ISSN (Online): 2455-3662
EPRA International Journal of Multidisciplinary Research (IJMR) - Peer Reviewed Journal
Volume: 10| Issue: 11| November 2024|| Journal DOI: 10.36713/epra2013 || SJIF Impact Factor 2024: 8.402|| ISI Value: 1.188

REVIEW ON AYURVEDIC TREATMENT FOR ASTHMA

Dr. Sunil.S. Jaybhaye[1], Pooja.P. Ambhure[2], Aarti.G. Hingmire[3], Ashwini. R.Shelke[4] Bhagwat S.Gabale[5]

[1]*Department of Quality Assurance, Institute of Pharmacy, Badnapur*
[2]*Department of Pharmaceutics, Institute of Pharmacy, Badnapur,*
[3]*Student of Bachelor of Pharmacy, Institute of Pharmacy, Badnapur,*
[4]*Faculty of Pharmacy, Institute of Pharmacy, Badnapur,*
[5]*Student of Bachelor of Pharmacy, Institute of Pharmacy, Badnapur*

ABSTRACT

Over 230 million individuals worldwide suffer from asthma, an obstructive lung condition that significantly increases morbidity in patients of all ages. It is a diverse illness with a complicated phenomenology and pathogenesis. Variable airflow obstruction and airway hyper responsiveness are the condition's hallmarks, and the diagnosis is reached after a comprehensive history and physical examination. It's critical to recognize the severity of the illness, and treatment focuses on managing symptoms. Asthma is a prevalent inflammatory illness of the airways that contributes significantly to global hospitalization and medical expenses. Due to uneven adherence to established recommendations, there are significant differences in the diagnosis and management of acute asthma exacerbations. In addition to discussing standard and cutting-edge therapy options for refractory cases, we will also examine the evidence, guidelines, clinical presentation, risk factors, and management of acute asthma exacerbations. A summary of recent research and recommendations for the proper diagnosis and treatment of asthma are given in this article.Ayurvedic treatment is found to be beneficial over other treatments. Ayurvedic ingredients like saffron , clove ,nutmeg, paper longum and musk fenugreek are effective for the asthma.

KEYWORDS: *Bronchodilators, steroids, eosinophils, bronchial asthma.*

1.INTRODUCTION

The definition of asthma is a long-term inflammatory condition of the airways. Wheezing, dyspnea (shortness of breath), chest tightness, and coughing are among the recurrent symptoms of chronic inflammation, which is linked to airway hyper responsiveness (an exaggerated airway narrowing response to triggers, such as allergens and exercise). Episodes of symptoms are typically linked to a broad but fluctuating blockage of airflow in the lungs, which is typically reversible either on its own or with the right asthma medication.(1)

Chronic airway inflammation and constriction are hallmarks of asthma, a prevalent condition affecting both adults and children.(2,3) Overview Inflammation and airway narrowing are the hallmarks of asthma, a long-term respiratory disease that makes breathing challenging. It is a chronic illness that is heterogeneous and affects 300 million people worldwide. Asthma is a chronic illness that affects the airways in two ways: it causes inflammation and airflow restriction inside the lungs. Many patients exhibit insufficient disease control, which is leading to an increase in morbidity and adversely affecting health-related quality of life.(4,5,6) In terms of financial burden, it is estimated that asthma control and management account for 70% of the disease's costs; however, with proper care, the disease would improve asthma control and reduces.(7)Linked the expenses to the use of an anti-inflammatory drug used as a preventative measure to improve patient health. Particular training and a stronger commitment to the guidelines' advice with 420,000 deaths worldwide, bronchial asthma. commonly referred to as asthma, is the most prevalent chronic lung illness in children more than 80% of more than fatalities occur in developing nations (8,9) is an untreatable condition that needs to be carefully managed, high medical expenses, including acute ambulatory, emergency and hospital treatment, are caused by uncontrolled asthma.

The most prevalent chronic illness among children is still asthma. the majority of clinical guidelines, children with asthma fall into one of the following ages groups: Pre schoolers aged 2-5, teenagers aged 12-18, or children aged 5-12 (who are typically treated as adults)

The conventional theory of asthma holds that particular IgE and excessive T-helper cell type 2 (Th2) cell responses cause airway hyper responsiveness. Although this effectively describes the main processes of allergic asthma, the word "asthma" is Now used as a catch-all diagnostic for a number of different illnesses (endotypes) as well as different phenotypes (young atopic, obese middle-aged, and elderly), all of which show symptoms of chest tightness, coughing, and wheezing, along with variable airflow restriction.

