responses were not satisfactory. Results of own research are the evidence of the fact that parents cannot correctly define the notion of asthma. Whereas in the research of Korzekwa and Obuchowicz, most of the parents could correctly define bronchial asthma. Both in our own research and that of Korzekwa and Obuchowicz, parents were able to determine the typical symptoms of the disease [8]. In our own research that was carried out, the parents declared good knowledge of the factors exacerbating the disease and the means to eliminate them from the surroundings of the child; however, the children were often hospitalised due to exacerbations. Likewise, the research of Korzekwa and Obuchowicz showed a deficit in parental knowledge concerning the elimination of factors exacerbating the symptoms [8]. Our own research allowed us to see that parents do not know the rules of procedure in the case of exacerbation of bronchial asthma at home. For the most part, they are not able to correctly classify the medication for such an intervention. Likewise, the research of Korzekwa and Obuchowicz depicted the problem of differentiating anti-inflammatory medications from bronchodilators in a situation of exacerbation [8]. The research of Chełmińska *et al.* is also evidence of the influence of lack of knowledge about the disease, the treatment and side-effects of pharmacotherapy on the treatment of the child [9]. The results of the own research that was carried out allowed us to observe that the majority of parents have a false belief that a child suffering from asthma should limit its physical activity and be excused from physical education classes. Likewise, the research of Korzekwa and Obuchowicz showed that the majority of parents believe that physical exercise in children with asthma should be limited [8]. Yet it is known that physical activity is a very important factor influencing a proper development of children.

Various studies stress the role of exercises in improving the capacity of children with asthma [10, 11].

In bronchial asthma, due to the chronic character of the disease, a very important role is played by health education. The results of the following research show that parents would gladly recourse to a qualified nurse who would provide education, and some of the respondents made it known that they had used the advice of a nurse during the treatment of their child. Korzekwa and Obuchowicz stress the need to train nurses so that they can educate parents/guardians [8]. Likewise, according to Dolińska *et al.*, a key role in the education of asthma patients should be played by the nurse. Research has shown that the majority of parents participating in the questionnaire expressed their willingness to participate in an educational programme conducted by a nurse [6]. The research of Czerwińska-Pawluk is also evidence of the role of a qualified nurse in the process of educating parents/guardians [3]. Both the results of own research that was carried out and the research of Kieczka [4] stress the importance of including health education in the aspect of treatment and nursing procedures in children with bronchial asthma.

Numerous scientific studies stress the role of health education in improving the patients' quality of life. Education is very important, because if the patient does not receive knowledge about the background of the disease and the goals of the treatment, then they will not avoid the factors exacerbating the symptoms nor will they adhere to the recommendations of the doctor. The research of Trojanowska and Emeryk was aimed at assessing the influence of the level of knowledge about the disease on the quality of life of children suffering from asthma. The research shows that children who have sufficient knowledge about the disease assessed their quality of life more positively. Along with the increase of knowledge, the children less frequently felt negative emotions, e.g. fear, anxiety connected with the disease or lower self-esteem. However, in the assessment of the study, along with increased control of the disease the children assessed their quality of life more negatively. Despite the good effects of treatment, the quality of life was lower due to the necessity of systematic monitoring [5].

Conclusions

Based on the analysis of the authors' own research that was carried out, it was found that because of the chronic nature of bronchial asthma, there is a need for including health education into the comprehensive treatment and nursing procedures in children suffering from bronchial asthma. It was also found that participation of a qualified nurse in the process of education is significant. It is also observed that the duration of the disease does not influence the level of parental knowledge, but the effectiveness of health education

does. A satisfactory level of parental knowledge affects the effectiveness of bronchial asthma treatment in a child, as a significant element of exacerbation and complication prophylaxis.

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