EDITORIAL

Recurrent Emergency Department visits for asthma in children: an opportunity for asthma care improvement?

Acute asthma is a common reason for visiting the emergency department (ED) in every country. It has been estimated that in the United States alone, asthma exacerbations account for almost two million ED visits per year[1]. Approximately 10-20 % of these patients require hospital admission and a further 10-20 % will relapse within the subsequent two weeks[2]. The outcome depends mainly on the risk factors associated to the patients (young age, severity of the disease, trigger exposure and the other factors which characterize the patient's asthma phenotype), and on the treatment prescribed in the ED and at the discharge, which consists mainly in β2 agonists and systemic corticosteroids[3].

There are, therefore, two different aspects that we have to consider when evaluating the accesses to ED for asthma exacerbations: the first are the risk factors of the patient for requiring the ED visit and the other is the management of these visits at the ED, which are also often a unique opportunity for an educational approach to the patient. In this issue of Allergologia et Immunopathologia, Rodriguez-Martinez and co-workers evaluated the risk factors associated to recurrent visits to the ED for asthma in a paediatric population in Bogota, Colombia[4]. Several risk factors for ED access have been previously identified, such as younger and adolescent age, duration of symptoms, previous asthma hospitalization, high use of β2-agonists, social disparities, parents' underestimation of the child's asthma, exposure to allergens and other triggers, low compliance to the prescribed therapy and the lack of a plan when symptoms are worsening. In said paper, the authors evaluated the characteristics of patients requiring repeated visits at the ED for their asthma[4]. Recurrent ED visits were associated not only to the severity being enough to go to the hospital but also to an important lack of parental knowledge regarding the treatment of the disease. Parents of children requiring ED visits were more prone to consider that asthma medications should be used only when the children are symptomatic and less prone to consider that asthma exacerbations can be avoided if asthma is treated during the asymptomatic periods[4].

Several guidelines have been published for asthma diagnosis and management[5-8], which have been translated into different languages and widely distributed to physicians. After the production of the first guidelines it was soon clear that there was a need to improve adherence to guidelines, since no greater improvement in asthma diagnosis and treatment was observed[9]. Therefore recurrent ED visits represent a challenge to the implementation of clinical guidelines by improving overall care and by the use of clinical pathways to provide health personnel and patients with successful educational interventions. It has been previously observed that parents frequently underestimate the severity of their child's asthma[10] and that parental expectations of asthma control are lower than those outlined in the guidelines[11,12]. The same is true for physicians who, irrespective of their training (asthma specialist, asthma speciality fellows, general medicine faculty, internal medicine fellow, family medicine residents) generally fail in estimating disease severity[13]. Moreover, it has been observed that symptoms alone do not entirely reflect disease severity and that multiple variables including lung function and drug consumption need to be considered in the classification of disease severity, and therefore control[14].

To avoid the high rates of re-admission of children with acute asthma, several actions can be established based on asthma guidelines. For instance, a nurse-led service based on BTS/SIGN guidelines for asthma management was proven effective by reducing the salbutamol inhaler treatment, by assessing the need for regular preventer treatment and of "step up" asthma control measures at home[15]. The use of written action-plan can significantly reduce acute care visits per child, leading to consequent less missed school, less nocturnal awakening and an improved symptom score[16]. Therefore, the ED visit can be an opportunity for a more precise patient evaluation, for parental improvement of knowledge of the disease, by access to pre-printed information on the disease and by access to a paediatrician's office for further consultation[17]. All these strategies, which

contribute to improving the management of asthma in children, are associated with important reductions in return-visit rates[17].

In conclusion, an educational programme by all physicians involved in the care of the paediatric patient with asthma intended to reduce the recurrent ED visits for asthma is mandatory and should consider explaining the chronic nature of the disease; the effect of the regular preventer treatment and of the importance of long-term therapy.

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REFERENCES

1. Mannino DM, Homa DM, Pertowski CA, Ashizawa A, Nixon LL, Johnson CA. Surveillance for asthma: United States,1960-1995. MMWR CDC Surveill Summ. 1998;47:1-27.
2. Camargo CA Jr; MARC investigators. Acute asthma among children presenting to the emergency department: the Multicenter Asthma Research Collaboration [abstract]. Acad Emerg Med. 1998;5:380.
3. Boluyt N, van der Lee J et al. State of the evidence on acute asthma management in children: a critical appraisal of systematic reviews. Pediatrics 2007;120:1334-43.
4. Rodriguez-Martinez CE, Sossa MP, Castro-Rodriguez JA. Factors associated to recurrent visits to the emergency department for asthma exacerbations in children: implications for a health education programme. Allergol Immunopathol. 2008; 36:72-8.
5. Global Initiative for Asthma (GINA), National Heart, Lung and Blood Institute (NHLBI). Global strategy for asthma management and prevention. Bethesda (MD): Global Initiative for Asthma (GINA), National Heart, Lung and Blood Institute (NHLBI); 2006, www.ginasthma.com.
6. Expert Panel Report 3 (EPR-3): Guidelines for the Diagnosis and Management of Asthma-Summary Report 2007. J Allergy Clin Immunol 2007;120:S94-138.
7. Bacharier LB, Boner AL, Carlsen KH et al. Diagnosis and treatment of asthma in childhood: a PRACTALL consensus report. Allergy 2008;63:5-34.
8. Castillo Laita JA, De Benito Fernandez J, Escribano Montaner A, et al. Consensus Statement on the Management of Paediatric Asthma. Update 2007. Allergol Immunopathol (Madr) 2008;36:31-52.
9. Warner JO. Review of prescribed treatment for children with asthma in 1990. Br Med J. 1995;311:663-66.
10. Aurora P, Stocks J, Oliver C, Saunders C, Castle R, Chaziparasidis G, et al. Quality control for spirometry in preschool children with and without lung disease. Am J Respir Crit Care Med 2004;169:1152-9.
11. Warner JO, Naspitz CK. Third International Paediatric Consensus statement on the management of childhood asthma. International Pediatric Asthma Consensus Group. Pediatr. Pulmonol. 1998;25:1-17.
12. Fuhlbrigge AL, Kitch BT, Paltiel AD, Kuntz KM, Neumann PJ, Dockery DW, et al. FEV_1 is associated with risk of asthma attacks in a pediatric population. J Allergy Clin Immunol. 2001; 107:61-67.
13. Colice GL, Burgt JV, Song J, Stampone P, Thompson PJ. Categorizing asthma severity. Am Respir Crit Care Med. 1999; 160:1962-67.
14. Richards W. Hospitalization of children with status asthmaticus: a review. Pediatrics 1989;84:111-18.
15. Chandler T. Reducing re-admission for asthma: impact of a nurse-led service. Paediatric Nurs 2007;19:19-21.
16. Zemek RL, Bhogal SK, Ducharme FM. Systematic review of randomized controlled trials examining written action plans in children: what is the plan? Arch Pediatr Adolesc Med 2008; 162:157-63.
17. Guttmann A, Zagorski B, Austin PC et al. Effectiveness of emergency department asthma management strategies on return visits in children: a population-based study. Pediatrics 2007;120:1402-10.