



MSI Journal

of Medicine and Medical Research (MSIJMMR)

Frequency:- Monthly Published by MSI Publishers

ISSN:- 3049-1401 (Online)

Journal Link:- <https://msipublishers.com/msijmmr/>

Volume:- 2, **Issue:-** 3 (March-2025)

Article History

Received on :- 25-02-2025

Accepted on :- 02-03-2025

Published on :- 04-03-2025

Total Page:- 01-04

DOI: [10.5281/zenodo.14964058](https://doi.org/10.5281/zenodo.14964058)

Study of Bronchial Asthma: Therapeutics and Treatment

Marco Vinícios de Oliveira Santana¹, Klebert de Paula Malheiros¹, Carlos Henrique Marchiori^{1*}, Êrico Meirelles de Melo¹

By

Researchers of Instituto Marco Santana, Goiânia, Goiás, Brazil^{1*}

Abstract: Bronchial asthma is a disease with repeated symptoms in which the bronchi become inflamed and narrow, making breathing difficult. In asthma, the bronchi suffer from chronic inflammation and react to many stimuli; the reaction consists of the muscles contracting towards the inner area of the bronchus. This manuscript's objective is to study bronchial asthma: Therapeutics, and treatment. Data were collected using a quantitative and descriptive approach, through books and the following databases: Academic Research Library of Medicine and National Institute of Health USA and Scientific, Latin American Literature in Health Sciences.

Keywords: Allergens, Environmental, Genetic, Pollution, Smoking

1. Introduction

The most common symptom is coughing, followed by wheezing, and finally shortness of breath and chest tightness. As the patient improves, first the shortness of breath disappears, then the wheezing, and finally the cough. The order of onset and disappearance may vary, starting with difficulty breathing, without coughing or wheezing, and may be incomplete, in the sense that only one or two symptoms appear, and not the third. In the case of coughing, there are people with asthma who only have a cough, without other symptoms. This manuscript's objective is to study bronchial asthma: Therapeutics, and treatment (Figure 1) (Cloutier et al., 2020; O Globo-London, 2024; Clinica Croce Ensino, 2025; Moon, 2025; Segen et al., 2025).



Figure 1: In asthma, the airways contract, which compromises the individual's breathing

Source:
<https://brasilecola.uol.com.br/doencas/asma.htm>.

2.0. Methods

Data were collected using a quantitative and descriptive approach, through books and the following databases: Academic Research Library of Medicine and National Institute of Health USA and Scientific, Latin American Literature in Health Sciences.

3.0. Study Selection

Environmental risk factors for asthma may include Exposure to allergens dust from mites, cockroaches, pets, diet, and perinatal factors. However, several studies that corroborate the influence of diet are limited by sample size or do not consider differences in socioeconomic, environmental, and demographic factors. Dietary supplementation with these substances does not appear to prevent bronchial asthma. Asthma is also

related to perinatal factors, such as low maternal age, poor maternal nutrition, prematurity, low birth weight, and lack of breastfeeding (Figure 2) (Cloutier et al., 2020; Cooper et al., 2021; Lemos, 2023; Medical Information, 2025).

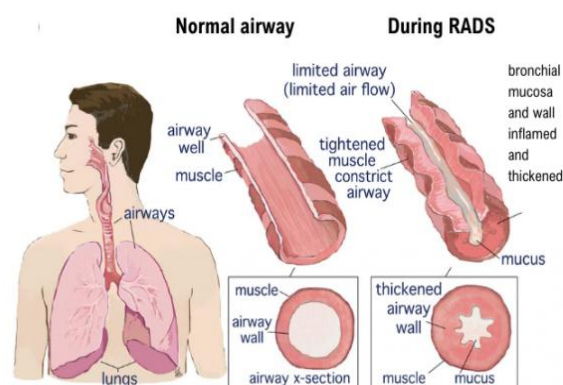


Figure 2: Reactive Airway Dysfunction Syndrome (RADS)

Source: Image credit: Pacific Northwest Agricultural Safety and Health Center via Wikimedia Commons

In children under six years of age, it is very common for a viral infection to be the cause of the asthmatic process. There are also other causes such as genetics, since these pathologies tend to be inherited and, as far as external triggers are concerned, there are many cases of asthma caused by climatic factors, stress, physical exercise, physical exercise, physical exercise, tobacco smoke, or strong odors (Dombret et al., 2014; Lima et al., 2023; Tavares, 2023; Silva et al., 2025).

