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Assessment of the clinical profile of pediatric asthma patients in a specialized outpatient clinic .

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Summary

Asthma is a prevalent chronic inflammatory disease in childhood, associated with high morbidity and impact on quality of life. The clinical variability of symptoms can hinder diagnosis, making a detailed analysis of the clinical profile essential for proper management. The clinical and epidemiological profile of children diagnosed with asthma followed up in an immunoallergology outpatient clinic of a university hospital was obtained. This was an observational, retrospective, and descriptive study, conducted through the analysis of 30 medical records of pediatric patients diagnosed with asthma. Demographic variables, initial symptoms, allergic comorbidities, family history, hospitalizations, laboratory tests (total and specific IgE, immediate-reading skin test), spirometry, and instituted treatment were evaluated. The data were organized in spreadsheets and analyzed using descriptive statistics. The average age of the patients was 7.6 years, with a predominance of males. The most frequent symptoms were recurrent dry cough, wheezing, and dyspnea on exertion, with functional impact, such as school absenteeism. A family history of allergic diseases was present in 76.6% of cases. A high prevalence of allergic comorbidities was observed, suggesting an atopic march. Patients with positive allergy tests presented greater clinical severity and a higher number of hospitalizations. Spirometry revealed mild to moderate obstructive ventilatory disorder in part of the sample. Treatment with inhaled corticosteroids showed a good clinical response and satisfactory adherence. The findings highlight the predominance of asthma with an allergic component, emphasizing the importance of specialized follow-up, environmental control, and appropriate treatment for disease control and improved quality of life.

Keywords: asthma; children; pediatrics; allergy.

Abstract

Asthma is a prevalent chronic inflammatory disease in childhood, associated with high morbidity and impact on quality of life. The clinical variability of symptoms can make diagnosis difficult, making a detailed analysis of the clinical profile essential for proper management. The clinical and epidemiological profile of children diagnosed with asthma who were followed in an immunoallergology outpatient clinic of a university hospital was obtained. This was an observational, retrospective, and descriptive study, conducted through the analysis of 30 medical records of pediatric patients diagnosed with asthma. Demographic variables, initial symptoms, allergic comorbidities, family history, hospitalizations, laboratory tests (total and specific IgE, immediate reading skin test), spirometry, and instituted treatment were evaluated. The data was organized in spreadsheets and analyzed using descriptive statistics. The average age of the patients was 7.6 years, with a predominance of illnesses. The most frequent symptoms were recurrent dry cough, wheezing, and exertional dyspnea, with functional impact such as school absenteeism. A family history of allergic diseases was present in 76.6% of cases. A high prevalence of allergic comorbidities was observed, suggesting atopic march. Patients with positive allergy tests showed greater clinical severity and a higher number of hospitalizations. Spirometry revealed mild to moderate obstructive ventilatory disorder in part of the sample. Treatment with inhaled corticosteroids showed good clinical response and satisfactory adherence. The findings demonstrate the predominance of asthma with an allergic component, highlighting the importance of specialized follow-up, environmental control, and appropriate treatment for disease management and quality of life improvement.

Keywords: asthma; children; pediatrics; allergy.

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1. Introduction

Asthma is a disease characterized by having a multifactorial etiology that affects the respiratory system, representing resistance to airflow in the conducting airways and hyperresponsiveness of the bronchial smooth muscle, in addition to manifesting as one of the most prevalent chronic diseases during the early stages of life (PITCHON, 2020). In Brazil, The disease affects approximately 20% of the child population, leading to impaired quality of life. The quality of life of these individuals depends on the severity of the symptoms presented (WHO, 2024). The disease can be categorized into three states with regard to symptom control: well controlled, partially controlled, and uncontrolled.

The variability in the clinical presentation of the disease contributes to the imprecision of the diagnosis. while the progression of symptoms can result in substantial damage to the child's health. (MATSUNAGA, 2015). Thus, the triggering criteria for asthma attacks should be thoroughly evaluated, as well as the influence of environmental, nutritional, genetic or other factors. others, which are present in the patients' medical history. With such data in use, it is possible to identify clinical patterns that aid in the proper management of the disease, since the condition may not Although it is curable, a tendency for the clinical picture to regress over the years is observed when The appropriate therapeutic regimen is applied, but this is only possible with an accurate diagnosis.

