

ANNA BEDNAREK¹, ANDRZEJ EMERYK², KATARZYNA DOŃKA³

Analiza występowania chorób alergicznych na tle priorytetowych problemów zdrowotnych w grupie dzieci i młodzieży szkolnej w powiecie łęczyńskim

Streszczenie

Wstęp. Stan zdrowia dzieci i młodzieży warunkowany wpływem determinantów wewnątrzustrojowych oraz modyfikatorów ekologiczno-kulturowych niejednokrotnie sprzyja powstawaniu wielu problemów zdrowotnych w populacji wieku rozwojowego, w tym zwiększającej się w krajach rozwiniętych zachorowalności na choroby alergiczne.

Cel. Ocena występowania chorób alergicznych na tle priorytetowych problemów zdrowotnych społeczności szkolnej powiatu łęczyńskiego.

Material i metody. Przeanalizowano 1450 kart profilaktycznego badania zdrowia uczniów szkoły podstawowej, gimnazjalnej i licealnej powiatu łęczyńskiego w roku 2007 i 2008, w zakresie występowania chorób alergicznych i priorytetowych problemów zdrowotnych.

Wyniki. Najczęstsze problemy zdrowotne uczniów w badanych szkołach to wady narządu ruchu (48,6%), wady narządu wzroku: u uczniów klas I-VI – 26,2%, gimnazjum – 24,0% i liceum – 25,3%, następnie niskorosłość zauważalna w największym procencie u uczniów klas IV-VI oraz nadwaga dominująca w klasach IV-VI (8,5%) i w liceum (7,9%). W szkole podstawowej w klasach I-III oraz IV-VI choroby alergiczne występowały w podobnym zakresie (6,0% i 6,2%), a największy odsetek wśród nich stanowiła astma (2,4% i 3,8%).

Wnioski. W klasyfikacji priorytetowych problemów zdrowotnych dzieci szkolnych choroby alergiczne zajmowały podobnie trzecie i piąte miejsce po wadach narządu ruchu i wzroku, nadwadze oraz otyłości. We wszystkich typach szkół (podstawowej, gimnazjalnej i licealnej) płeć istotnie różnicuje występowanie chorób alergicznych i innych problemów zdrowotnych. Znajomość sytuacji zdrowotnej uczniów wyznacza priorytety w zakresie promocji zdrowia w populacji dzieci szkolnych, a także edukacji zdrowotnej w zakresie prewencji chorób alergicznych.

Słowa kluczowe: problemy zdrowotne, choroby alergiczne, dzieci, środowisko wiejskie.

Analysis of allergic diseases incidence against the background of priority health problems in the group of children and adolescents of the Łęczyński Poviat

Abstract

Introduction. The health status of children and adolescents conditioned by the influence of endogenic determinants and ecological and cultural modifiers often favors the development of many health problems in children and adolescents, including the increasing incidence of allergic diseases in developed countries.

Aim. Assessment of the prevalence of allergic diseases against the background of the priority health problems of the school community in Łęczyński Poviat.

Material and methods. There were analyzed 1450 cards of preventive health examination of primary school, secondary school and high school students of Łęczyński Poviat in 2007 and 2008, regards the prevalence of allergic diseases and priority health problems.

Results. The most common health problems of students in the examined schools are locomotor system defects (48.6%), ocular defects: students in grades IV-VI – 26.2%, gymnasium – 24.0% and 25.3% of secondary school-, followed by short stature evident in the largest percentage of students in grades IV-VI, and overweight dominant in classes IV-VI (8.5%) and secondary school (7.9%). In primary school in the classes I-III, and IV-VI there were allergic diseases to a similar extent (6.0% and 6.2%), and the highest percentage among them was asthma (2.4% and 3.8%).

Conclusions. In the classification of priority health problems of school children allergic diseases similarly occupied the third and fifth place after the defects of musculoskeletal system and vision, overweight and obesity. In all types of schools (primary, gymnasium and high school), gender significantly differentiates the incidence of allergic diseases and other health problems. Knowledge of the health situation of students outlines priorities for health promotion in the population of school children, as well as health education on prevention of allergic diseases.

Keywords: health problems, allergies, children, rural environment.

¹ Department of Paediatric Nursing, Faculty of Nursing and Health Sciences, Medical University of Lublin

² Department of Pulmonary Diseases and Rheumatology, Medical University of Lublin

³ Department of Paediatric Nursing, Faculty of Nursing and Health Sciences, Medical University of Lublin

INTRODUCTION

Health, which defines every sphere of human activities, is conditioned by many factors, always remaining in connection with numerous social and cultural changes. A set of attitudes and behaviors related to health, called healthy lifestyle is formulated from childhood, and is modeled for the whole life [1].