Although allergy sufferers who have a good diagnosis know that they should avoid exposure to allergens, this is not always so simple. That is why in many cases it is necessary to resort to drugs that, with a good diagnosis and proper use, can help the person suffering from the condition lead a normal life (Albogami, 2021; Lemos, 2023; Subali et al., 2024).

“The main objective of asthma control is to minimize symptoms, reduce the need for relief medication, and eliminate limitations on physical activities. The prevention of exacerbations crises, loss of lung function, and adverse reactions to treatment are also very relevant aspects for controlling the disease”, [Dr. Álvaro Cruz, pulmonologist and allergist, [Professor at the Federal University of Bahia-UFBA] (Virchow et al., 2019; Asthma Canada, 2023; Silva et al., 2025).

Biological therapies are among the most important advances in asthma treatment. These modern medications act directly on the molecules and cells that cause inflammation in the respiratory tract, ensuring greater precision in controlling the disease. Unlike conventional treatments, which address symptoms broadly, biological therapies offer a personalized solution that focuses on the specific triggers of severe asthma (Dombret et al., 2014; Cooper et al., 2021; Alergovel Allergy Clinic, 2025).

Currently, there are six approved biological therapies, such as omalizumab, indicated for patients with asthma associated with respiratory allergies, and mepolizumab, recommended for those with high levels of eosinophils, cells that intensify signals (Asthma Canada, 2023; O Globo-London, 2024; Laorden et al., 2025).

This procedure uses radiofrequency energy to shrink smooth muscle in the airways, reducing its ability to contract and create obstructions. Studies show that thermoplasty can reduce symptoms, providing relief for patients with severe asthma. The procedure uses radiofrequency energy (bronchial thermoplasty) to shrink smooth muscle in the airways, decreasing its ability to contract and create obstructions. Studies show that thermoplasty can reduce symptoms, providing relief for patients with severe asthma (Figure 3) (Dombret et al., 2014; Ramírez-Jiménez et al., 2023; Roberts, 2024).

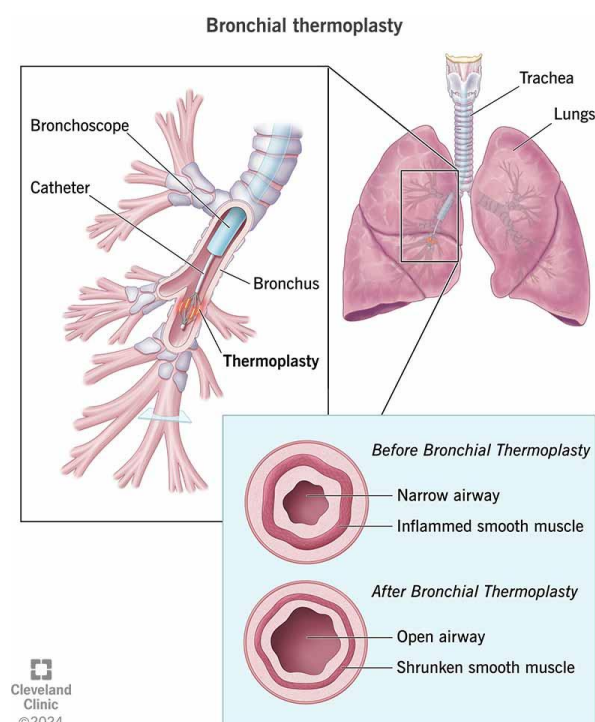


Figure 3: Bronchial thermoplasty

Source:

<https://my.clevelandclinic.org/health/treatments/16811-bronchial-thermoplasty>

New research reveals that the cells lining the airways are compressed until they are destroyed during an attack. To prevent this, rather than managing the aftermath, they can break the cycle of damage, the airways of

people with asthma are sensitive to certain triggers, such as pollen, pet dander, and exercise (Asthma Canada, 2023; Alergovel Allergy Clinic, 2025; Laorden, 2025).

