The educational component in an integrated approach to bronchial asthma*

El componente educativo en el abordaje integral del asma bronquial

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Abstract

Bronchial asthma is an inflammatory chronic disease of the respiratory tract whose prevalence is increasing worldwide. Since there is no curative treatment available, the principal objective of every approach is to control the disease and to improve the quality of life of patients. Over the last few decades, intervention programs supplementing conventional medical treatments have been tested and implemented. The majority of such programs consist of educational interventions or include some type of educational component. In this study, we attempted to determine the characteristics and the impact of educational interventions on asthma by means of the following: a) an updated review of the various educational interventions developed and implemented for asthma patients; b) the identification of aspects that are common to all of these interventions; and c) the analysis of the findings in the literature regarding the impact that these interventions have on the health and quality of life of patients. We conclude that educational interventions are effective in improving the health and quality of life of asthma patients, as well as in reducing the use and costs of health resources. These findings indicate the importance of including an educational component as part of an integrated approach to this population. Likewise, the inherent complexity of the educational process highlights the importance of a complementary joint effort including various health professionals.

Keywords: Asthma/prevention and control; Health education; Therapeutics.

Resumen

El asma bronquial es una enfermedad inflamatoria crónica de las vías respiratorias cuya prevalencia está aumentando en el mundo. Actualmente no se dispone de un tratamiento curativo, y el objetivo principal de todo abordaje es el control de la enfermedad y la optimización de la calidad de vida de los pacientes. En este sentido, durante las últimas décadas se vienen implementando y evaluando programas de intervención complementarios a los tratamientos médicos convencionales. Gran parte de éstos consisten en intervenciones educativas o incluyen algún tipo de componente educativo. El objetivo del presente trabajo fue analizar las características y el impacto de las intervenciones educativas en el asma, a través de: a) revisión actualizada sobre los diferentes tipos de intervenciones educativas desarrolladas e implementadas para el asma; b) identificación de aspectos comunes a todas estas intervenciones; c) análisis de los hallazgos de la investigación referidos a su impacto sobre la salud y la calidad de vida de los pacientes. Se concluye que las intervenciones educativas son efectivas para mejorar la salud y la calidad de vida de los pacientes con asma, y para reducir el uso y el costo de recursos sanitarios. Estos hallazgos señalan la importancia de incluir el componente educativo como parte esencial del abordaje integral de esta población clínica. Asimismo, la complejidad inherente al proceso educativo pone de manifiesto la necesidad del trabajo conjunto y complementario entre diferentes profesionales de la salud.

Descriptores: Asma/prevención & control; Educación en salud; Terapéutica.

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Bronchial asthma is a chronic inflammatory disease of the respiratory tract whose prevalence is increasing worldwide.[1-3] According to studies conducted in western countries, asthma affects 4-5% of the adult population and about 10% of individuals under 15 years of age.[4] Currently, in contrast to the high asthma-related morbidity, asthma-related deaths are relatively infrequent events.[4] Statistics indicate that the percentage of asthma-related deaths in Argentina is only about 0.20%.[5]

This respiratory disease is characterized by infiltration of the mucosa by immune and inflammatory cells. Chronic inflammation leads to an increase in bronchial hyperreactivity in face of various stimuli (smoke, irritating agents, cold, fog, exercise, psycho-emotional factors and stress), causing recurrent episodes of wheezing, dyspnea, chest tightness, cough and secretion. These episodes are usually associated with generalized but variable airway obstruction, which is partially or completely reversible, spontaneously or with treatment. Currently, it is known that the mechanisms leading to the development and expression of asthma impair the complex interactions among genes, as well as between genes and environmental factors.[1,2,6]

Despite all of the pharmacological advances, there is currently no curative treatment for asthma, and the principal objective of every approach is to control the disease and to improve the quality of life of patients.[1,2,6,7] Over the last few decades, intervention programs supplementing conventional medical treatments have been tested and implemented in different parts of the world.[4,8-26]

The majority of such programs consist of educational interventions or include some type of educational component. International guidelines and protocols for the diagnosis and management of asthma state that education plays a key role in the control of this respiratory disease.[1,2,6] Reviews of the recent literature indicate that educational interventions are useful in reducing morbidity and mortality, as well as in reducing the demand for health care and reducing limitations of activities of daily living in individuals with asthma.[1,2,6,7,22,23]

