

Preface



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Guest Editor

Rhinosinusitis is a significant and increasing health problem that results in a large financial burden on society. Rhinitis and sinusitis usually coexist and are concurrent in most individuals; thus, the correct terminology is now rhinosinusitis. Rhinosinusitis (including nasal polyps) is defined as inflammation of the nose and the paranasal sinuses characterized by nasal blockage, nasal discharge (anterior/posterior nasal drip), facial pain/pressure, or reduction or loss of smell, and endoscopic signs of polyps or mucopurulent discharge primarily from middle meatus, edema/mucosal obstruction primarily in middle meatus, or CT changes showing mucosal changes within the ostiomeatal complex or sinuses.

The past decade has made it clear that chronic rhinosinusitis (CRS) is not an infectious disease but that the pathophysiology is multifactorial. The exact pathophysiology is far from clear but in recent years different investigators have pointed to the small role of anatomic abnormalities and the large role of inflammation. Different causes of inflammation have been explored, such as allergy, inflammatory response to fungal or bacterial elements, disorders in the immunity of patients, aspirin, and the role of biofilms. In accordance with the limited role of blocked ostia as the primary cause of the disease, the focus of treatment has changed from sinus surgery to medical treatment of inflammation, leaving surgery as the last resort.

In this issue of the *Immunology and Allergy Clinics of North America*, authorities in the field give their views on current understanding of the causes of CRS and its management. CRS is increasingly thought to be inflammatory. Kees van Drunen focuses on current understanding of the cellular makeup of the inflammatory influx in CRS in relationship to the different expression forms of CRS. Traditionally, research focused on the role of eosinophils in the pathogenic mechanisms but recently more attention has been given to neutrophils and to different T-lymphocyte subtypes. His article summarizes current understanding and discusses opportunities and potential pitfalls related to inflammation-related research. Not only influx of inflammatory cells but also the role of more residential cells of the nasal mucosa is of increased interest. Noam Cohen and colleagues focus on the important role of the mucociliary clearance

in the primary innate defense of the nasal and sinus mucosa and how the mucociliary components function and their impairment may contribute to the development and progression of CRS.

Although it is increasingly clear that bacterial infection in itself is not the cause of CRS, infection in the form of biofilm may have an important role in the maintenance of the recalcitrant inflammation. Shaun Kilty and Martin Desrosiers put forward that biofilm disease has a central role in dictating the clinical manifestations of the disease while also accounting for its recurrent nature. This suggests that the development of rapid clinical tests that facilitate diagnosis are a prerequisite for effective eradication or control of the biofilm-forming bacteria by the production of efficacious and safe topical treatment.

There several potential deficits in the innate and potentially acquired immunity of CRS patients that might reduce or change their ability to react to fungi. Although persuasively promoted in the past decade, there are not many arguments to suggest a causative role for fungi in CRS with or without nasal polyps. Due to the intrinsic or induced change in immunity of CRS patients, however, fungi may have a disease-modifying role. The inability to reduce symptoms and signs of CRS inflammation by antifungal treatment, however, moderates enthusiasm for putting a great deal of effort into further unraveling this role.

Lutger Klimek and Oliver Pfaar focus on the potential role of aspirin intolerance and the potential of aspirin desensitization to alter the course of the disease. They maintain that desensitization reduces the growth and recurrence rate of nasal polyps in aspirin-sensitive patients over a longer time period, offering further suggestions for treating patients with CRS with nasal polyps.

For many years corticosteroids have been the workhorse of CRS treatment. Joachim Mullol and colleagues summarize the mechanism of action, pharmacology, and clinical relevance of corticosteroids in the treatment of CRS with and without nasal polyps.

Richard Harvey and Valerie Lund discuss the rationale and evidence for use of macrolides in the treatment of CRS. They argue that the suppression of neutrophilic inflammation of the airways has been demonstrated, as the most robust immunomodulatory response of macrolides and eosinophilic-dominated CRS is unlikely to respond based on current research understanding and data from clinical trials. Larger clinical trials are needed, preferably combined with studies of the inflammatory process in the same patients to further elucidate the role of macrolides in CRS.

In some patients, CRS can be extremely recalcitrant, driving doctors and patients to despair. Berrylin Ferguson and colleagues offer suggestions for differential diagnosis and treatment options when intranasal and systemic antibiotics, corticosteroids, and endoscopic sinus surgery fail. They propose several additional interventions that can be tried in patients with recalcitrant CRS, although evidence of their efficacy (in the total CRS population) is usually lacking. They emphasize the importance of using these interventions initially separately, to assess individual patient response to therapy.

As emphasized by various investigators in this issue, not all patients with CRS are the same. This is especially true for children with CRS. Neil Bhattacharyya and colleagues emphasize that in children, CRS is a common problem that has a severe impact on quality of life. They reason that the controversy that exists in the management of CRS in children mirrors the controversy in adults. Even more than in adults, however, surgical intervention should only be considered for children when “maximal medical therapy” fails.

Finally, Peter Hellings and Greet Hens highlight the importance of the global airway concept in CRS. They propose that the full appreciation of involvement of upper and

lower airway disease in one patient can only be executed in a multidisciplinary clinical setting, involving doctors able to examine and interpret clinical abnormalities of upper and lower airways.

Knowledge of the pathophysiology and management of CRS has increased enormously in the past decade. As much as has been learned, however, we are still often blissfully ignorant. I hope this issue will stimulate thoughts, discussions, and research for the benefit of patients.

To be conscience that you are ignorant is a great step to knowledge.

-Benjamin Disraeli (1804–1881).

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