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ORIGINAL ARTICLE

Stress and Childhood Asthma

Sandra Cairo de Oliveira Amaral[1], Clemax Couto Sant'Anna[2]

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Abstract

Objective: Since asthma is an important public health problem and considered a major childhood and adolescence disease, more and more studies broaden the view beyond genetic, allergic and infectious factors and consider psychosocial and emotional aspects in the development and aggravation of this disease. In this context, stress has been receiving increasing attention as a risk factor able of impacting this disease. Given the importance of the subject, the present work aims to describe about stress, childhood asthma and associations between these two themes. **Methods:** Research and bibliographic analysis on stress, asthma and their possible relationships. **Results:** The literature points to associations between asthma and symptoms that indicate stress, and although there is no causal relationship between these two themes, the complexity of these interactions recognizes stress as a risk factor for the disease. **Conclusion:** The need for a multidisciplinary approach that contemplates biological, psychological, environmental and socioeconomic parameters is essential to broaden the understanding of childhood asthma. In addition, implementing interventions that include patients and caregivers that take into account emotional factors of the disease as well as stress management, are important for the health of the child, the adolescent, and the whole family.

[1] Psychologist, Master and PhD student of the Program of Medical, UFRJ.
[2] Doctor of Medicine and Associate Professor, UFRJ.

Correspondence to:
Sandra Cairo de Oliveira Amaral.
Universidade Federal do Rio de Janeiro - UFRJ. Rua Barão do Flamengo, nº 22, conj. 803 - Flamengo.
Rio de Janeiro - RJ. Brazil. Zip Code: 22220-080. E-mail: cairosandra@gmail.com

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INTRODUCTION

A significant increase in asthma prevalence and severity has been observed all over the world, and this disease is now considered a worldwide public health problem[1,2]. This cannot be explained by genetics alone, and new facts about asthma have been discovered, putting in doubt paradigms and risk factors that had long been established[3].

Research in several fields indicates that psychosocial and psychological factors affect morbidity and mortality in asthma patients. Among such factors, stressful experiences and being exposed to stress have become risk factors both for the development of asthma and for an increase in its severity[1].

Although studies are inconclusive, the complexity of the interaction between stress and asthma indicates a need for new research and new points of view focusing on a multidisciplinary, integrative approach.

STRESS

The term "stress" has been used since the 17th century. Since then, several studies and research projects have been conducted. Today, this term is listed in our dictionaries and is frequently used. It was through the studies of the Canadian physician Hans Selye that the term, as we know it today, entered medical literature[4,5]. The concept of stress has been in evolution, and now, it is considered a complex psychophysiological reaction that occurs when an individual seeks internal balance[5]. Selye also introduced in the literature the difference between excessive and beneficial stress, the latter of which is called "eustress" (from the Greek *eu*, meaning "good") and is considered a positive form of stress associated with a reaction that keeps us active and capable of coping with challenges[6,7]. Brazil is among the leading countries in stress research, and through the studies of the Brazilian scientist Marilda Lipp, the stress development model introduced by Hans Selye in 1936 (the Triphasic Model) has been expanded into a Quadriphasic Model[5]. In this model, the stress process develops in four phases. The first phase is called the Alert phase, and it is considered to be an initial response from the organism aiming to cope with a challenging situation when it is preparing itself for a "fight or flight" reaction essential for human survival. If the stimulus or situation persists, the organism will proceed to the Resistance phase. This second phase begins when the organism continually tries to adapt, giving way to a weary and tired feeling. If the stimuli or situation further persists in the same frequency and intensity and the organism fails in its attempts to return to a balanced state, the third phase sets in. It is defined as the Near-Exhaustion phase when the tension exceeds the possible management limits and resistance breaks down. In this phase, illness processes start and diseases may appear. If there is no relief, stress reaches the final phase Exhaustion wherein the ability to adapt ends and the organism is left with no more coping strategies. In this phase, there is a state of exhaustion, and more serious diseases may appear[5,8,9].

Therefore, stress is not a mere reaction but a process. At first, it manifests with general and known symptoms such as tension, tachycardia (noticeable beats in the chest), increased sweating, "a knot in the stomach," and dry mouth. However, if the process continues, the weakening and wearing of the organism can produce a wide range of consequences, strongly affecting its health and relationships[5,10].

Considered the disease of the century, stress can affect any person at any age[9,11]. In childhood and adolescence, stress has a similar presentation to that in adulthood, and it also causes psychological and/or physical symptoms[5].