Inadequate asthma management can have negative repercussions on the quality of life of the patient. The patient and their caregivers. This is because children with insufficient disease control may Presenting with sleep disturbances, daytime fatigue, and impaired memory and concentration. Additionally, they are subject to school absenteeism and the need for educational support, which culminates resulting in poor academic performance. Furthermore, their guardians may also suffer negative consequences. financial costs arising from the costs associated with treatment (SHIPP, 2022).

It therefore becomes evident that in order to understand the clinical-epidemiological profile of children Patients followed by the immunoallergology outpatient clinic with a diagnosis of asthma need to be analyzed. Variants such as age of onset of clinical symptoms, symptomatic manifestations, gender, biomarkers, socioeconomic conditions, environmental factors, seasonality, lifestyle habits, treatment and hospitalization needs. Through global efforts to mitigate the effects of Given the importance of allergic asthma in the population, this clinical study is necessary to gather and systematize information. existing information regarding the characteristics presented by the pediatric population diagnosed with asthma, in order to establish a solid foundation for the development of preventive strategies and Effective therapies, and reduce diagnostic difficulties in children.

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2. Theoretical Framework / Results

Defined as a chronic inflammatory disease, asthma has a characteristic central pathophysiological process resulting from a broad and complex network of interactions between cells. Inflammatory molecules, mediators, and structural cells of the airway. This inflammation is a characteristic common to all patients with asthma, regardless of the duration of the disease or the severity of the symptoms. symptoms or even the presence of evident clinical symptoms. The symptomatology presented results of genetic interactions, environmental exposure to allergens that can be irritating, and other factors specific factors that lead to the development and evolution of symptoms (MANSO, 2023). Obstruction Changes in airflow are normally reversible; however, they can become irreversible, which causes... a worsening of clinical conditions and a worse prognosis. Consequently, the prevalence and Mortality related to this disease is a topic of discussion, as it is known that it is possible to treat it. The disease can be detected if diagnosed early.

Most children with asthma develop symptoms before the age of five. For them, the The diagnosis of asthma presents complexities due to the predominance of clinical criteria and Medical history information is difficult to obtain, as conducting objective examinations is challenging. studies conducted for this age group (MANSO, 2023). However, the indicative criteria for asthma in Early childhood symptoms include the presence of one or more symptoms such as dyspnea, chronic cough, wheezing, Chest tightness or discomfort, and symptomatic episodes are intermittent, in which... obtains a favorable response to medications for this ailment, such as bronchodilators and corticosteroids. Three or more episodes of wheezing may occur during a period of one The child presents with a seasonal variation in symptoms and a positive family history of asthma or atopy, excluding alternative diagnoses (GINA, 2025). It is important that the child be observed. meticulously and that the anamnesis is well executed to resolve the doubts that the hypothesis A diagnostic test can suggest something.

Because it is a multifaceted disease, risk factors are influenced by variables. genetic factors or factors such as mites, fungi, pollution, secondhand smoke, and pet dander, which can triggering inflammation of the airways, subsequently developing into asthma (BOULET, 2019). Therefore, a relationship can be established between the diagnosis of asthma and the diagnosis rhinitis, since the association of both diseases is frequently present in the observation. Patient's clinical picture. Epidemiological studies indicate that 30 to 80% of asthmatics have rhinitis. Allergic-associated (CAMARGOS, 2002). This occurs because the triggering factors are Similar cases occur, and it is reported that rhinitis can be a risk factor for asthma. Therefore, most... In asthmatic patients, the condition can be categorized as atopic due to the presence of inflammation. airway inflammation of an allergic nature. This inflammation is mediated by CD4+ helper T lymphocytes.