Growing health risks resulting from the destructive actions of contemporary civilization, often promoting the anti-health lifestyle, are particularly unfavorable conditions for the development of healthy ideas and attitudes among children and adolescents [2,3].

The health of the population in the developmental age is affected by three groups of factors. Among them there are genetic determinants, which have the greatest influence on the development of birth defects, metabolic diseases and endocrine disorders [4].

The next group includes the environmental conditions, i.e., multifactorial syndrome of geographic, climatic, social, and family modifiers. Among them, degradation of the environment, increased noise, activity of radioactive elements and contamination of food, and social conditions in the evolution of the family ambiance, contribute to the formation of many diseases, mainly allergic and multi-organ diseases. Amenities of civilization greatly reduce physical activity among children and adolescents, and the growth of passive forms of recreation in front of TV and computer as well as the overload of responsibilities, are conducive to the formation of school health threats such as posture defects, flat feet, vision problems and functional impairment of mental processes [5].

The third determinant of population health status in childhood is the culture of care, evolving from an early age under influence of family, school and health professionals, in particular, a school nurse, who either directly or indirectly participates in the process of health education for children and young people.

The conditions of modern civilization lead to the rapid increase in allergic diseases. They cause a syndrome of pathogenetic events and clinical consequences in the body, for which the exogenous or endogenous antigen is responsible, interacting with specific antibodies or immunologically competent cells, triggering a cascade of inflammatory symptoms. Complaints arising from the disease, as well as the effects of anti-inflammatory drugs can significantly alter the quality of life of children and reduce their interest in learning [6].

The specificity of residence often determines the type and nature of threats and the resulting health problems. Life in the country and the consequent frequent contact with various allergens usually protects children against the development of allergic diseases. The occurrence of allergic symptoms in rural areas is 18.8% and in urban areas, up 32.7%. However, exposure to tobacco smoke causes the same severity of allergies in both urban and rural areas [7].

The town Łęczna and village Puchaczów where the research presented in this work was carried out, are located in the Łęcznińsko-Włodawskie Lake District. The life of their residents is related to the coal mine „Bogdanka”, located in the commune Puchaczów, 10 km from the town Łęczna.

Industrial infrastructure in the area is one of the most significant sources of emissions of atmospheric pollutants.

Landfill waste rock causes a slight dusting, which increases mainly during the dry and windy days. This phenomenon is very variable, depending on weather conditions, and its range can extend to several tens of meters. Status of atmospheric air pollution in the Poviát Łęczna, in the reports of Voivodeship Office in Lublin, is considered satisfactory. This is reflected in the classification of that area to the Class IIIb – where the level of pollution does not exceed the upper assessment threshold. Only as dust is concerned, taking into account significant strengthening of standards, the poviát has been qualified for Class II – in which the level of dust is between the lower and upper assessment threshold. At the same time no objects that may be the additional source of pollution, are planned in this area; only the modernizing of local heating systems from coal to gas, will contribute to an even greater reduction of air pollution [8].

Sources of harmful substances emissions to the atmosphere, mainly associated with sulfur dioxide, even at low concentrations but lasting for a long time, may cause damage to the respiratory tract, leading to rhinitis, bronchitis, transiently increase airway hyperreactivity and enhance allergic reactions. Sulfur dioxide, after entering the respiratory tract permeates into the blood, accumulating in the walls of the trachea and bronchi, and liver, spleen, brain and lymph nodes. Its high concentration in air may lead to changes in the cornea of the eye, and cardiovascular system [9].

AIM

The purpose of this study is to evaluate the occurrence of allergic disease against the priority health problems of the school community of Łęczna Poviát.

MATERIAL AND METHODS

There were analyzed 1450 cards of preventive health examinations of primary school, gymnasium and high school pupils of Poviát Łęczna near Lublin, in 2007 and 2008, as well as the prevalence of allergic diseases and priority health problems.

Student's health card is the main medical document located in the school doctor's office, which stores information about the health of the student. It contains medical information from parents about their child's health and social functioning in the environment, then information from the class tutor about recognition of the problems of school students and from the school nurse and as a result of the screening test and also from the primary care physician on the basis of general and physical examination. The information obtained on the basis of detailed analysis of the cards was the basis for determining the structure of the health problems of rural children in an environment with particular reference to allergic diseases.

