

Can a postnasal drip can be aspirated into the lungs?

In this issue of the *International Forum of Allergy & Rhinology (IFAR)*, 2 important articles^{1,2} address the hypothesis that sinonasal secretions can be aspirated during sleep. I have always accepted the concept that severe sinonasal disease has a direct effect on the health of the lungs. We see this in patients with asthma and chronic sinusitis once the chronic rhinosinusitis (CRS) is brought under control; the asthma control improves, and the frequency of chest infections decreases. However, I have always struggled with the reasons as to why this should be the case. Secretions



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that move down the nasopharynx into the oropharynx should be swallowed, and as long as the protective mechanisms of the upper airway are competent these secretions should not enter the larynx or airway. The articles by Nelson et al.¹ and Choi et al.² address this important issue. Nelson et al.¹ is a vitally important article which finally scientifically confirms that this aspiration does occur in the recumbent position. In this excellent study, Nelson et al.¹ placed radioisotope on the nasal mucosa and then put both control and cystic fibrosis patients in the recumbent position for 8 hours while the radioisotope activity was monitored. This showed conclusive evidence of aspiration of the nasal mucous, which was seen more often in the cystic fibrosis patients than in the control group. This article, along with the Choi et al.² article showing that in cystic fibrosis patients where sinus and lung cultures were done pretransplant and posttransplant the posttransplant lungs were colonized with similar bacteria to those seen in the sinuses despite perioperative culture-directed antibiotics, emphasize the importance of treating the sinuses in the presence of lung disease and should persuade rhinologists to be more aggressive in managing the sinuses, especially in cystic fibrosis patients, but also in patients with bronchiectasis and asthma.

Two articles by Mady et al.^{3,4} address the important question as to whether air pollution plays a role in aggravation of symptoms and in CRS disease progression. It has long been thought that air pollution, like smoking, may affect CRS patients. These 2 articles show that air pollution as measured by levels of particulate matter both

increase symptoms as well as contribute to the need for surgery in patients with CRS. These effects are thought to be caused by the inflammatory effects of particulate matter in air pollution. The particulate matter creates inflammation by forming reactive oxygen species. This proinflammatory activity of particulate matter found in air pollution is well documented in lower airway disease but not in CRS. There has been an increased focus on the role of bacteria in CRS. In the article by Hoggard et al.,⁵ an interesting question is asked: can the microbiome

and alterations seen in the microbiomes seen in chronic sinusitis affect neural pathways and neural signaling and potentially cause or aggravate depression? While there were some associations seen in this article, there still remains a great deal of work to be done to confirm or refute the very interesting hypothesis put forward in the article. In the article by Zhang et al.⁶ alternatives to antibiotics are tested because there is a very real threat of increasing bacterial resistance to our commonly used antibiotics in all our patients, but particularly in our recalcitrant CRS group. This article addresses the effectivity of bacteriophages (viruses that specifically target only bacteria) in multidrug-resistant bacteria. Development of alternative treatment options for CRS infections is vitally important as the development of new antibiotics has slowed significantly and we are now faced with the very real problem of not having antibiotics that we can use to which the bacteria are sensitive.

Over the past few years there has been increasing interest in the role of steroid-eluting dressings placed at the time of sinus surgery. It has been thought that the steroid decreases inflammation and that this has a positive effect on the healing of the sinuses after surgery. In the article by Ha et al.⁷ the improvement seen in the ostial size in the chitosan gel plus steroid arm adds to this evidence base.

The existence of the empty nose syndrome has long been debated and the article by Chengyu et al.⁸ puts good scientific evidence into the possible reasons that patients with a widely patent nasal cavity feel that their nose is still congested. The more science we can put to this syndrome the better it will be understood, and this will result in the best scientifically based management decisions for this difficult to treat patient group.

As more data becomes available, the role of endoscopic vs open surgery for sinonasal malignancies is now scientifically supported. In the article by Kılıç et al.,⁹ the outcomes for sinonasal squamous carcinoma when addressed

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endoscopically as compared to with the traditional open approach are presented. This results reinforces the important role of endoscopic surgery for the treatment of sinonasal malignancy. This issue of IFAR answers some important questions and gives direction to the management of the

sinuses in chronic lung disease patients and is an important contribution to our rhinology literature.

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