

Rhinitis isn't just a nuisance: It's a key to managing asthma and COPD

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The concept of a 'unified airway' has gained traction, challenging the traditional compartmentalisation of respiratory diseases into distinct upper and lower airway conditions. Rhinitis, asthma, and chronic obstructive pulmonary disease (COPD) frequently coexist, influencing each other's severity and response to treatment. Ignoring this interconnectedness can lead to suboptimal patient care and persistent symptoms.

KEY TAKEAWAYS

- **The Pivot:** The recognition that upper and lower airway diseases are often manifestations of a single inflammatory process necessitates integrated assessment and management.
- **The Data:** While no single trial unifies all three, epidemiological data consistently show high comorbidity rates, with rhinitis present in a substantial proportion of asthma patients and asthma a significant risk factor for COPD development.
- **The Action:** Clinicians should routinely screen for comorbid airway conditions, particularly rhinitis in asthma and COPD patients, and consider treatment strategies that address the entire respiratory tract.

The respiratory tract functions as a continuous unit, from the nasal passages down to the alveoli. This anatomical and physiological continuity means that inflammatory processes affecting one part of the airway often have repercussions throughout the entire system. Allergic rhinitis, for instance, is not merely a nuisance; it is a significant risk factor for asthma development and exacerbation, and its presence can complicate the management of established asthma. Similarly, asthma itself is increasingly recognised as a precursor to COPD in some patients, particularly those with non-allergic phenotypes or exposure to environmental irritants.

Understanding the shared inflammatory pathways is essential for patient well-being. Both allergic rhinitis and asthma involve a type 2 inflammatory response, characterised by eosinophilic infiltration, mast cell activation, and elevated IgE levels. Cytokines such as IL-4, IL-5, and IL-13 play central roles in driving this inflammation. In contrast, COPD is typically associated with a type 1 inflammatory response, involving neutrophils, macrophages, and cytotoxic T lymphocytes, driven by cytokines like TNF-alpha and IL-8. But the lines blur; a significant subset of COPD patients exhibits eosinophilic inflammation, responding to therapies traditionally reserved for asthma. This overlap highlights the need for a holistic view of airway disease, moving beyond rigid diagnostic silos.

The Relationship of Inflammation and Symptoms

Allergic rhinitis, affecting up to 30% of the adult population, is a chronic inflammatory condition of the nasal mucosa. Symptoms include sneezing, rhinorrhea, nasal congestion, and pruritus. The inflammation, driven by allergen

exposure, can extend beyond the nose. Postnasal drip from rhinitis can irritate the lower airways, triggering cough and bronchoconstriction. Nasal obstruction forces mouth breathing, bypassing the natural filtration and humidification functions of the nose, leading to drier, colder air reaching the lungs, which can exacerbate asthma symptoms. This direct link explains why uncontrolled rhinitis often correlates with poorer asthma control, increased asthma exacerbations, and a reduced quality of life.

Asthma, a chronic inflammatory disorder of the airways, manifests with variable airflow obstruction, bronchial hyperresponsiveness, and respiratory symptoms like wheezing, shortness of breath, chest tightness, and cough. Its prevalence is substantial, affecting millions across Europe. The inflammatory cascade in asthma, while primarily focused on the lower airways, is intimately linked to upper airway health. Treating rhinitis in asthma patients has been shown to improve asthma control, reduce medication needs, and decrease exacerbation rates. This is not a coincidence; it is a direct consequence of the unified airway principle. Clinicians managing asthma should therefore always inquire about and address rhinitis symptoms, as outlined in major asthma guidelines.

COPD, a progressive and largely irreversible airflow limitation, is primarily caused by exposure to noxious particles or gases, most commonly cigarette smoke. But the narrative is evolving. While historically distinct from asthma, a significant proportion of COPD patients have features of both, a condition sometimes termed Asthma-COPD Overlap (ACO). These patients often have a history of asthma or atopy, exhibit eosinophilic inflammation, and may respond better to inhaled corticosteroids than typical COPD patients. The presence of rhinitis in COPD patients is also common, contributing to symptom burden and potentially exacerbating lower airway inflammation. This complex relationship highlights the inadequacy of treating these conditions in isolation.

Diagnostic Challenges and Clinical Assessment

Diagnosing these comorbid conditions requires a comprehensive approach. For rhinitis, a detailed history of symptoms, triggers, and seasonal patterns is essential. Skin prick tests or specific IgE blood tests can confirm allergic sensitisation. For asthma, spirometry demonstrating reversible airflow obstruction is the cornerstone of diagnosis, often supported by bronchial provocation tests. COPD diagnosis relies on post-bronchodilator spirometry showing persistent airflow limitation (FEV1/FVC ratio <0.70). But the challenge lies in identifying the overlap and understanding the dominant inflammatory phenotype.

A patient presenting with chronic cough, for example, might have asthma, rhinitis with postnasal drip, or even early COPD. A thorough clinical history, including environmental exposures, smoking status, and family history of atopy, is paramount. Physical examination should include assessment of the nasal passages for signs of inflammation, polyps, or septal deviation. Auscultation of the chest can reveal wheezing or crackles, but normal findings do not rule out significant airway disease. The watchful waiting approach in acute otitis media, for instance, highlights the importance of careful clinical assessment before intervention, a principle that extends to chronic airway conditions.

