The Importance of Spirometry in Bronchial Asthma Management and the Predictive Value of FEV1 and MMEF Parameters for Future Exacerbations

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Abstract
Introduction and Aim: Asthma is the most common chronic disease during childhood. However, recent studies have shown a suboptimal control of asthma, which lies in poor asthma monitoring. This consists of both the assessment of symptoms control (questionnaires) and assessment of the risk for future exacerbations (functional respiratory tests). Spirometry is the most common respiratory test, but according to multiple studies, it seems to be globally underused in asthma monitoring. This is why we considered necessary a study that shows the correlation between spirometry parameters and symptomatology, along with the risk for future exacerbations of asthmatic patients. *Material and Method*: It is a cohort, observational, retrospective study. It was carried out in the Emergency Clinical Hospital for Children in Cluj-Napoca, Pediatric Clinic III. For this study, the closed circuit method of spirometry was used. The size of the sample was of 184 children with asthma diagnosis, of who 28 patients were randomly selected and their evolution was followed for 2 years (January 2022- December 2023). *Results*: The comparison between the values of FEV1 for patients with controlled (C) and uncontrolled (NC) symptomatology. Only 10% showed significant lower values (<80%) in the NC group compared to the C group ($p=0.015$), while 63% of patients in the NC group had low MMEF values but with no significant difference from group C (0.090). The number of exacerbations during two years was tracked in correlation with the values of spirometry parameters. The regression model was acceptable negative but statistically insignificant ($p=0.070$) for MMEF values (Spearman Multiple correlation coefficient $\varrho=-0.30$). *Conclusions*: The use of spirometry is extremely important, because the symptoms do not always correspond to the impairment of lung function. FEV1 can be considered a parameter that correlates with the severity of asthma at the time of the spirometry, while MMEF values may be associated more with the progression of the disease.

Keywords: Bronchial asthma; Spirometry; Asthma monitoring; Exacerbations