Up until a few years ago, all asthma patients received the same course of treatment. But because this disease is complex, different people react differently to different treatments. Although the precise number of people with severe asthma is unknown, it is estimated to be between 5 and 10% of all

ISSN (Online): 2455-3662
EPRA International Journal of Multidisciplinary Research (IJMR) - Peer Reviewed Journal
Volume: 10| Issue: 11| November 2024|| Journal DOI: 10.36713/epra2013 || SJIF Impact Factor 2024: 8.402|| ISI Value: 1.188

asthmatics. Even with high-intensity therapy, patients with severe illness still experience refractory symptoms. This population has a glaring unmet need and is responsible for a large portion of asthma-related morbidity and mortality. In order to better understand the variability of asthma profiles, new attempts have been undertaken to break down asthma into its pathogenic components.

1. OBJECTIVE

- Use evidence-based asthma management techniques while taking into account the preferences and features of each patient.
- Regularly evaluate the severity, management, and risk of exacerbations of asthma at follow-up visits.
- Determine the classic signs of asthma, such as coughing, wheezing, and dyspnea.
- Works together with members of an interdisciplinary health care team to improve asthma treatment and patient outcomes.
- Control symptoms lessen asthma attacks, frequency and intensity
- Boost your standard of living allow people to live active, regular lives.

2. COMMON SYMPTOMS

- Wheezing, coughing, shortness of breath and chest tightness are common symptoms of asthma on people.The symptoms can be quite severe and can get worse at night or during exercise. Early detection of these symptoms can assist ensure prompt treatment.
- Fatigue that makes it tough to speak
- Cough secretions
- Swollen airways

3. CAUSES

- Smoking
- Environment
- Genetics
- Allergies
- Respiratory infection

4. DIAGNOSIS

Men and women of various ages can suffer from asthma, a condition affecting the lower respiratory tract. Although there is no one gold standard test for diagnosing asthma, there is much variation in the pathophysiology and clinical presentation of the condition, and clinical over diagnosis can happen, particularly in patients lacking spirometric proof.(10)

As a result, spirometry and a comprehensive history and physical examination are crucial for diagnosing asthma. A comprehensive medical history, physical examination, and objective evaluations of lung function (spirometry preferred) are required for the diagnosis of asthma.

The problem of bronchoprovocation When objective tests of lung function are normal despite the presence of asthma symptoms, testing and evaluation for indicators of airway inflammation may also be useful in the diagnosis of the condition.(11,12,13)