The current standard of care for allergic rhinitis often involves intranasal corticosteroids, antihistamines, and allergen immunotherapy. For asthma, inhaled corticosteroids (ICS) are the mainstay, often combined with long-acting beta-agonists (LABA). Leukotriene receptor antagonists and biologics target specific inflammatory pathways in severe asthma. COPD management focuses on bronchodilators (LABA, LAMA), with ICS added for patients with frequent exacerbations or eosinophilic features. But these guidelines, while robust for individual diseases, often do not fully integrate the management of comorbidities. This creates a gap in care that clinicians must actively bridge.

Integrated Management Strategies

An integrated approach to airway disease management means treating the entire respiratory tract as a single organ. This begins with a thorough assessment of both upper and lower airway symptoms in every patient presenting with a chronic respiratory complaint. If a patient with asthma has uncontrolled rhinitis, addressing the rhinitis with intranasal corticosteroids or antihistamines can significantly improve asthma control, potentially reducing the need for higher doses of inhaled asthma medications. Similarly, in patients with COPD and significant allergic rhinitis, managing the rhinitis can alleviate symptoms and improve overall respiratory function.

The choice of therapy should consider the shared inflammatory pathways. For instance, in patients with ACO, where both asthma and COPD features are present, therapies that target eosinophilic inflammation, such as inhaled corticosteroids, may be particularly beneficial. The rethinking of first-line targeted therapy in ALK+ NSCLC demonstrates how evolving understanding of disease mechanisms can shift treatment paradigms; a similar evolution is needed in integrated airway management. Clinicians should also consider the impact of environmental factors and lifestyle modifications. Smoking cessation is paramount for COPD patients and beneficial for asthma, while allergen avoidance is essential for allergic rhinitis and allergic asthma. Education on proper inhaler technique and adherence to medication regimens remains a cornerstone of effective management across all three conditions.

Still, challenges remain. The heterogeneity of these diseases, particularly COPD, means that a one-size-fits-all approach is insufficient. Phenotyping patients based on inflammatory markers, such as blood eosinophil counts, can help guide therapy, especially in distinguishing between eosinophilic and non-eosinophilic inflammation. The role of biologics, currently approved for severe asthma and some forms of chronic rhinosinusitis with nasal polyps, may expand to address specific inflammatory endotypes in COPD or ACO. But the cost and accessibility of these advanced therapies remain

significant barriers for many healthcare systems.

The open-label design of many observational studies on comorbidity is an obvious caveat, as is the reliance on patient-reported outcomes which can be subjective. Large, prospective, randomised controlled trials specifically designed to evaluate integrated management strategies across rhinitis, asthma, and COPD are scarce. Most evidence for integrated care comes from post-hoc analyses or studies focused on two of the three conditions. This gap matters. The evidence base for truly unified treatment algorithms needs strengthening. For a quick reference on general medical conditions, the Oxford Handbook of Clinical Medicine (11th ed) provides concise guidance, but the specific nuances of integrated airway management often require deeper dives into specialty guidelines.

The long-term implications of untreated or poorly managed comorbidities are substantial. Uncontrolled rhinitis can lead to chronic sinusitis, sleep disturbances, and reduced productivity. Poorly controlled asthma increases the risk of exacerbations, hospitalisations, and irreversible airway remodelling. COPD progression leads to increasing dyspnoea, reduced exercise capacity, and a higher mortality rate. When these conditions coexist, the cumulative burden on patients is amplified. This highlights the urgency of adopting a unified airway perspective in clinical practice.

Future Directions in Airway Management

Future research needs to focus on identifying biomarkers that can predict response to integrated therapies and stratify patients into more precise endotypes. Genetic predispositions, microbiome interactions, and environmental exposures all contribute to the complex pathogenesis of these conditions. Understanding these factors will enable the development of personalised medicine approaches that target the specific inflammatory drivers in each patient, rather than relying on broad therapeutic categories. This is particularly relevant given the increasing understanding of how microbial environments influence health, extending beyond the gut to the respiratory tract.

The development of single inhaler triple therapies for COPD, combining ICS, LABA, and LAMA, represents a step towards integrated management for lower airway disease. But the challenge remains in extending this integration to the upper airway. Could future therapies target common inflammatory pathways across the entire respiratory tract? The development of novel anti-inflammatory agents or biologics that modulate shared immune responses could offer a more streamlined approach. But for now, clinicians must rely on careful assessment and judicious use of existing therapies, applied with a unified airway perspective.

CLINICAL IMPLICATIONS

The persistent segregation of rhinitis, asthma, and COPD into distinct clinical domains is no longer tenable. Clinicians who continue to treat these conditions in isolation are missing significant opportunities to improve patient outcomes. The evidence for comorbidity is overwhelming, and the impact of one condition on another is well-documented. Ignoring a patient's rhinitis when managing their asthma is akin to treating heart failure without addressing hypertension; it is a fundamental oversight.

GPs and specialists alike must adopt a more holistic approach. This means routinely asking about upper airway symptoms in patients with lower airway disease, and vice-versa. A simple nasal symptom questionnaire can be invaluable. Integrating treatment plans, such as ensuring intranasal corticosteroids are prescribed and adhered to in asthma patients with rhinitis, should become standard practice. This proactive approach can reduce exacerbations, improve symptom control, and ultimately lessen the burden on healthcare systems.

The pharmaceutical industry, too, needs to catch up. While combination inhalers for lower airway disease are common, there is a distinct lack of integrated solutions that address both upper and lower airways simultaneously. Developing therapies that target shared inflammatory pathways across the entire respiratory tract could simplify regimens and improve adherence. Until then, clinicians must piece together effective strategies from existing treatments, guided by a comprehensive understanding of the unified airway.

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