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(Th2), which secrete interleukins IL-4, IL-5 and IL-13, characterizing the condition as allergic asthma. On the other hand, patients who do not present this type of inflammation are classified as People with non-allergic asthma.

The main goal that proper asthma management provides for the patient on the part of the The medical goal is to gain control of the disease. To achieve this, it is necessary to recognize the severity of the condition. asthma, which is diagnosed by analyzing the frequency and intensity of symptoms along with lung function, in what aspects such as the onset of symptoms, night awakenings, need for use of Beta-2 agonists for symptom relief, limitations in activity, exacerbations, volume Forced Expiratory Flow (FEV1) in the first second or Peak Expiratory Flow (PEF) and variation of FEV1 and PEF, the necessary medication, symptom stabilization, and the number of follow-up appointments. outpatient and inpatient care with or without the need for supplemental mechanical ventilation. (CAMPOS, 2015). It is worth noting that the classification obtained based on these parameters is: intermittent, Persistent mild, moderate, and severe, and the patient is always classified by the most severe manifestation. gravity (GINA, 2025).

Given the above, it is known that mild asthma is characterized by the occurrence of symptoms. Respiratory problems that occur a maximum of twice a week or only during activities. physical symptoms, manifesting as short-lived crises (less than one day per month) that respond effectively using bronchodilators. This level of severity does not significantly impact the daily activities, with minimal loss of one day of work or school, and does not require medical attention. emergency during crises (KINCHOKU, 2011).

Furthermore, moderate asthma is characterized by the occurrence of respiratory symptoms with a frequency greater than twice a week. In this way, the seizures have a duration that exceeds One day a month, and systemic corticosteroids are generally not necessary to reduce it. of the condition. Symptoms may occur during the night, resulting in episodes of interruption of sleep more than twice a month, not exceeding twice a week. Such patients They frequently report failed attempts at physical activity and may have impairment in Activities such as work and school. Bronchodilators are used for symptomatic relief more than twice a week, but no more than twice a day (ABUL, 2018).

Finally, severe asthma is characterized by the continuous presence of signs and symptoms. Respiratory conditions, which pose a significant risk of serious complications, such as hospitalizations. During disease exacerbations, repeated use of systemic corticosteroids becomes necessary. During flare-ups, nighttime symptoms interrupt sleep more than twice a day. week, generating a significant impact on the patient's daily life and resulting in absences Frequent use of bronchodilators at work or school. The use of bronchodilators for symptomatic relief occurs more than twice a day, while the use of oral corticosteroids is common in everyday life (WU, 2019).

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3. Materials and Methods

The medical records of patients being followed up at the outpatient clinic were used.
from the pediatric immunoallergology department of the Electro Bonini hospital for the collection of clinical data, including
Medical history, test results, consultation reports, treatments performed, and hospitalizations.
Furthermore, the data was entered into spreadsheets and a comparative analysis of all the data was performed.
variables observed in the study in order to improve the characterization of the clinical profile.

The proposed methodology was a retrospective observational clinical study, since they were...
The data already existing in medical records from the specialized pediatric outpatient clinic were used.
The immunology and allergy department of the Electro Bonini Hospital served as the primary data source. The selection of
The participants comprised 30 patients followed up in the outpatient clinic, diagnosed with
asthma, between one and seventeen years of age. Data collection was carried out through a review.
from medical records, where information such as age, sex, and age of symptom onset is recorded.
The data presented included treatments, hospitalizations, biomarkers, and the presence of associated comorbidities.
The analysis was performed descriptively and with the aid of statistical software and spreadsheets to characterize the...
Clinical profile of patients, including frequency of symptoms, asthma severity, presence of
comorbidities and treatment patterns.

The accepted inclusion criteria were a diagnosis of asthma made by a professional.
qualified healthcare professional, based on thorough medical history, physical examination, and complementary tests.
Furthermore, the participants were under regular follow-up at the immunoallergology outpatient clinic.
pediatric unit of the Electro Bonini Hospital, where the study was conducted. And finally, the patients should
to understand the age range from one to seventeen years.