5. PATHOPHYSIOLOGY

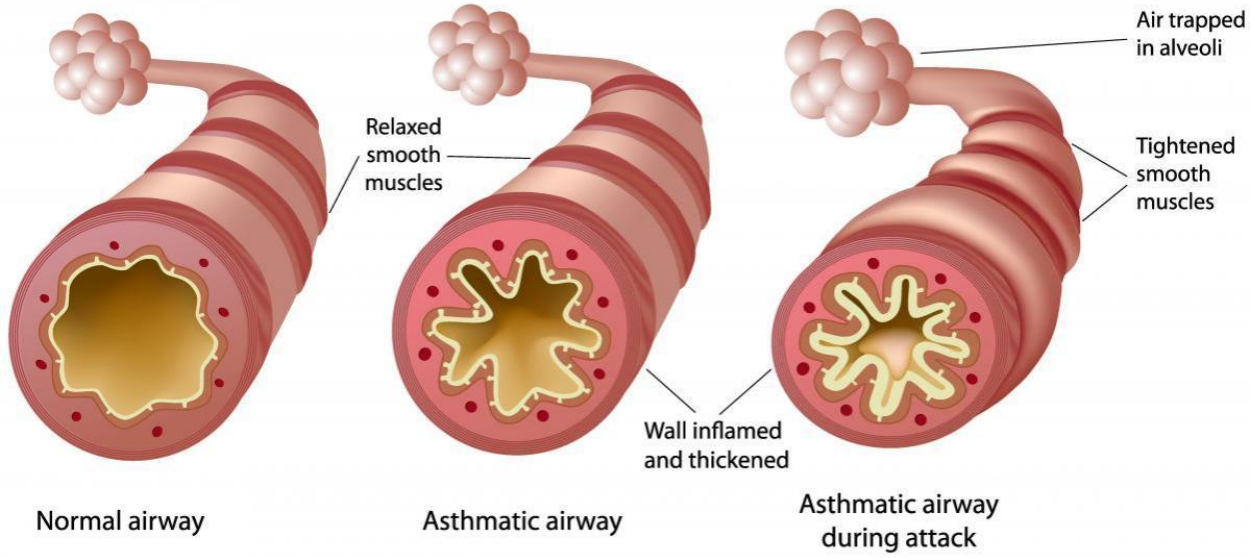

Fig. Asthma Pathophysiology

An asthma attack can occur in two stages, known as the early phase and the late phase. IgE antibodies, which are sensitized and secreted by plasma cells, start the early phase. Certain environmental stimuli, including the risk factors mentioned

ISSN (Online): 2455-3662
EPRA International Journal of Multidisciplinary Research (IJMR) - Peer Reviewed Journal
Volume: 10| Issue: 11| November 2024|| Journal DOI: 10.36713/epra2013 || SJIF Impact Factor 2024: 8.402|| ISI Value: 1.188

above, cause these antibodies to react. After that, IgE antibodies attach to basophils and mast cells with high affinity. The mast cells gradually de-granulate after releasing cytokines in response to an inhaled contaminant or risk factor. Mast cells release leukotrienes, prostaglandins, and histamine. These cells then tighten the airways by contracting the smooth muscle.(14)

Th2 lymphocytes are essential because they generate GM-CSF and a number of interleukins (IL-4, IL-5, and IL-13) that facilitate cell-to-cell contact and maintain inflammation. Eosinophils and basophils are aided in their survival by IL-3 and IL-5. IL-13 plays a role in hyperplasia, fibrosis, and remodeling.(15) The late phase, which takes place over the course of the following few hours, is characterized by the localization of eosinophils, basophils, neutrophils, and helper and memory T-cells to the lungs, which results in inflammation and bronchoconstriction. Additionally, mast cells are crucial for transporting late-phase reactants to the sites of inflammation.(16) Depending on the severity of the condition, it is essential to understand both of these pathways in order to target therapy and relieve both inflammation and bronchoconstriction. It's interesting to note that those with larger airways throughout time have longer disease durations since their airways are smaller.(17) Breathing becomes more difficult due to an occasional airflow restriction brought on by inflammation and bronchoconstriction.

One of the most important characteristics of asthma is airway hyperresponsiveness, which is an enlarged bronchoconstrictor response, typically to various stimuli. Airway hyperresponsiveness is caused by a number of different processes. Some theories include an increase in smooth muscle bulk in the airways or an increase in histamine from mast cells. The contractility of airway smooth muscle cells is further improved by elevated intracellular free calcium and vagal tone.(17) Bronchial provocation tests are performed to measure the degree of Airways hyperresponsiveness.(18) The presence of airway hyperresponsiveness is linked to a higher loss in lung function and an increased likelihood of developing and exacerbating asthma from infancy to adulthood, making this characteristic clinically significant.(19) Thus, early targeted treatment can be used to address hyperresponsiveness and asthma. When combined, these processes somewhat alter the lungs' compliance, making breathing more difficult.

A person may find it more and more difficult to breathe correctly when exudate, mucus, inflammation, and granular white blood cells inhabit the bronchiolar trees. The smooth muscle layer and lamina reticularis narrow as a result of an increase in the epithelium brought on by the amount of myofibroblasts, which produce collagen.(20) Consequently, the basement membrane thickens further. The cause of an individual's irreversible airflow restriction is thought to be airway remodeling.(21) Epithelial cells change into mesenchymal cells during remodeling, which results in an increase in the amount of smooth muscle. Tight connections cause epithelial cells to lose their functional polarity and cell adhesion, reformatting their cells to become mesenchymal cells.(18) Furthermore, by interacting with mast cells and releasing cytokines and TGF-B, eosinophils might worsen airway remodeling. If these airway remodeling mechanisms are not appropriately treated and maintained, they may be exacerbate asthma and worsen inflammation. (17)

ISSN (Online): 2455-3662
EPRA International Journal of Multidisciplinary Research (IJMR) - Peer Reviewed Journal
Volume: 10| Issue: 11| November 2024|| Journal DOI: 10.36713/epra2013 || SJIF Impact Factor 2024: 8.402|| ISI Value: 1.188

