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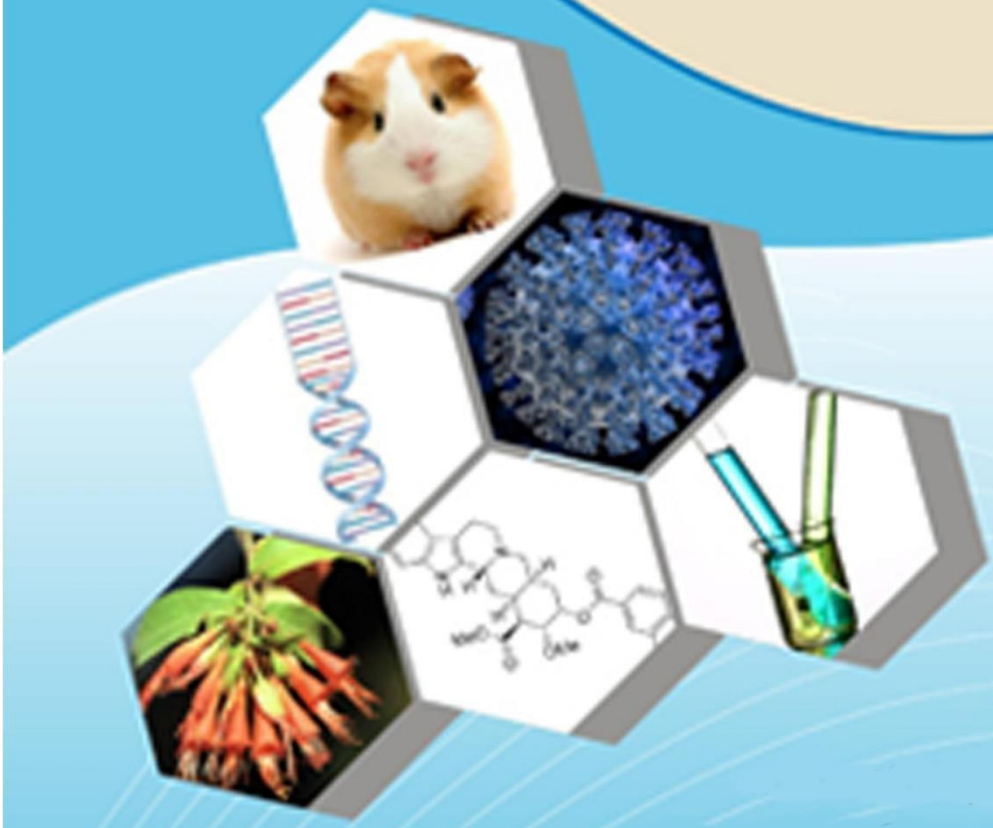

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CHRONIC BRONCHITIS – A REVIEW

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Abstract

Chronic bronchitis is a major phenotype within chronic obstructive pulmonary disease (COPD), characterized by persistent productive cough and airway inflammation leading to recurrent exacerbations, impaired quality of life, and increased healthcare utilization. Despite advances in pharmacologic therapy, a substantial proportion of patients continue to experience symptom burden and adverse effects, prompting interest in complementary systems of medicine.

Introduction

Chronic bronchitis is traditionally defined as the presence of productive cough for at least three consecutive months in two successive years, in the absence of other causes such as tuberculosis or bronchiectasis.[1] It represents a significant component of COPD and contributes substantially to global morbidity and mortality. The disease is associated with chronic airway inflammation, mucus hypersecretion, and impaired mucociliary clearance, resulting in recurrent infections and progressive airflow limitation.[2]

Conventional management focuses on smoking cessation, bronchodilators, inhaled corticosteroids in selected patients, mucolytics, vaccination, and pulmonary rehabilitation. While these measures reduce symptoms and exacerbations, they may not adequately address the individual variability in disease expression and patient response. .

This review aims to present a comprehensive, balanced, and academically structured discussion on chronic bronchitis.

Epidemiology and Burden of Disease

Chronic bronchitis affects millions worldwide and is a leading cause of disability-adjusted life years. Prevalence increases with age and is higher among smokers; however, non-smokers exposed to biomass fuel smoke, occupational dusts, and ambient air pollution are also significantly affected. In low- and middle-income countries, indoor air pollution from solid fuels remains a major contributor, particularly among women.[3]

The socioeconomic burden of chronic bronchitis is considerable, encompassing direct healthcare costs due to hospitalizations and medications, as well as indirect costs from loss of productivity and caregiver burden. Recurrent exacerbations accelerate lung function decline and are associated with increased mortality.