4.0. Conclusion

Bronchial asthma is a chronic respiratory disease characterized by inflammation of the bronchi and recurrent episodes of shortness of breath, wheezing, and coughing. It can be caused by extrinsic factors such as pollen or pollution, or by intrinsic factors such as infections.

References

1. Alergovel Allergy Clinic. (2025). Innovations in asthma treatment for 2025. Retrieved Mar, 01, 2025, from <https://alergovel.com.br/blog/inovacoes-tratamento-asma/>
2. Asthma Canada. (2023). Biologic treatment for severe asthma. Retrieved Mar, 01, 2025, from <https://asthma.ca/get-help/severe-asthma/biologics/>
3. Clinica Croce Ensino. (2025). Learn about the types of asthma, their symptoms, and how to assess the disease! Retrieved Mar, 02, 2025, from <https://www.clinicacroce.com.br/ensino/>
4. Cooper, A. Z., Abrams, H. R., & Breu, A. C. (2021). Why do eosinophils vanish from the blood after treatment with corticosteroids? Seattle: Curious Clinicians.
5. Dombret, M. C., Alagha, K., Boulet, L. P., Brillet, P. Y., Joos, G., Laviolette, M., ... & Chanez, P. (2014). Bronchial thermoplasty: a new therapeutic option for the treatment of severe, uncontrolled asthma in adults. *European Respiratory Review*, 23(134), 510-518.
6. Laorden, D., Domínguez-Ortega, J., Romero, D., Villamañán, E., Mariscal-Aguilar, P., Granda, P., ... & ASMAGRAVE-HULP Group. (2025). Efficacy Assessment of Biological Treatments in Severe Asthma. *Journal of Clinical Medicine*, 14(2), 321.
7. Medical Information. (2025). Asthma treatment: Bronchial thermoplasty. Retrieved Mar, 01, 2025, from <https://www.asma-bronquica.com.br/medical/termoplastia.html>
8. Moon, D. (2025). Asthma genes: Understanding your genetic pathways. Retrieved Mar, 01, 2025, from <https://www.geneticlifehacks.com/asthma-genes/>
9. O Globo-London (2024). After 50 years, a new treatment for asthma attacks is discovered and could be a 'game changer'; understand. Retrieved Mar, 01, 2025, from <https://oglobo.globo.com/saude/noticia/2024/11/28/apos-50-anos-novo-tratamento-para-crise-de-asma-e-descoberto-e-pode-ser-divisor-de-aguas-entenda.ghtml>

10. Ramírez-Jiménez, F., Pavón-Romero, G. F., Velásquez-Rodríguez, J. M., López-Garza, M. I., Lazarini-Ruiz, J. F., Gutiérrez-Quiroz, K. V., & Teran, L. M. (2023). Biologic therapies for asthma and allergic disease: past, present, and future. *Pharmaceuticals*, 16(2), 270.
11. Pratt, D. Ozone, Influenza and the Causes of Disease.
12. Segen, N., Kursabaieva, O., & Maliarchuk, K. (2025). Bronchial asthma. Retrieved Mar, 01, 2025, from <https://medtour.help/disease/bronchial-asthma/>
13. Silva, J. K. O. et al. (2025). Clinical and therapeutic aspects of asthma: A critical review of scientific literature. *Health Sciences*, 29, 142.
14. Subali, D., Kurniawan, R., Surya, R., Lee, I. S., Chung, S., Ko, S. J., ... & Kim, K. I. (2024). Revealing the mechanism and efficacy of natural products on treating the asthma: Current insights from traditional medicine to modern drug discovery. *Heliyon*.
15. Tavares, A. (2023). Fish venom molecules could be an ally in the treatment of asthma, according to a study by Butantan. Retrieved Mar, 01, 2025, from <https://butantan.gov.br/noticias/molecula-de-veneno-de-peixe-pode-ser-aliada-no-tratamento-da-asma-indica-estudo-do-butantan>
16. Virchow, J. C., Kuna, P., Paggiaro, P., Papi, A., Singh, D., Corre, S., ... & Canonica, G. W. (2019). Single inhaler extrafine triple therapy in uncontrolled asthma (TRIMARAN and TRIGGER): two double-blind, parallel-group, randomised, controlled phase 3 trials. *The Lancet*, 394(10210), 1737-1749.