The objective of the present study was to determine the characteristics and the impact of educational interventions on bronchial asthma by means of the following: a) an updated review of the various educational interventions thus far developed and implemented for patients with bronchial asthma; b) the identification of aspects that are common to all of these interventions; and c) the analysis of the findings in the literature regarding the impact that these educational interventions have on the health and quality of life of patients with bronchial asthma. We conducted a review and analysis of the specialized scientific literature using the following sources:

a) three international guidelines for the diagnosis and management of bronchial asthma[1,2,6][1]
b) two monographs on asthma and education published in 2007 and 2008 by the Asthma and Education Group of the Spanish Society of Pediatric Pulmonology
c) eleven empirical studies[8,10,16-19,23-27]
d) four review articles[7,19,22,28]

Different designations, a common goal

One of the first issues raised when addressing this subject is related to the variety of designations used in the literature to refer to educational interventions and to the different targets of such interventions (patients, family members, health professionals, the general population, etc.)

Among the most frequently used terms were health education, asthma education, psychoeducation and therapeutic education. This last concept is the most comprehensive and, to a certain extent, includes the others. According to the World Health Organization,[7] therapeutic education is "a continuous process that is integrated in terms of care and is focused on patients. It includes organized activities of sensitization, information, learning and psychosocial follow-up related to the disease and the treatment prescribed. It aims to help patients and their close family members to understand the disease and the treatment (. . .) and to maintain or improve their quality of life. Education should make patients able to acquire and maintain the necessary resources for the optimal management of living with the disease."

The concept of therapeutic education should not be confused with the concept of health education, whose target is the healthy popu-

[1] These guidelines are written based on data from recent empirical studies on the subject.

lation rather than clinical populations, such as that of individuals with asthma.

Another term associated with therapeutic education is psychoeducation, although the latter is usually used when the disease targeted for intervention is psychic or mental. Rebolledo & Lobato[22] define psychoeducation as an intervention procedure to be applied to treatment or rehabilitation programs and consisting of experiential learning about themselves, about the psychic disorder they have and about the best way to face its consequences. This intervention emphasizes the active participation of patients in the acquisition of knowledge of their problem and in applying this knowledge to their daily life and their relationship with others.

In the case of patients with bronchial asthma, we considered that it would be more appropriate to refer to psychoeducation when dealing with interventions that teach the patient psychosocial aspects that can affect the management and progression of the disease.

Regardless of the differences provided by the designations mentioned above, it was observed, in all of the literature analyzed, that the principal objective of educational interventions in patients with asthma is to achieve self-management of this respiratory disease. It has been proven that appropriate asthma management by patients themselves reduces the number of hospital admissions, the rate of morbidity and the costs, as well as reducing absenteeism, improving symptoms and improving the quality of life of patients.[7,10] This finding led to another common designation for educational interventions: self-management programs. Self-management refers to the ability to deal with the symptoms, the treatment, the biopsychosocial consequences and the change in lifestyle inherent to living with a chronic disease.[30]

Targets of educational interventions and scenarios of implementation

Different groups at which educational interventions were aimed were identified. All the literature reviewed agrees that the primary targets are patients. Second, and especially in the pediatric population, is the importance of the interventions aimed at the family of the patient.[1,2,6,7,26,31] In addition, studies have shown the benefits of providing training in the characteristics and management of the disease to teachers, physical education instructors, the classmates/coworkers of the patient and the general population.[1,2,6,7,20,31] The dissemination of information to the general public allows the recognition of symptoms and stimulates individuals with asthma to seek medical attention, as well as being a means of reducing the stigmatization of those who have the disease.[1,2]

Another target group for educational interventions consists of health professionals (physicians, nurses, physical therapists, etc.) The importance of ensuring that these professionals receive training in the clinical aspects of asthma and in the abilities required to establish good rapport with asthma patients has been highlighted.[1,2,6,27,31-33] The Global Initiative for Asthma (GINA) guidelines[1,2] postulate that a good physician-patient relationship is one of the five necessary components of asthma management. Studies conducted along the same lines have reported that when physicians improved their communication skills, better clinical results were obtained and patient satisfaction increased.[7] Finally, the need for the education of those responsible for medical care planning has also been emphasized.[7,31]

Another variable to be considered is constituted by the possible scenarios of implementation of these educational interventions, scenarios that can range from the medical offices themselves to emergency rooms, hospitals, schools, homes, community spaces and virtual scenarios that include interactive computer programs.[6,17,21,22,28]

Common aspects of educational interventions in asthma[2]

The analysis of the available data on this subject allowed the identification of aspects that are common to different educational interventions and refer to technical and dynamic questions. Each of those aspects is described below.