In this study the statistical program SPSS 14.0 PL using the numbers, percentage calculations, chi2 conformity test and chi2 test of independence was used to analyze the research material.

RESULTS

Powiat Łęczna schools (primary, gymnasium and high schools) are attended by 1450 students, including 404 students in grades I-III (200 boys and 204 girls), and 419 students in grades IV-VI (207 boys and 212 girls). In the gymnasium there are taught 539 students, including 278 boys and 261 girls. High school education is continued by 88 people, including 44 boys and 44 girls. Schools are located in the center of Łęczna (elementary and gymnasium) and in the village Puchaczów (high school). Education is rendered in two shift system, and school buildings include doctor's office and dentist's office where the care of the students is taken by a nurse of education environment. In the surveyed schools there are 85.0% of students from rural areas. Almost half of mothers (46.2%) of the children and 68.3% of fathers admit to regular smoking. Different "dispensary" groups (group of chronic diseases with significant biological and social consequences requiring a uniform care, prevention, treatment and rehabilitation), due to the presence of specific health problems include 82.5% of surveyed students. Primary and Secondary Schools in Łęczna belong to the National Network of Health Promoting Schools. The study group with regard to gender is presented in Figure 1.

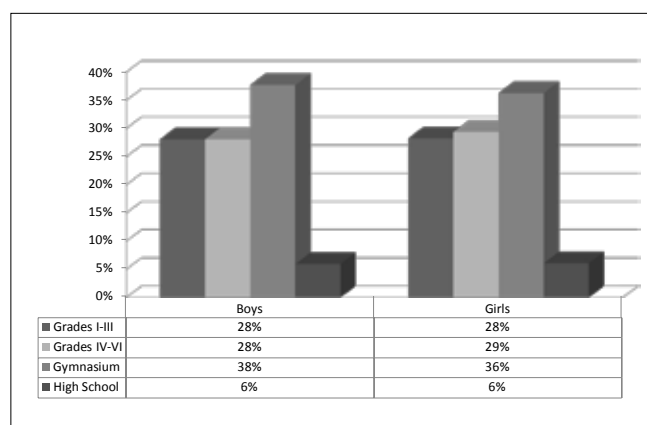


FIGURE 1. Percentage of students with regard to gender.

The most common health problems of students in the surveyed schools (Figure 2) are the locomotor system defects dominant in children in grades IV-VI (48.6%), ocular defects representing similar percentages of students in grades IV-VI – 26.2%, gymnasium – 24.0% and high school – 25.3%, followed by short stature evident in the largest

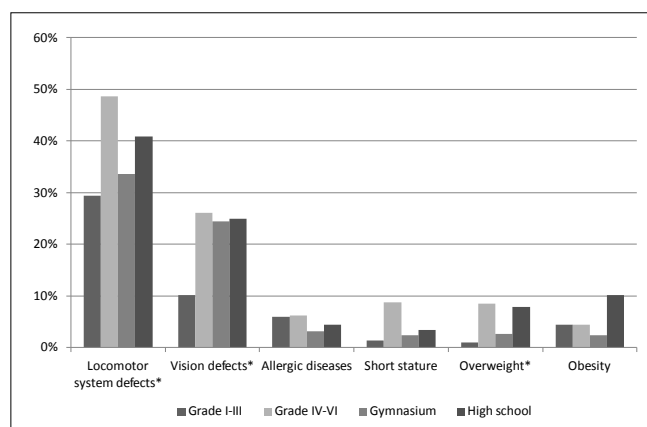


FIGURE 2. Priority health problems of students in the surveyed schools.

percentage of students in grades IV-VI, and overweight dominant in grades IV-VI (8.5%) and high school (7.9%).

In primary school in grades I-III and IV-VI allergic diseases occurred to a similar extent (6.0% and 6.2%), and the highest percentage among them was asthma (2.4% and 3.8%). In the structure of the major health problems they were on the third place (grade I-III) and fifth place (grade IV-V) after locomotor system and vision defects, short stature and obesity. In the group of gymnasium students, allergic diseases accounted for 3.2%, including asthma 2.4%, while among high school students re-growth rate of allergic diseases to the value of 4.5% was observed, all cases related to asthma. In the classification of priority health problems, they occupied the third and fifth place after defects of the musculoskeletal system and vision, overweight and obesity.