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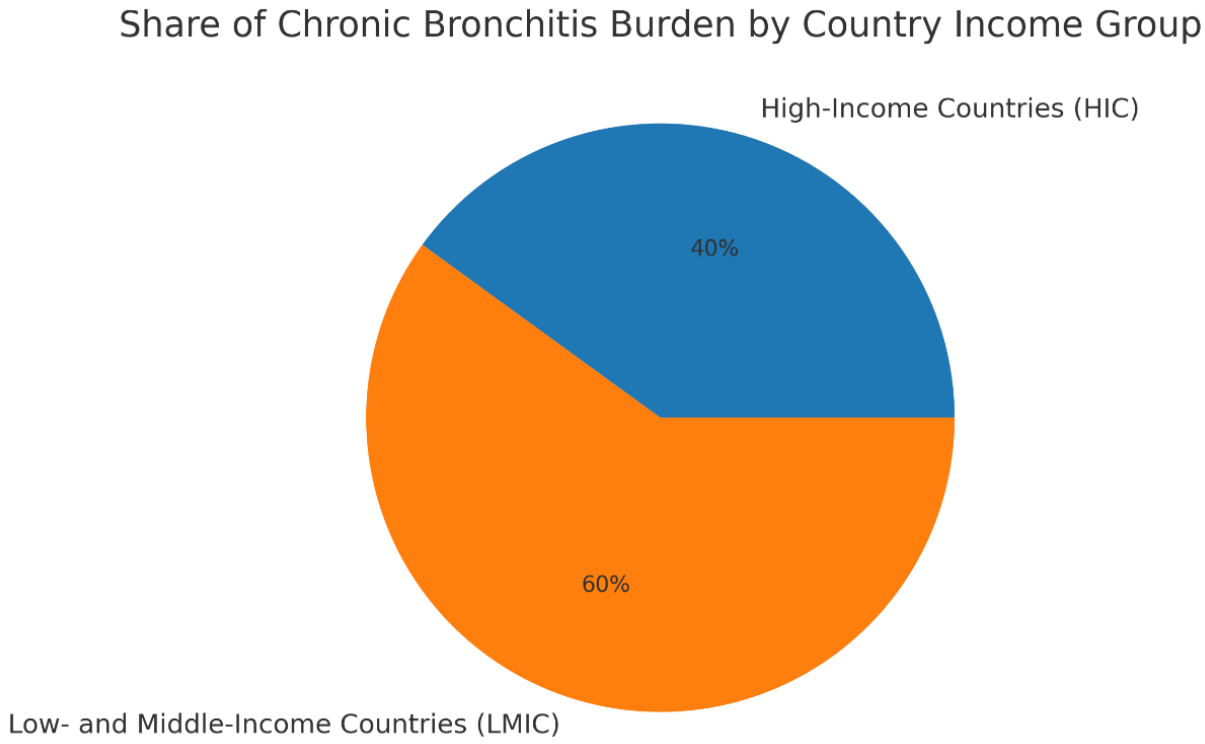

Aetiology and Risk Factors

The primary etiological factor for chronic bronchitis is long-term inhalation of airway irritants. Cigarette smoking remains the most significant risk factor, causing direct epithelial injury and sustained inflammation. Other important contributors include:[4-6]

- Occupational exposure to dusts, fumes, and chemicals
- Indoor biomass fuel smoke
- Outdoor air pollution
- Recurrent respiratory infections
- Genetic susceptibility and impaired host defences

These factors interact over time to produce structural and functional changes in the bronchial tree.

Pathophysiology of Chronic Bronchitis

The hallmark pathological changes in chronic bronchitis include hypertrophy and hyperplasia of mucus-secreting glands, goblet cell proliferation, and chronic inflammatory infiltrates in the airway wall. These changes result in excessive mucus production, which narrows the airway lumen and predisposes to bacterial colonization.[2]

Ciliary dysfunction further impairs mucus clearance, leading to persistent cough and expectoration. Inflammatory mediators, oxidative stress, and repeated infections contribute to

