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Full Length Research Paper

Asthma profile in children treated at the pulmonary outpatient department of pediatric clinics of the clinical center of Sarajevo

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Asthma is the most common chronic inflammatory condition of paediatric population, which inevitably leads to damage of pulmonary function, and in case of paediatric population at the same time disturbs normal development, due to the long duration and inadequate treatment. In certain cases, even when dealing with well managed asthma, on yearly bases we evidence pulmonary function damage in amount of 1% with male gender as predisposition and younger age at the moment of diagnosis. The aim of this paper is to determine frequency of asthma compared to other conditions treated at the Pulmonology Outpatient Department of Paediatric Clinics of the Clinical Centre of Sarajevo, to demonstrate relation between classified category of asthma regarding age and gender, to establish link between values of pulmonary functions (PEF-a and FEV1) compared to classified asthma category. The conducted study is both epidemiological and clinical, and it contains manipulative, prospective investigation. Analytical and descriptive methods were used, and technique was based on use of questioners and pulmonary functions measurements for PEF and FEV 1. Study included total of 1100 children with diagnosed asthma who were monitored at the Pulmonology Outpatient Department in the period of 1st January 2013 to 31st December 2013. Participants were divided into two group with regard to the age (the first group were participants of age 3- 5 year and the second group age 5- 16 years). With frequency of 32.8%, asthma represented the most common chronic inflammatory disorder. Out of total 1100 participants 58% of them were males. The male predomination trend was evidenced in both groups of participants (the first group 52%, and in the second 61%). The most common classified category was for both groups of participants was persistent moderate asthma. X test established that there was much higher number of male participants ($X= 8,202$; $df=2$; $p= 0.017$), and older age ($X= 13.98$; $df = 2$; $p= 0,001$) classified into more severe asthma categories, while equal distribution of both genders and younger age were detected for milder asthma categories. To investigate variable differences PEF and FEV 1 compared to classified asthma category were used Kruskal- Wallis test, non-parametrical alternative test ANOV-I, and it is established that there is a statistically significant difference in PEF and FEV 1 values compared to asthma classification category. With share of 32.8% asthma was the most common inflammatory disorder treated at our Outpatient Department. Compared to total number of participants, male gender was more presented than female, and this trend is recorded in each of both groups of participants. Larger number of male participants and older age were classified into more sever groups of asthma, while equal distribution of female gender and younger age for milder classification groups of asthma. There is a statistically significant link between values of pulmonary functions and classification group of asthma.

Keywords: Asthma, children, classified category asthma

INTRODUCTION

Asthma is the most common chronic inflammatory disorder of paediatric population. According to the data of „ National Centre for Disease Control and Prevention“ from 2005, yearly 170 million children in the world get asthma (NATIONAL health interview survey (NHIS), 2005). Also data by the WHO demonstrate that asthma is serious public health issue: every 10 years number of asthma patients increases for 20- 50% whilst in this period 1 million of deaths is caused by asthma. During one year period asthma is cause for 110 million sick leave days, 14 million school absence day and 467 million days spent in medical institutions (EPR- 3, 2007). Asthma as chronic disorder is linked to numerous pathological changes in lower respiratory pathways (Sporik et al., 1990). Duration and inadequate treatment can lead to wide path-morphological changes which will affect the lowering normal lung function. “Damaged” lung function will lead to significant limits for common physical and afterwards social and emotional life, relatively changes of life quality. If we talk about child as a patient, these limitation will be more emphasized and with growth this child due to his or her physical limitations will become emotionally and socially isolated person (Juniper et al., 2004). Having all said in mind, adequate treatment for children with asthma is an imperative.

PATIENTS AND METHODS

The conducted study is both epidemiological and clinical, and it contains manipulative, prospective investigation. Analytical and descriptive methods were used, and technique was based on use of specially designed questioners and pulmonary functions measurements for (PEF, FEV 1). Study lasted for a year with an aim to monitor and test participants in four seasons. Study included total of 1100 children, age three to sixteen years, with diagnosed asthma who were monitored at the Pulmonology Outpatient Department. Participants were divided into two group with regard to the age, the first group consisted of participants of age 3- 5 year and the second group age 5- 16 years. We performed pulmonary test functions only in second group. Based on total score obtained from questionnaires and pulmonary function measurements we divided participants into adequate classification groups of asthma. To investigate difference of PEF and FEV 1 variables in regard to the classification category of asthma we used Kruskal- Wallis test, non-parametrical alternative test ANOV-I,

RESULTS

During the monitored period at the Pulmonology Outpatient Department total of 3353 patients were examined. 1100 patients, relatively 32.8% out of them are treated with diagnosis of asthma of different classification groups. Male gender predomination is recorded in both groups of participants (the first group with 52%, and second with 61%). The most common asthma category for both groups was persistent moderate asthma. χ^2 test established higher number of male participants ($\chi^2= 8.202$; $df= 2$; $p=0,017$), and younger age ($\chi^2 =13,98$; $df=2$; $p= 0,001$) that were classified into more severe classification asthma categories, while established equal distribution for both genders and older age for asthma classified as mild. To investigate PEF and FEV 1 variables compared to asthma classification category were used Kruskal- Wallis test, non-parametrical alternative test ANOV-I and it is established that there is a statistically significant difference in PEF and FEV 1 values when compared to asthma classification category ($X= 12.60$; $df=2$; $p=0,002$) (Table 2).

DISCUSSION

According to the WHO data asthma is chronic inflammatory disorder with an increasing incidence. Every ten years number of affected persons increases for 20- 50 % and during those 10 years 1 million of death cases are caused by asthma. In our sample, asthma was the most common chronic inflammatory disorder treated at the Pulmonology outpatient department.

J Juniper et al. believe that valid data for evaluation of the disorder can be obtained only directly from affected disorder. Our investigation, beside spirometry measurements, was based on specially created questioners for affected children, which evaluation with spirometry measurements enabled more safe classification of children into certain classified groups of asthma (Juniper et al., 2004).

As quoted by Harwood et al. in his study (Horwood et al., 2005), asthma of paediatric population appear twice as often in boys. During puberty the gender relation is becoming more equal. We obtain similar results, with male predominance in total number of participants as well with same trend of male gender predomination in both groups of participants separately.

The most common classified asthma category for both

groups of participants was persistent moderate asthma. X^2 test established that much higher number of younger male participants were classified into more severe asthma category, while there was established an even distribution of both genders and older age for milder forms of asthma. The results of our study correlate with study results obtained by Barnes et al (2003). Duration of asthma as well as inadequate treatment affects functional component of lungs, limited values of PEF and FEV 1 (Adams et al., 2006). In our study to investigate difference for PEF and FEV 1 variables related to classified asthma category, we used Kruskal- Wallis test, non-parametrical alternative test ANOV-I and it is established that there is a statistically significant difference between values of PEF and FEV 1 compared to classified asthma category.

CONCLUSIONS

1. With participation of 32.8% asthma was the most frequently chronic inflammatory disorder treated in the Pulmonology Department of our Clinics
2. Compared to total number of participants, male gender was more presented compared to female and this trend was recorded in both group of participants
3. Larger number of male participants and older age was classified into more severe asthma categories (larger number of older boys were classified into persistent moderate and persistent severe asthma categories)
4. We recorded equal distribution of female gender and younger age for milder classified asthma category (intermittent asthma, mild persistent form).
5. There is a statistically significant link between pulmonary functions values and classified asthma category.

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