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ORIGINAL ARTICLE

Resources to handle childhood asthma in Spain: The role of plans and guides and the participation of nurses

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Abstract
Background: Describe the assistance provided to asthmatic patients by Primary Care Paediatricians (PCP) in Spain and the material and human resources available for diagnosis and follow-up.
Methods: A cross-sectional descriptive study using an on-line survey, sent to PCP regarding the availability of diagnostic resources, carrying out programmed and educational activities, collaboration of nursing staff and their relationship with existing institutional plans to care for children with asthma. A latent class model (LCM) was used to describe the differences among paediatricians based on the variables studied.
Results: Of the 708 answers, 675 were considered valid; 76% of the paediatricians had a spirometer, 75% specific IgE, 17% prick-test, 95% had placebo inhalers and 97% inhalation chambers. 57% performed programmed activities with their patients, while 56% shared their care of asthmatic patients with their nursing staff, but only 25% of the nurses were involved in the follow-up and 12% in education. LCM identified four patterns. The two groups with greater access to diagnostic resources counted on institutional plans/guidelines. However, the only variable differentiating the groups with more programmed and educational activities was the participation of nurses.
Conclusions: The availability of asthma plans/guidelines and resources for diagnosis and follow-up is not sufficient to improve important aspects of primary care for children with asthma. Organisational changes are necessary to include programmed asthma-related visits and paediatric teams with greater involvement of the nurses when caring for these patients.

Abbreviations: AEPap, Association of Primary Care Paediatricians; GPs, general practitioners; LCM, latent class model; PC, primary care; PCP, Primary Care Paediatricians.

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Introduction

Asthma is the most frequent chronic disease throughout childhood. In Spain, it affects 10% of the infant population, with variations depending on geographic location.[1]

As a public health problem, asthma impacts both on the patients' and their families' quality of life; it leads to absenteeism at school and work, in addition to a high consumption of resources. In Spain, the estimated cost of asthma in children under the age of 16 was 532 million Euros/year. Of this, 40% is attributed to indirect costs (caregiver hours) and 60% to direct or healthcare costs (medical care, hospitalisation, diagnostic tests, treatment and transportation).[2]

National asthma guidelines have been created, especially in countries where it is a prevailing condition.[3,4] Spain is a country with intermediate asthma prevalence, but until recently there was no national plan to guide a comprehensive approach to patients. Healthcare in Spain is easily accessible but is the responsibility of each individual region (called Autonomous Community). Some regional health services had previously developed their own plans/guidelines for the care of children and adolescents with asthma.[5] Since 2003, a guideline of national scope has been developed[6] and updated,[7] following GINA[4] recommendations, with the participation of all scientific societies in which asthma is the common field of interest. A specific guide on childhood asthma has also been published.[8] It is expected that this will decrease variability in the clinical practice and standardise the criteria to better diagnose and control the disease.

Plans differ from guidelines in that they incorporate a definition of resources, both material and human, that are required for the health care provision following guidelines recommendations. So, as asthma guidelines recommend spirometry be performed on collaborating asthmatic children for both diagnostic and follow-up purposes,[3,4,7,8] a suitable plan should advise that. The spirometer becomes an essential resource to be found at all healthcare centres.[9,10] Likewise, it is important that allergic studies are performed by means of a prick-test or specific IgE levels, and these resources should be available to physicians caring for asthmatic children.[10] Moreover, education is essential for optimal asthma control, and training for both patients and their families, provided by paediatricians and nurses through programmed individual and group activities is paramount.[11]

In the Spanish healthcare system, Primary Care Paediatricians (PCP) are the initial contact of children with the healthcare system,[12] and they have responsibility for the care of common chronic diseases in childhood, like asthma. However, the availability of the resources they have is not homogeneous, and the asthma services they offer vary widely. The existence of a regional plan for care of asthmatic children, the availability of resources like spirometers or allergic tests, and the implication of paediatric nurses in the management of these children could be influential in the number and quality of the services offered to asthmatic patients.

The objective of this study is to describe the care provided to asthmatic patients by PCPs in Spain and the resources, both material and human, that these physicians have for the diagnosis and follow-up of the disease. Likewise, it analyses the relationship between existing asthma plans/guidelines in the various regions of Spain.

Material and methods

Design

This research is based on a descriptive, cross-sectional study carried out using an online survey for PCPs in Spain to learn about the resources available to them and the type of care they provide their asthma patients.

Sample

All registered members of the Spanish Association of Primary Care Paediatricians (AEPap) in May of 2014 ($n = 3555$). The AEPap is a scientific association made up of PCPs from all over Spain. In Primary Care (PC), paediatricians are distributed in the various Healthcare Centres located in the Autonomous Regions making up Spain; these specialists care for children and adolescents from birth until they are 14 years of age.

From a population of 3555 AEPap registered members, and a maximum indetermination criterion, we calculated that at least 347 valid responses would have been needed to make estimations with a 95% confidence level and a precision of $\pm 5\%$.

Explicative dichotomous variables (yes/no)

- *Asthma plan*: Programme or procedure that includes the planning, logistics, strategy, resources and coordination between levels of care (primary care and hospital) to improve the care and quality of life for the child and/or adolescent with asthma and their families. Such programmes are developed by technicians with the support of public healthcare administration in a given region.
- *Asthma guideline*: Document designed to serve as procedures based on scientific knowledge to standardise and improve healthcare and the quality of life of children and/or adolescents with asthma and their families. It is considered that an Autonomous Region has an asthma guideline when this has been developed by technicians in that Region, usually backed by public administration.

  Both plans and guidelines have the common aim of improving healthcare and can positively influence it. Consequently, they have been included within the same variable.
- *Programmed asthma visit*: Specific office visit on the professional agenda (paediatrician/nurse) to attend asthma patients with an established schedule.
- *Nurse participation*: The nurse shares responsibilities, together with the paediatrician, for the care and education of asthma patients.
- *Availability of spirometer at the healthcare centre*
- *Carrying out allergy tests at the healthcare centre*. Access to determination of specific IgE levels at the reference lab and/or prick-test at the Healthcare Centre.

Procedure

Thanks to the cooperation of the AEPap Secretariat, an email was sent to all members in May 2014 inviting them

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