ASTHMA

Asthma is one of the most common chronic diseases that affect both children and adults[2,12]. It is a chronic inflammatory disease of the airways[13], and manifests as episodes of wheezing, dyspnea, a feeling of chest tightness, and cough, which occur most often either at night or in the early morning. It can regress spontaneously or with treatment and the use of therapeutic drugs[13,14,15]. The prevalence and severity of asthma have been increasing significantly worldwide, and it is now considered a relevant public health problem[5,12,15]. Although the disease has a low mortality, it causes great suffering both for the patients and their families[16,17,18]. In developing countries, mortality has been increasing in recent years, and rates are higher in large cities[1,19]. Changes in urban life, socioeconomic and environmental factors, as well as different degrees of development between cities also affect the prevalence of asthma. A study conducted on teenagers in Latin American urban centers showed evidence of influence of poverty and social inequality on asthma symptoms[19,20].

In addition to genetic, allergic, and infectious factors, psychosocial and emotional aspects are being increasingly considered in the development of asthma and in the increase of its severity. Socioeconomic conditions, emotional aspects, and family relationships, including stress-related factors, have been considered as factors affecting both the development of asthma and the predisposition to crises[21,22].

ASTHMA IN CHILDHOOD

Asthma is considered a pediatric disease and is one of the main illnesses[23,24] of childhood and adolescence[25,26]. Although genetic susceptibility contributes to the risk of asthma, environmental factors and the influence of negative experiences in the early phases of life (including the intrauterine period) also increase the risk for diseases like asthma and are also suspected of promoting their development[27,28,29].

Because asthma occurs early in childhood, an early diagnosis becomes fundamental to avoid complications in the child's physical, psychological, and social development and

to avoid the progression of the disease[26,30]. Stress, emotions, life events, socioeconomic status, and genetics in addition to aspects related to the family system are getting more and more attention in the study of asthma[31].

Families that live with asthma constantly need special care, such as the adaptation and hygiene of the surroundings, regular use of medication with the possibility of side effects, and systematic visits to physicians and emergency services. Such demands impose several limitations and continuous care that end up interfering with the family's routines and dynamics[32]. Moreover, limitations in the child's or adolescent's daily social life (difficulties in practicing sports and some playful activities and social isolation) are repercussions that affect not only the patient but also the entire family. Such factors may impair the quality of life of the entire family[25], causing tension and stress.

Therefore, asthma can be considered as a stressor that can affect the child's development as well as the social relationships within the family system[33].

STRESS AND ASTHMA: RELATIONSHIP

The literature shows associations between asthma and indicative symptoms of stress. Research in this field are starting to acknowledge stress as a risk factor for the development of asthma and the increase in its severity[1,3]. According to Wright (1998), environmental factors can affect asthma morbidity; furthermore, stress can affect health beliefs and behaviors, thus affecting the disease management. Wright further states that although there is no causal relationship between stress and asthma, the complexity of their interactions point to the need for a multidisciplinary approach and for investment in research that considers biological, psychological, environmental, socioeconomic, and family factors to improve our understanding about the subject[34].

The effect of asthma on family life is significant. In childhood asthma, identifying the factors that cause stress is important to understand the disease, to guide treatment, and to involve caregivers and family. Because the family is the first system that mediates experiences, the family setting influences the clinical manifestations of asthma by increasing or reducing the impact of stressors[3]. Not only stress factors but also feelings of fear, worry, and uncertainty are present in families that live with this condition[35]. The greatest challenge is to manage the demands and stressful situation associated with the disease and to preserve the family structure in a healthy way[36].

On the other hand, the influence of family stress on the development of childhood asthma has also been investigated. Research indicates that the caregivers' own stress during the child's first year of life can influence the risk for multiple episodes of wheezing in childhood. Additionally, family conflicts may be associated with a higher number of hospitalizations[24,31,37]. Moreover, studies indicate that the parents' stress can affect the child's asthma morbidity[38]. Therefore, the family has a fundamental role in the well being of children and adolescents who suffer from this disease.

IMPORTANCE AND NEEDS

Considering this context, it is worth emphasizing that emotions play an important role in studies about asthma[1,34]. From this perspective, interventions that take into account the impact of the emotional factors of the disease and the management of stress can be made in both patients and their caregivers, with the aim of establishing follow-up strategies and changing patterns of behavior[21]. Work conducted with psychoeducational groups is a further possibility of intervention because they offer information about the disease and its management as well as strategies for coping with stress. They also provide emotional support[39,40].

Silva[41] emphasizes the need for a systemic approach toward patients and their families and suggests therapeutic strategies, including integrated multidisciplinary professional teams, for the adequate treatment and management of the disease and the possibility of conducting health programs that include both patients and their families.

Programs and interventions that aim to increase knowledge about the disease, to offer strategies for coping with stress, to provide a holistic and integrated patient management, and to involve patients and caregivers are primarily directed to improving the future of patients and their families.

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