The study was conducted in accordance with the ethical principles of the Declaration of Helsinki, ensuring that...
Patient anonymity and the confidentiality of their medical data are guaranteed. Furthermore, the project was submitted to
the Research Ethics Committee for approval to ensure compliance with standards.
ethical principles and the protection of participants' rights, as per CAAE number 80410424.3.0000.5498. It was not
Informed consent is required since the research proposal only included the analysis of medical records.

4. Results and Discussion

Thirty medical records of children diagnosed with asthma who were followed up at [health center] were analyzed.
specialized outpatient clinic for immunoallergology. The average age of the sample was 7.6 years, with
predominance of the male sex (Fig. 01)

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Figura 01: Distribuição quanto ao sexo dos indivíduos. A idade média total é de 7,6 anos.

Source: research data.

Respiratory symptoms began predominantly in early childhood, with
Symptoms include recurrent dry cough, wheezing, and shortness of breath on exertion, these being the main ones.
Reasons that led to seeking specialized care.

Significant functional impact associated with the symptoms was observed, including episodes.
Frequent respiratory infections and school absenteeism. Family history of allergic diseases.
(Fig. 02) was present in 23 of the 30 patients evaluated (76.6%), highlighting important
genetic component in the studied population.

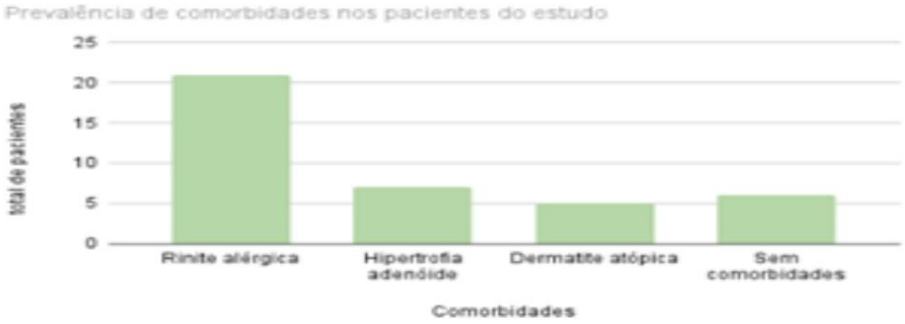

Figura 02: Prevalência das comorbidades nos pacientes do estudo.

Source: research data.

Allergic comorbidities were frequent, with allergic rhinitis and dermatitis being the most prominent.
Atopic dermatitis and other manifestations consistent with atopic march. Laboratory tests
They demonstrated elevated total and/or specific IgE in a significant portion of the sample, in addition to
Positive results in immediate-reading skin prick tests, with a predominance of sensitization.
aeroallergens. (Figs. 03 and 04)

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Figura 03: Resultados de exames laboratoriais.

Source: research data.

Figura 04: Alérgenos detectados em testes.

Source: research data.

Patients with positive allergy tests showed greater difficulty in controlling their symptoms.
Symptoms, greater clinical severity, and a higher number of hospitalizations, accounting for 4 out of 6
hospitalizations observed in the study.

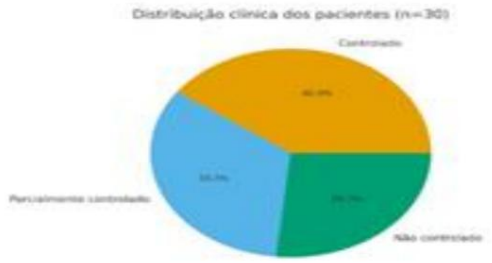

Figura 05: Controle dos sintomas. Pacientes com prick test e IgE específica positivos apresentavam maior gravidade dos sintomas no que diz respeito ao controle da doença. E houve maior necessidade de hospitalizações observado neste grupo (4 de 6 hospitalizações)

Source: research data.

Spirometry was performed on eight patients, five of whom presented with a disorder.
mild to moderate obstructive ventilatory impairment.