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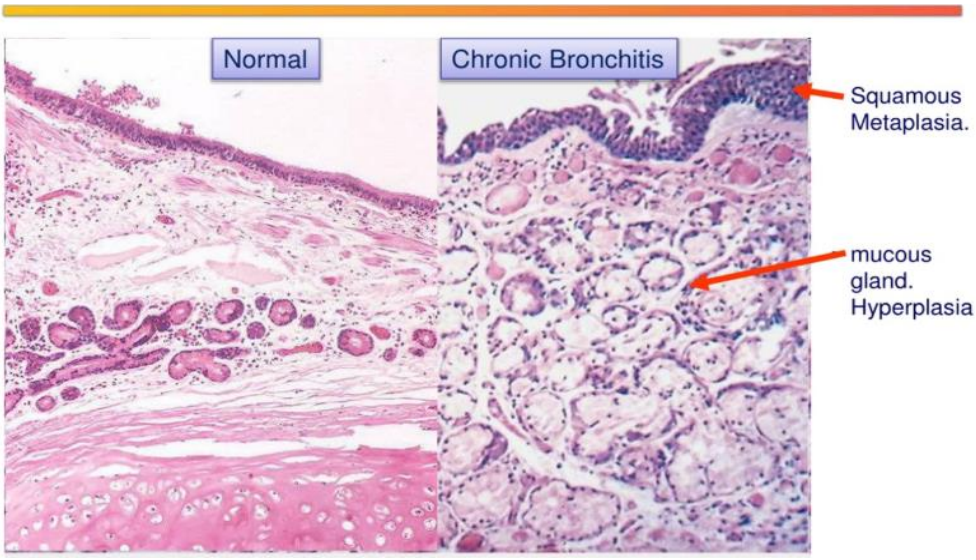
airway remodelling and progressive airflow limitation. Systemic inflammation may also be present, linking chronic bronchitis to comorbid conditions.



HISTOLOGICAL FEATURES OF AIRWAY REMODELING IN CHRONIC BRONCHITIS: FROM HOGG[6], KIM & CRINER, ROVINA HIGHAM ET AL.

Clinical Features and Diagnosis

Patients typically present with chronic productive cough, wheezing, dyspnea on exertion, and frequent respiratory infections. Physical examination may reveal rhonchi, crackles, and signs of airflow obstruction. Diagnosis is primarily clinical, supported by spirometry demonstrating obstructive ventilatory defect. Imaging and laboratory investigations help exclude alternative diagnoses and assess complications.[7]

ATYPICAL PRESENTATION OF CHRONIC BRONCHITIS

Not all patients with chronic bronchitis fit the classical description, and several atypical patterns have been identified.[5,7]

Non-smokers with biomass exposure:

Women in low- and middle-income countries may develop chronic cough and sputum production due to prolonged exposure to biomass fuels, even in the absence of smoking history. These cases are often misdiagnosed or considered as recurrent respiratory infections.

Chronic cough with normal spirometry:

Some patients complain of persistent cough despite having normal or near-normal lung function on spirometry. In certain cases, airway eosinophilia is present (as in non-asthmatic eosinophilic bronchitis), which responds well to inhaled corticosteroids despite the absence of variable airflow obstruction.

Early or pre-obstructive chronic bronchitis:

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Patients may meet the clinical symptom-based definition of chronic bronchitis but have no spirometric evidence of COPD. These individuals remain at risk of exacerbations & structural airway changes detectable on imaging, representing a pre-COPD or at-risk group.

Comorbidity-related presentations:

In some patients, frequent purulent sputum or focal lung changes suggest the presence of bronchiectasis or even malignancy, which should be carefully differentiated from simple chronic bronchitis.

Sex and exposure differences:

Women often present with more severe symptoms despite lower tobacco exposure, likely due to alternative risk factors such as indoor air pollution.[22,23]

Conventional Management Strategies

Standard management includes non-pharmacologic and pharmacologic interventions. Smoking cessation is the most effective measure to slow disease progression. Bronchodilators (short- and long-acting), inhaled corticosteroids in selected phenotypes, mucolytics, and vaccinations form the cornerstone of therapy. Pulmonary rehabilitation improves exercise tolerance and quality of life. Despite these measures, symptom persistence and adverse effects may limit long-term adherence.[8,9]

Confirmative diagnosis by Clinical COPD Questionnaire by[10]

van der Molen T, Willemse BW, Schokker S, ten Hacken NH, Postma DS, Juniper EF. Development, validity and responsiveness of the Clinical COPD Questionnaire. Health Qual Life Outcomes. 2003;1:13. doi:10.1186/1477-7525-1-13.

CLINICAL COPD QUESTIONNAIRE

Please **circle** the number of the response that best describes how you have been feeling during the **past 7 days**. (Only **one** response for each question).