The health problems of students (Figure 3), which were important aspects of children's health risks, but constituted a small percentage of the surveyed schools were low body mass (4.0%), heart failure (1.7%) and speech defects (4.4%), and the problems of marginal importance are epilepsy – 0.2%, diabetes – 0.5%, mild mental retardation – 0.5%, and hypertension – 1.0%.

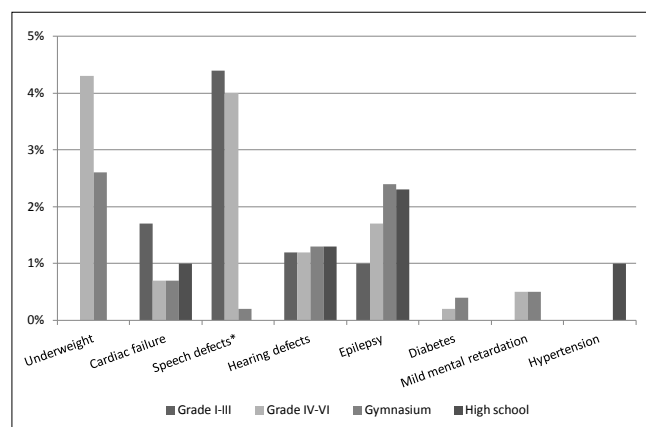


FIGURE 3. Less common health problems of students in the surveyed types of schools.

Among the allergic diseases (Figure 4) asthma dominates significantly ($p < 0.001$) in elementary school students as well as gymnasium and high school (from 2.5% to 4.5%). Then, allergic rhinitis occurs in all types of schools in the percentage from 1.2% to 1.6%. However atopic dermatitis (from 1.8% to 1.4%) and gastrointestinal allergy (from 0.6% to 0.4%) is characteristic of the pupils of early primary school and high school.

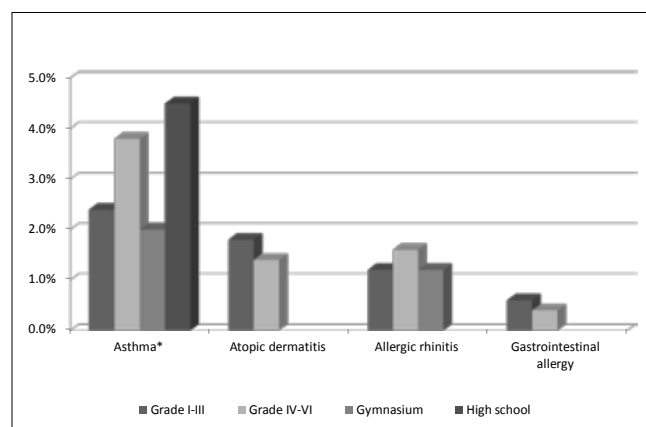


FIGURE 4. The occurrence of allergic diseases among students.

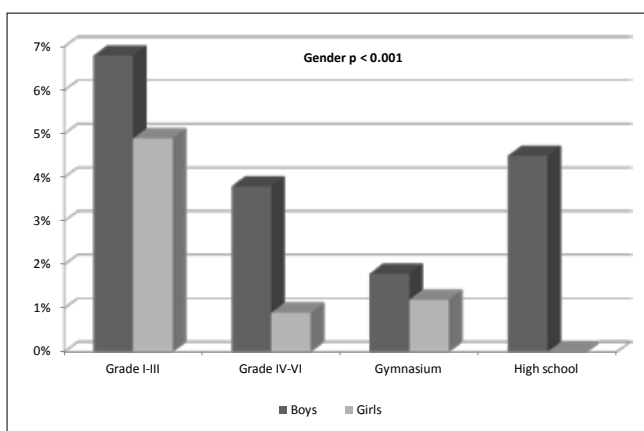


FIGURE 5. The occurrence of allergic diseases among students against gender.

In all types of schools (Figure 5) gender significantly differentiates the incidence of allergic diseases and priority health problems, which are predominant in boys.

DISCUSSION

Comprehensive health care which covers each student in the current school system, creates the possibility of a thorough evaluation of his/her condition by performing the defined in the standard of health care for pupils: screening tests, health surveillance, monitoring of the situation harmful to development through targeted surveillance and interview in the home and the school environment. The obtained information about health problems of individual students are the basis for health education and psychological and educational care [3].

Also the participation of nurses in education environment in preventive care for students is becoming increasingly important. This trend is expressed mainly in the necessity of taking over by the nurse-specific professional tasks relating to the strategy of promoting health in children and adolescents [1,2]. In addition, their work is characterized by high autonomy and responsibility for the student's health and safety at school.