Education as a progressive, dynamic and ongoing process

In the specialized literature, there is a clear recommendation for the inclusion of the education component as an ongoing process, with the

[2] Given that some principles are common to all educational interventions regardless of their targets, herein we will refer specifically to interventions aimed at patients and their families.

objective not only of informing and educating patients in the appropriate management of their disease but also as a strategy of giving weight to the abilities of patients and reinforcing their accomplishments, so that it is possible to work on the interferences or difficulties that can arise in active and responsible health care.

Although most studies conceive education as a continuous, progressive intervention that should be implemented at each patient contact with the health care system,[1,2,6,7,21,34,35] some authors have proposed that interventions be outlined and divided into sessions,[8,19] postulating the need to encourage patients to participate in a specific program that will prepare them to deal with their disease, since they have limited information about and education on asthma. In our opinion, these modalities are not mutually exclusive and make two valuable and necessary contributions.

Tailored interventions

Within the bibliographic sources searched, there is agreement that the needs, the level of education and the family lifestyle of patients should be taken into account, as should the available resources, in order to provide an educational intervention that is adapted to those characteristics, thereby increasing the likelihood of effectiveness.[7,23,28,30,35] According to some authors,[7,28] the instructor should initially seek answers to the following questions: What do patients and their families know about asthma?; Which decisions do they make and which practices do they adopt in face of an exacerbation of symptoms?; and What are their beliefs and perceptions?

The tailored character of the interventions does not necessarily imply that these interventions should be individual, since in certain groups of patients—such as in adolescents—group interventions are recommended,[31,36] which does not imply that the specific needs of each participant will not be met.

Relationship between and joint responsibility of physicians and patients

There has been found a wide consensus that the educational process has to transform the idea of prescription compliance into the idea of agreement between or joint responsibility of patients and their families in the management of asthma (partnership).[1,6,7,10,19,28,30,37] Promoting the active participation of patients in their disease is one of the essential aspects of educational interventions promoting self-management.

In order to manage to take on this joint responsibility (partnership), the studies reviewed indicate that it is necessary to establish a good physician-patient relationship and a good physician-patient-family relationship in cases of pediatric patients. The National Heart, Lung and Blood Institute (NHLBI) guidelines[6] summarize the desired characteristics of this relationship as follows:

1) promote open communication
2) identify and address the concerns of patients and their families regarding asthma and its treatment
3) jointly set the treatment goals and select the medication
4) stimulate the self-monitoring and self-management of the disease

In fact, the NHLBI guidelines[6] and the GINA guidelines[1,2] encourage health care staff to be trained in the necessary communication skills to establish this type of relationship with patients.

Basic contents

Based on the scientific studies reviewed, we detected a set of contents that was common to all educational interventions:

1) general information on bronchial asthma
2) information on various asthma treatments
3) correct use of inhalers, spacers and nebulizers
4) knowledge of symptom/attack triggers and of risk factor control measures[3]
5) training in the correct use of peak flow meters
6) development of an individualized, written self-management plan (based on symptoms or on peak expiratory flow, or on a combination of the two)
7) training in the early identification of symptoms/attacks and of the right time to seek medical attention

Other contents that are less frequent but are present in some educational interventions were the following:

8) breathing techniques[10,24]

[3] Some studies[6,10,38] emphasize the fact that active and passive smoking should both be avoided.

9) training in keeping calm and avoiding panic[28]
10) interventions aimed at normalizing physical and social activities[24,28]
11) training in effective communication with physicians and health care staff in general[1,2,28]
12) information on the contents of guidelines for the diagnosis and management of asthma[31]

Interventions aimed at behavioral-attitudinal changes as the most effective educational modality

There are two conditions in which educational interventions do not improve the health status or quality of life of asthma patients: when programs are based only on information; and when interventions are performed in only one occasion.

Educational interventions that do not provide training in the necessary asthma management skills increase knowledge but do not reduce the number of hospital admissions, the number of emergency room visits or absenteeism, nor do they improve pulmonary function or the use of medication.[6,7,31]

Use of complementary materials

The literature on the subject recommends the use of auxiliary resources, such as leaflets, charts, three-dimensional models of the respiratory system, audiovisual resources and placebo inhalers, to complement the verbal information and training provided.[1,2,6,7,19,25,34]