On average, **during the past 7 days**, how often did you feel:	never	hardly ever	a few times	several times	many times	a great many times	almost all the time
1. Short of breath while **at rest**?	0	1	2	3	4	5	6
2. Short of breath while **doing physical activities**?	0	1	2	3	4	5	6
3. **Concerned** about getting a cold or your breathing getting worse?	0	1	2	3	4	5	6
4. **Depressed (down)** because of your breathing problems?	0	1	2	3	4	5	6
In general, **during the past 7 days**, how much of the time:							
5. Did you **cough**?	0	1	2	3	4	5	6
6. Did you **produce sputum or phlegm (chest mucus)**?	0	1	2	3	4	5	6
On average, **during the past 7 days**, how limited were you in these activities **because of your breathing problems**:	not limited at all	very slightly limited	slightly limited	moderately limited	very limited	extremely limited	totally limited /or unable to do
7. **Strenuous physical activities** (such as climbing stairs, hurrying, participating in sports)?	0	1	2	3	4	5	6
8. **Moderate physical activities** (such as walking, housework, carrying things)?	0	1	2	3	4	5	6
9. **Daily activities at home** (such as dressing, washing yourself)?	0	1	2	3	4	5	6
10. **Social activities** (such as talking, being with children, visiting	0	1	2	3	4	5	6

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Homoeopathic Perspective of Chronic Bronchitis

Homoeopathy views chronic bronchitis not merely as a localized airway disease but as an expression of deeper constitutional imbalance. Classical authors such as Hahnemann, Kent, and Clarke emphasized the importance of individual susceptibility and miasmatic background. Psoric, sycotic, and tubercular influences are commonly implicated, with disease progression reflecting deeper pathology.

Treatment aims to select remedies based on the totality of symptoms, including mental, general, and particular features, rather than the disease label alone. Chronic bronchitis is a long-standing inflammatory condition of the bronchial tubes, often marked by a persistent productive cough, excessive sputum production, and recurrent respiratory infections. In homeopathy, treatment is individualized based on the nature of the cough, the character of sputum, associated symptoms, modalities, and the patient's constitutional tendencies. Several remedies are particularly indicated for chronic bronchitis, depending on these factors.[11]

Antimonium tartaricum

Highly indicated in cases where patients exhibit a weak, rattling cough with thick, tenacious mucus. Such patients often experience dyspnea and wheezing, particularly at night, and may feel physically exhausted due to the effort required to expectorate. Bryonia alba is suitable for individuals with a dry, painful cough, aggravated by movement. The expectoration is usually difficult, and the cough is often associated with sharp chest pain, irritability, and a desire to remain immobile.

Ipecacuanha

It is recommended when there is a persistent, violent cough with copious, frothy, or blood-streaked sputum, often accompanied by nausea or vomiting. Wheezing and tightness in the chest are common, and the patient experiences a constant urge to cough, which does not relieve the discomfort.

Hepar sulphuris

It is useful in chronic, purulent bronchitis, where sputum is thick, yellow-green, and offensive, and the patient is sensitive to cold air, particularly at night. Similarly, Kali bichromicum is indicated in cases with sticky, ropy mucus that is very difficult to expectorate, often accompanied by wheezing and constriction in the chest, with symptoms worsening in the morning or at night.

Pulsatilla

It is frequently indicated. These patients often have a changeable cough, which tends to improve in open air and worsens in warm, stuffy rooms. Emotional sensitivity and weepiness are characteristic of this remedy.

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Spongia tosta,

It is selected for a dry, barking, croupy cough, worse in the evening, night, or exposure to cold air, often associated with wheezing and a sensation of airway obstruction. Sulphur is considered in chronic, recurrent cases, especially when burning sensations in the chest, morning aggravation, and general weakness are present.

Calcarea carbonica

It is suitable for patients with chronic susceptibility to respiratory infections, who tend to have loose or rattling cough, are often sluggish or obese, and experience worsening in cold weather. Phosphorus is indicated for tall, slender, sensitive individuals with a dry, burning cough, easily fatigued, and experiencing aggravation in the evening or when lying down.

Ferrum phosphoricum

It is useful in the early stage of congestion, with mild fever and weakness, whereas Aconitum napellus is indicated for sudden-onset dry, paroxysmal cough, often accompanied by restlessness and anxiety. The potency selection varies according to the chronicity and severity of the condition. Acute episodes are often treated with 6C or 30C potencies, repeated as needed, while constitutional treatment for long-term management may involve 200C or 1M potencies, individualized for the patient.

Miasmatic Interpretation

From a miasmatic standpoint, Ipecacuanha is often indicated in psoric and tubercular states, where hypersensitivity, recurrent catarrhal attacks, and rapid exhaustion are prominent. In chronic bronchitis, it may be particularly useful in earlier or mixed miasmatic stages before irreversible structural damage dominates.

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