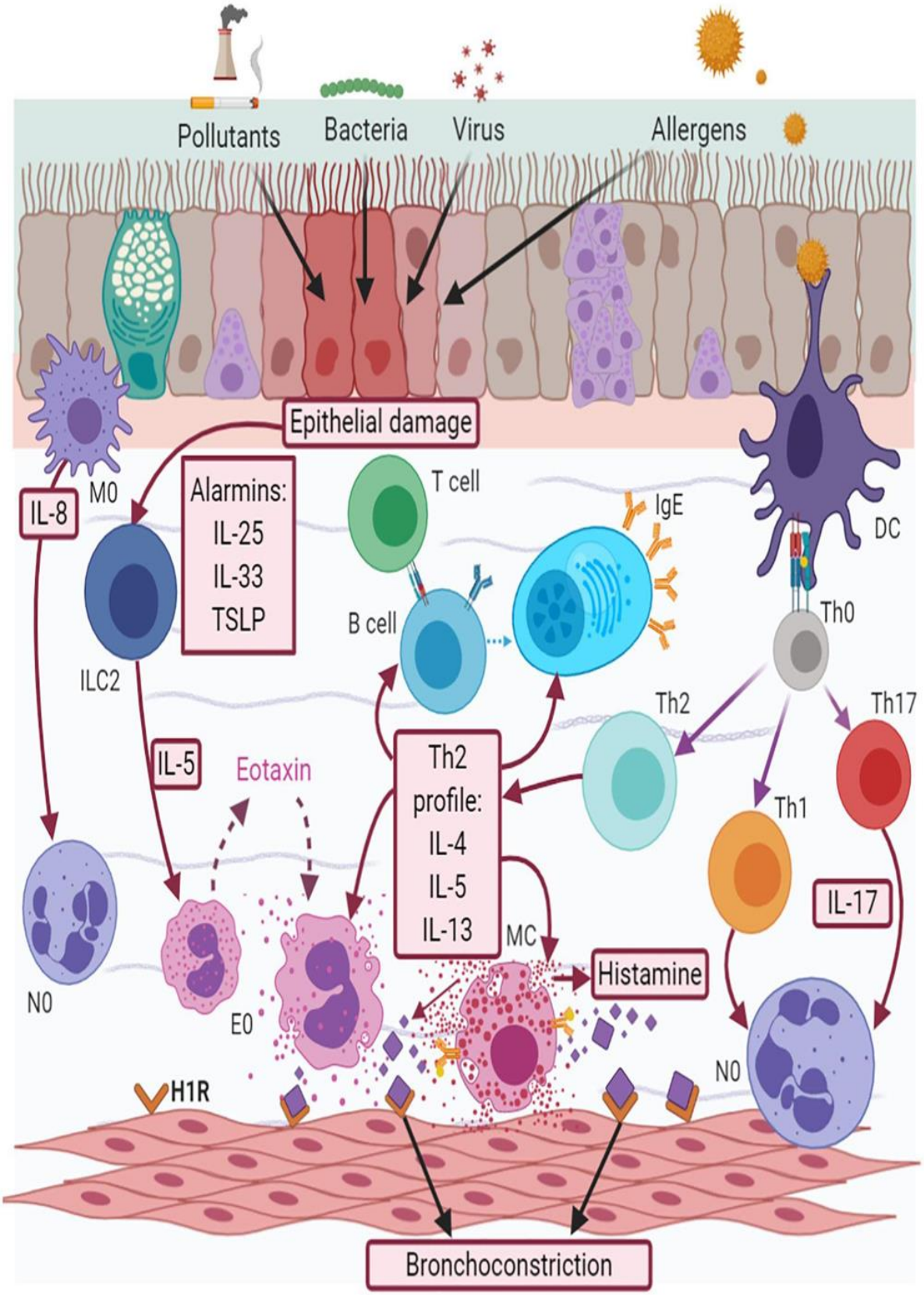

Fig. Pathophysiology of Asthma

ISSN (Online): 2455-3662
EPRA International Journal of Multidisciplinary Research (IJMR) - Peer Reviewed Journal
Volume: 10| Issue: 11| November 2024|| Journal DOI: 10.36713/epra2013 || SJIF Impact Factor 2024: 8.402|| ISI Value: 1.188

7.TREATMENT

Patients experiencing an acute asthma attack need to be evaluated and treated right away. Reducing airflow blockage, increasing breathing effort, and preserving tissue perfusion and oxygenation are the major objectives of treatment. Systemic steroids and serial or continuous short-acting bronchodilators are important pharmacological elements in acute asthma treatment.

