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The changing paradigm for cystic fibrosis in rhinology

I would like to welcome you to the August issue of Rhinology. In the latest issue of Rhinology, you will find high quality articles spanning the entire breadth of the field of rhinology. From studies on inflammatory sinus disease to skull base pathology, from medical to surgical treatments, every reader is sure to find studies of interest and applicability to their practice. For the focus of this editorial, I highlight for the reader the article by Le Bon et al., which describes the case of a patient with cystic fibrosis (CF) and chronic rhinosinusitis (CRS) with nasal polyps in whom concomitant NSAID-exacerbated respiratory disease (NERD) was uncovered after the initiation of triple combination CFTR modulatory therapy with elexacaftor-tezacaftor-ivacaftor (ETI).

Since the development of highly effective modulator therapies (HEMT) targeting CFTR, the gene responsible for CF, great strides have been taken towards improving the clinical outcomes of CF patients. In the realm of otolaryngic care, nowhere has this been more apparent than in the rhinologic domain. Historic descriptions of rhinologic outcomes in CF have described high - up to 100% - prevalence of CRS [1], with severe sinonasal manifestations and symptomatology that not only significantly decreased quality of life (QOL) but also negatively impacted lower airway outcomes [2]. While endoscopic sinus surgery (ESS) has been shown to be effective for medically recalcitrant CRS in CF patients [3], it was not uncommon for CF patients with CRS to require multiple ESS even during childhood [1]. Although candidacy for HEMT is dependent on patients' individual CFTR mutations, the rapid proliferation of access to these medications - particularly ETI - over the last 5 years has led a stunning positive improvement in sinonasal (in addition to body-wide) clinical outcomes for CF patients who have been eligible for them. Treatment of CF patients with HEMT has been shown to significantly improve sinonasal outcomes including symptom severity, CRS-specific QOL and endoscopic burden of disease [4,5]. Many CF patients receiving HEMT are living with well controlled, or non-existent, CFTR-mediated sinus disease. However, HEMT is not a cure-all for inflammatory sinus disease in CF patients as evidenced by observations that even these treated CF patients may experience persistent sinonasal symptom and clinical (e.g. endoscopic or radiographic) signs of CRS, and still need ESS [3,6].

While HEMT may not prevent all sinonasal manifestations of CF in all patients with CF, we must also change our paradigm for how we approach sinonasal symptoms and sinus disease in patients with CF who are on HEMT. In comparison to the CF-specific phenotype of sinus disease that we have been classically trained to identify and expect, it must be recognized that CF patients may have or develop the same primary sinonasal disorders as anyone else. CF patients may develop environmental allergies [7,8]. CF patients may develop primary diffuse CRS, including NERD as Le Bon et al. very nicely illustrate as the first description in the scientific literature. While our field rejoices at the dramatic improvement in QOL and overall outcomes that our CF patients are experiencing in the era of HEMT, we must also consider (and teach) the evolving paradigm for identifying and treating rhinologic disease in CF.

Ahmad R. Sedaghat
Associate Editor
Cincinnati, OH, USA

References

1. Chaaban MR, Kejner A, Rowe SM, Woodworth BA. Cystic fibrosis chronic rhinosinusitis: a comprehensive review. Am J Rhinol Allergy 2013; 27:387-395.
2. Wang C, Johnson R, Horani S, Brown C, Mitchell R, Shah G. Chronic rhinosinusitis and endoscopic sinus surgery in children admitted for pulmonary exacerbations of cystic fibrosis. Int J Ped Otorhinolaryngol 2021; 140.
3. Devabalan Y, Towning R, Magill J, Saleh H, Rennie C. Clinical outcomes of functional endoscopic sinus surgery in cystic fibrosis patients - a single centre experience. Rhinology 2024; 62:597-602.
4. Uyttebroek S, Claeyssens C, Jorissen M, Dupont L, Van Gerven L. Dual and triple modulator therapy for chronic rhinosinusitis in cystic fibrosis patients. Rhinology 2024; 62:457-465.
5. Stapleton AL, Kimple AJ, Goralski JLet al. Elexacaftor-Tezacaftor- Ivacaftor improves sinonasal outcomes in cystic fibrosis. J Cyst Fibros 2022; 21:792-799.
6. Tagliati C, Lanni G, Battista D, Pantano S, Ripani P. Triple combination CFTR modulator therapy reduces the need for endoscopic sinus surgery in adult patients with cystic fibrosis. Clin Otolaryngol 2024; 49:243-246.
7. Collaco JM, Morrow CB, Green DM, Cutting GR, Mogayzel PJ, Jr. Environmental allergies and respiratory morbidities in cystic fibrosis. Pediatr Pulmonol 2013; 48:857-864.
8. Sedaghat AR, Phipatanakul W, Cunningham MJ. Prevalence of and associations with allergic rhinitis in children with chronic rhinosinusitis. Int J Pediatr Otorhinolaryngol 2014; 78:343-347.