Impact of educational interventions on health and quality of life

According to a review of controlled studies of asthma education programs for patients and their families that was conducted in the 1980s, there were already persuasive data showing that educational interventions could improve self-management, reduce dyspnea and reduce the use of health services, the number of emergency room visits and the number of hospital admissions, as well as reducing absenteeism and optimizing the adaptation to the demands imposed by the disease.[28] Empirical studies and recent reviews of this subject postulate the efficacy of asthma self-management education and the consequent decrease in morbidity and mortality, as well as in school and work absenteeism and in the demand for treatment, together with an improvement in the expiratory flow and quality of life, among children and adolescents,[1,2,6,17,19,22,34] as well as among adults.[1,2,6,7,10,16,23,25]

There are contradictory data regarding the impact of educational interventions on the number of hospital admissions. Although some studies have shown a decrease in the number of hospital admissions after the implementation of educational programs,[19,28] others have found no statistically significant differences between patients who received therapeutic education and those who did not in terms of the risk for or frequency of hospital admission.[17,22,23]

In addition to reporting improvements in the clinical evolution of patients, one of the studies reviewed showed an increase in knowledge of the disease and a significant decrease in the levels of anxiety. Those authors interpreted this last finding as a consequence of the better training of patients in understanding and managing their condition.[8]

Another significant finding is that self-management education works properly regardless of the severity of the clinical condition.[22] However, some authors, such as Korta Murúa et al.,[7] point out that a more severe condition translates to better results of the educational interventions.

There are differences of opinion regarding the impact and efficacy of group interventions versus individual interventions. However, as previously indicated, most authors agree that group interventions should be complemented by tailored educational approaches or group mechanisms that will make it possible to work on idiosyncratic characteristics and needs.[1,2,6,7] Some advantages of group interventions are commiseration, exchanging experiences and being motivated to change attitudes and practices.[7]

Various studies and reviews have indicated that education programs for asthma patients are cost-effective,[6,7,25,31,39] especially in patients with persistent asthma. One group of authors[25] evaluated the direct economic costs resulting from the implementation of an educational program for adults and concluded that the total cost of preventive medications was higher in the

group that participated in the program. Likewise, there was a reduction in the number of hospital admissions and emergency room visits among those patients, resulting in a reduction in the total health care costs. In summary, education allows a greater control of the disease, reducing direct costs (use of health resources) and indirect costs (number of work or school days missed, limitation of activities of daily living, caregiver absenteeism from work, etc.) generated by this respiratory condition.[7]

Final considerations

Educational interventions were found to have a positive impact on bronchial asthma. These interventions are effective in improving the health and quality of life of asthma patients, as well as in reducing the use of health resources and the health costs. These findings reveal the importance of including the educational component as an essential part of the comprehensive approach to this clinical population. As stated by Wolf et al.,[22] ". . . self-management education aimed at the prevention and control of attacks should be incorporated into the routine care of asthma".

Likewise, it is recommended that education programs be provided to the other agents involved (teachers, physicians, health authorities and the community) due to the indirect beneficial effects that has on patients and their families.

The educational process has been defined as an intervention that extends beyond merely providing information and teaching certain skills. This process also involves changing beliefs, attitudes and behaviors in order to allow greater patient autonomy and higher adherence to treatment. In other words, it involves an alternative scheme to the way patients and their families organize the experience of the disease and how the disease is confronted.[6,7,36] Therefore, it is appropriate to consider that there are psychosocial variables that mediate the relationship between the information provided and the incorporation and beneficial use of the knowledge thus gained. International guidelines for the diagnosis and management of asthma[1,2,6] have begun to include some aspects related to psychological factors in their recommended self-management programs and educational interventions.

The analysis of the literature shows that performing effective educational interventions is complex, extending beyond the provision of information, and requires a complementary joint effort involving various health professionals. Physicians and nurses are those who have the first contact with patients and perform the initial tasks of therapeutic education, which continues during the follow-up visits, especially in cases of chronic diseases, such as asthma, requiring a long-term therapeutic relationship. However, taking into account the nature of human beings as living systems integrated into a biological and psychosocial experience, we must consider the complexity of the variables that influence the diagnosis, progression, prognosis and treatment of a disease in general and of bronchial asthma in particular. In this context, the active and effective participation of other health professionals is necessary. Psychologists have the training, as well as the theoretical and technical tools, to understand and influence psychosocial variables, such as cognitive, emotional and attitudinal dimensions, as factors that have a decisive impact on the experience of patients and the possibilities of generating conditions that will favor or hinder their educational process. In addition, the constant presence of a psychologist on the health care team can also improve the dynamics and coordination of the distinct agents implicated in the health-disease process in terms of establishing and maintaining the joint physician-patient responsibility, as recommended in the literature reviewed.

In summary, a coordinated interdisciplinary effort is considered an essential and necessary element for achieving comprehensive and more effective care of patients with bronchial asthma.

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