Ayurvedic Treatment

Saffron, musk Fenugreek, clove, nutmeg, piper longum these ingredients are given into the same quantity, then grind it into powder form and mix it ginger juice and make a small pills.

Saffron

Synonyms: kesoar
Family: Iridaceae.
Saffron is believed to improve the asthma symptoms due to airway inflammation, hyper responsiveness and muscle contraction. it means relax the muscle contraction.

Fig: Saffron

Clove

Synonym: clove bud
Family: Myrtaceae
Use : Use of Clove and clove oil may help in asthma symptoms, such as wheezing, chest pain, difficulty breathing.

Fig: Clove

ISSN (Online): 2455-3662
EPRA International Journal of Multidisciplinary Research (IJMR) - Peer Reviewed Journal
Volume: 10| Issue: 11| November 2024|| Journal DOI: 10.36713/epra2013 || SJIF Impact Factor 2024: 8.402|| ISI Value: 1.188

Nutmeg
Synonyms: Myristica aromata
Family: Myristicaceae
Nutmeg reported to exhibit anti inflammatory effects in vivo in an asthmatic model by significantly reducing the expression of IL-4 and Th2 cell specific master transcription factor.

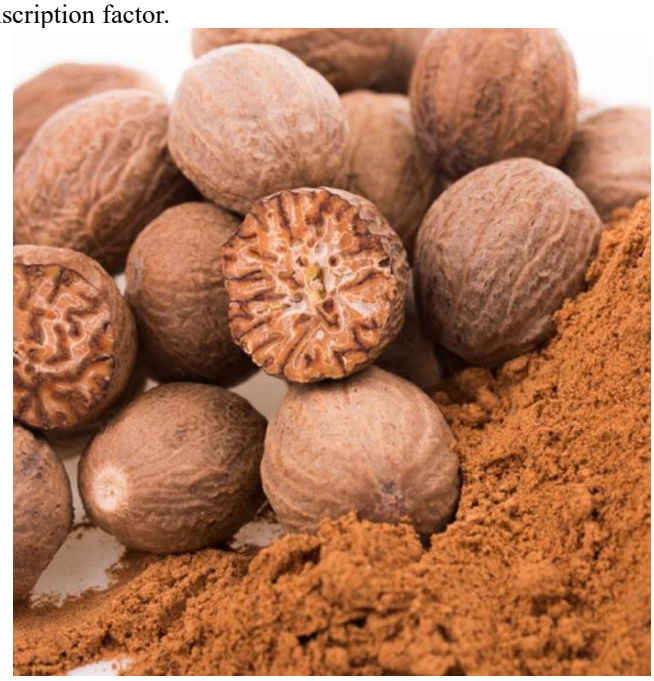

Fig: Nutmeg

Piper Longum
Synonyms: Chavica roxburghii Miquel
Family: Piperaceae
Study found that Piper longum can reduce airway inflammation and remodeling in asthmatic mice.

Fig: Paper Longum

ISSN (Online): 2455-3662
EPRA International Journal of Multidisciplinary Research (IJMR) - Peer Reviewed Journal
Volume: 10| Issue: 11| November 2024|| Journal DOI: 10.36713/epra2013 || SJIF Impact Factor 2024: 8.402|| ISI Value: 1.188

Musk Fenugreek
Synonyms: Methi, Methika
Family: Leguminaceae
Serum cytokine IL-4 levels significantly decreased when Fenugreek seed extract was used, while FEV1 and FEV1/FVC levels increased by 10%.the results of the study indicate that fenugreek seed aqueous extract may be utilized to treat moderate asthma because of its minimal adverse effects.

Fig: Musk Fenugreek

6. CONCLUSION

Asthma is a diverse disease affecting millions of individuals globally. It is characterized by fluctuating airflow restriction, airway inflammation, and hyper responsiveness. In order to manage asthma, it is critical to comprehend the many phenotypes and pathophysiology's and to provide individualized treatment that is appropriate for the patient's lifestyle and comorbidities. All above mentioned herbal ingredients like saffron ,clove,nutmeg, musk fenugreek, paper longum are found to be effective for asthma.