Analysis of medical records of students in the poviát has demonstrated a certain dimension of health problems of the children, which can be defined as unsatisfactory. A number of health risks due to various metabolic disorders, in terms of the presence of overweight and obesity, locomotor system dysfunction and vision defects, and increase of environmental adverse effects, determine the nature of allergic diseases.

In industrialized countries the incidence of allergic diseases is related to air pollution [10,11]. The prevalence of allergic diseases, especially asthma has increased by 80.0% in children and young people staying in the home environment of smokers (so-called passive smoking). Allergic diseases are more common in boys than in girls. The ratio of male to female is 1,8:1 [12].

The life of Poviát Łęczna residents is related to the coal mine operation. The emission of coal dust into the environment may be linked to the problem of allergic diseases observed in the study of the school community, which in the vast extent, affected boys than girls. At the same time it is disturbing that there was a high percentage of smokers in

the families of the children (in 46.2% of mothers and 68.3% of fathers). Meanwhile commonly recommended method of prevention of allergic diseases including asthma is complete elimination of active and passive smoking in the child's environment [7,13].

The health problems observed in the schools of Poviát Łęczna are consistent with health problems characterizing the entire population of school children. An example is the research by Wojnarowska and Mazur, which showed that about 39.7% of children have various health-related abnormalities, primarily reduced mobility, vision problems, metabolic disorders and allergic diseases [14]. Especially noticeable in their studies, is very high percentage of children (82.5%) classified to various groups based on health problems occurring in them, including those due to allergic diseases. This may be due to the fact that students' awareness of broadly defined health is very diverse, and the level of health behaviors often low [15,16].

One of the essential elements of particular importance in a period of intense developmental changes associated with the maturation of the body is nutrition. It appears that the irregularities in this area are common and usually lead to gastrointestinal allergy. As it is clear from the research the interest of the youth in the rational diet is high, as about 44.2% of the respondents comply with the rules of healthy eating, which the persons carrying out health education in this field offered them [17,18]. In our study, the problem of gastrointestinal allergy concerned from 0.6% to 0.4% of the students and could be related to dietary errors of the children.

The analysis of health situation in the schools of Poviát Łęczna determines the extent of care provided by nurse in education environment. It includes both the identification of the most common health risks of individual students, as well as health education on prevention of existing health problems [4].

Education of children with allergic disease is an important aspect of a modern approach to the prevention of allergic diseases. Many countries have national programs for patient education towards allergies, in which there are included nurses in education and learning environment. Effective education offers the possibility of self-assessment of the severity of the disease and proper self-treatment [6,12].

Health risks brought with modern civilization are growing very quickly, and children and young people are often unaware of their consequences. The problem of maintaining a good health condition should have a dominant role among the priorities of the young person and as interdisciplinary issue should be created under the influence of information and patterns provided by parents, school, health care, peer and social media.

CONCLUSIONS

1. In all schools, i.e. the primary, gymnasium and high schools there are allergic diseases, and the largest percentage among these is asthma.
2. In the classification of underlying health problems, allergic diseases occupy third and fifth place after the defects of locomotor system, vision, short stature, overweight and obesity.

3. Gender of the children differentiates the occurrence of health problems and allergic diseases. In all types of schools they are more common in boys than in girls.
4. Knowledge of the health situation of students sets the priorities for health promotion in the population of school children.

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Informacje o Autorach

Dr n. med. ANNA BEDNAREK – adiunkt, p.o. kierownika, Katedra i Zakład Pielęgniarstwa Pediatricznego, Wydział Pielęgniarstwa i Nauk o Zdrowiu, Uniwersytet Medyczny w Lublinie; prof. zw. dr hab. n. med. ANDRZEJ EMERYK – kierownik, Kliniki Chorób Płuc i Reumatologii Dziecięcej, Uniwersytet Medyczny w Lublinie; mgr piel. KATARZYNA DOŃKA – instruktor, Katedra i Zakład Pielęgniarstwa Pediatricznego, Wydział Pielęgniarstwa i Nauk o Zdrowiu, Uniwersytet Medyczny w Lublinie.

Adres do korespondencji

Dr n. med. Anna Bednarek
Katedra i Zakład Pielęgniarstwa Pediatricznego
Dziecięcy Szpital Kliniczny w Lublinie
ul. Chodźki 2, 20-093 Lublin
tel. 81 7185375,
E-mail: bednarekanna@o2.pl