The treatment instituted was based primarily on the use of inhaled corticosteroids.
(beclomethasone), associated with bronchodilators in exacerbations, antihistamines and anti

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leukotrienes. There was good therapeutic adherence and a satisfactory clinical response, especially when associated guidelines regarding inhalation technique and environmental control measures. It was observed Further improvement in growth indicators after adequate asthma control.

The findings of this study highlight a predominantly pediatric asthma clinical profile. associated with allergic factors, positive family history, and frequent presence of comorbidities. atopic conditions, reinforcing the multifactorial nature of the disease. The high proportion of patients with A family history of allergic diseases (76.6%) corroborates the role of genetic predisposition in The pathophysiology of asthma, as extensively described by the Global Initiative for Asthma (GINA), which recognizes the interaction between genetic, environmental, and immunological factors as determinants central to the disease (GINA, 2025).

The predominance of symptoms such as recurrent dry cough, wheezing, and shortness of breath on exertion, with early onset, it is in line with current guidelines, which highlight that most children asthma presents clinical manifestations before the age of five, provided other conditions are ruled out. Causes of recurrent wheezing (GINA, 2025). The observed functional impact, including absenteeism School attendance and a greater predisposition to respiratory infections reinforce the relevance of asthma as a condition. A chronicle with a high social and educational impact on childhood.

The high prevalence of allergic comorbidities observed in the study, such as allergic rhinitis and Atopic dermatitis supports the concept of the atopic march, in which allergic manifestations tend to occur. to emerge sequentially throughout childhood development. According to GINA, the presence of Allergic comorbidities are associated with poorer asthma control and a higher risk of exacerbations, being Its identification and concomitant treatment are fundamental (GINA, 2025).

Allergic sensitization, evidenced by elevated total and specific IgE and positivity. In skin tests, it was frequent in the sample and was associated with greater clinical severity and greater number of hospitalizations. This finding is consistent with the literature, which points to allergic asthma. as the most common phenotype in childhood and frequently associated with a higher inflammatory burden. airway obstruction and increased clinical instability (SCHRAMM, 2022). The concentration of hospitalizations The presence of positive allergy test results among patients reinforces the need for risk stratification and Closer monitoring of this group.

Although spirometry has been performed on a limited number of patients, the disorders Mild to moderate obstructive ventilatory symptoms identified confirm functional impairment. airway problems, even in children with outpatient follow-up. GINA emphasizes that, Whenever possible, functional assessment should complement the clinical diagnosis, assisting in... monitoring of therapeutic response and adjustment of treatment (GINA, 2025).

The good clinical control observed with the use of inhaled corticosteroids, combined with education. Regarding inhalation technique and environmental control measures, it is in line with the recommendations.

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Current studies recognize anti-inflammatory therapy as a central pillar in the management of pediatric asthma. Furthermore, the improvement in growth indicators after adequate disease control reinforces Evidence suggests that proper asthma treatment does not compromise child development, but rather... On the contrary, it contributes to better overall health outcomes.

Final Considerations

The results of this study demonstrate that children with asthma monitored in Specialized outpatient clinics for immunoallergology predominantly present a compatible profile. with asthma of allergic origin, characterized by early onset of symptoms, high frequency of A positive family history and a high prevalence of atopic comorbidities. These findings reinforce the The importance of a holistic approach to children with asthma, considering not only the symptoms. respiratory factors, but also the genetic, immunological, and environmental context.

The association between allergic sensitization and greater clinical severity, including greater The need for hospitalizations highlights the importance of early identification of the allergic phenotype. as recommended by GINA, allowing for risk stratification and individualization of treatment. Specialized follow-up proved essential for adequate control of the disease, promoting better therapeutic adherence, reduction of exacerbations and a positive impact on quality of life and growth of the children evaluated.

Despite the limitations inherent in the retrospective design and the small size of the study... Based on the sample, the findings are consistent with current literature and reinforce the need for strengthening. specialized outpatient services for the management of pediatric asthma. Future studies with samples Larger studies and prospective follow-up may contribute to the identification of clinical markers and laboratory tests associated with early-onset asthma, as well as for a more in-depth evaluation of The impact of environmental interventions on disease control.

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