7.REFERENCE

1. *Global Initiative for Asthma (GINA). Global strategy for asthma Management and prevention. Updated 2017.Accessed 19 Feb 2017.*
2. *2022 GINA Main Report – Global Initiative for Asthma – GINA; Accessed June 13, 2023.*
3. *World Health Organization. Asthma; 2022. Accessed June 25, 2022.*
4. *Peters SP, Ferguson G, Deniz Y, Reisner C. Uncontrolled asthma: A review of the prevalence, disease burden and options for treatment. Respir Med. 2006;100(7):1139–1151.*
5. *KF, Vermeire PA, Soriano JB, Maier WC. Clinical management of asthma in 1999: the asthma insights and reality in Europe (AIRE) study. Eur Respir J. 2000;16(5):802–807.*
6. *S, Corsico A, Cerveri I, et al. The socio-economic burden of asthma is substantial in Europe. Allergy. 2008;63(1):116–124.*
7. *7)De Miguel Díez J. Farmacoeconomíaenelasmayen la EPOC [Health Care Costs of Asthma and Chronic Obstructive Pulmonary Disease]. Archivos de Bronconeumología. 2005;41(5):239–241.*
8. *Centers for Disease C, Prevention. Vital signs: asthma prevalence, disease characteristics, and self-management education: United States, 2001 – 2009. MMWR Morb Mortal Wkly Rep. 2011;60(17):547–552.*
9. *9)Trikamjee T, Comberiati P, Peter J. Pediatric asthma in developing countries: challenges and future directions. Curr Opin Allergy Clin Immun. 2022;22(2):80–85.*
10. *10) Aaron SD et al. Reevaluation of Diagnosis in adults with physician diagnosed asthma. JAMA. 2017;317(3):269-79.*
11. *11)Global Initiative for Asthma (GINA): Global strategy for asthma Management and prevention. 2009, Available at: Accessed July 15, 2010.*
12. *12)Lougheed MD, Lemière C, Dell SD, Ducharme FM, Fitzgerald JM, Leigh R, Licskai C, Rowe BH, Bowie D, Becker A, Boulet LP: Canadian Thoracic Society asthma management continuum: 2010 consensus summary for Children six years of age and over, and adults. Can Respir J 2010,17:15-24.*
13. *13)Kaplan AG, Balter MS, Bell AD, Kim H, McIvor RA: Diagnosis of asthma in Adults. CMAJ 2009, 181: E210-E220.*
14. *14)Liu MC, Hubbard WC, Proud D, Stealey BA, Galli SJ, Kagey-Sobotka A, Bleecker ER, Lichtenstein LM. Immediate and late inflammatory responses to ragweed antigen challenge of the peripheral airways in allergic asthmatics. Cellular, mediator, and permeability changes. Am Rev Respir Dis. 1991 Jul;144(1):51-8.*
15. *15) Zhu Z, Homer RJ, Wang Z, Chen Q, Geba GP, Wang J, Zhang Y, Elias JA. Pulmonary expression of interleukin-13 causes inflammation, mucus hypersecretion, subepithelial fibrosis, physiologic abnormalities, and eotaxin production. J Clin Invest. 1999 Mar;103(6):779-88.*
16. *16)Stewart AG, Tomlinson PR, Fernandes DJ, Wilson JW, Harris T. Tumor necrosis factor alpha modulates mitogenic responses of human cultured airway smooth muscle. Am J Respir Cell Mol Biol. 1995 Jan;12(1):110-9.*
17. *17) Doeing DC, Solway J. Airway smooth muscle in the pathophysiology and treatment of asthma. J Appl Physiol (1985). 2013 Apr;114(7):834-43.*
18. *18)Brannan JD, Lougheed MD. Airway hyperresponsiveness in asthma: mechanisms, clinical significance, and treatment. Front Physiol. 2012; 3:460.*

ISSN (Online): 2455-3662
EPRA International Journal of Multidisciplinary Research (IJMR) - Peer Reviewed Journal
Volume: 10| Issue: 11| November 2024|| Journal DOI: 10.36713/epra2013 || SJIF Impact Factor 2024: 8.402|| ISI Value: 1.188

19. 19)Chapman DG, Irvin CG. Mechanisms of airway hyper-responsiveness in asthma: the past, present and yet to come. Clin Exp Allergy. 2015 Apr;45(4):706-19
20. 20) Kudo M, Ishigatsubo Y, Aoki I. Pathology of asthma. Front Microbiol. 2013 Sep 10; 4:263.
21. 21)Limb SL, Brown KC, Wood RA, Wise RA, Eggleston PA, Tonascia J, Adkinson NF; Irreversible lung function deficits in young adults with a history of childhood asthma. J Allergy Clin Immunol. 2005 Dec;116(6):1213-9.