Chronic rhinosinusitis is among the most common chronic diseases. It presents a major financial burden to the health care system [1], not to mention the burden of personal suffering and morbidity to the patient with debilitating chronic rhinosinusitis.

Chronic rhinosinusitis is not a uniform entity, and its clinical presentations and etiologies may vary. Environmental factors predispose patients to chronic rhinosinusitis, but allergens for allergic patients or other environmental irritants may be ill defined. Chronic rhinosinusitis may present with nasal polyposis that sometimes occurs in conjunction with asthma and aspirin insensitivity. Traditionally, the disease is classified as chronic rhinosinusitis either with or without polyposis, a distinction that may reflect differences in the cytokines between the 2 conditions. However, the difference between these 2 may not always be clinically obvious because some patients present with polyloid thickening of the mucosa in the middle nasal meatus without obvious nasal polyps. Chronic rhinosinusitis may also occur with comorbidities other than allergy and asthma, such as immune deficiencies and disorders of the mucociliary clearance.

Because of the variability of the etiology of chronic rhinosinusitis, it is challenging to define. The American Academy of Otolaryngology—Head and Neck Surgery published in 2007 a clinical practice guideline that defines chronic rhinosinusitis by clinical signs, symptoms, and objective findings [2]. According to the guideline, chronic rhinosinusitis is defined by having for 12 weeks or longer ≥2 of the following signs and symptoms: (1) mucopurulent drainage (anterior, posterior, or both); (2) nasal obstruction (congestion); (3) facial pain, pressure, or fullness; or (4) decreased sense of smell. In addition, objective findings of nasal inflammation are needed for the diagnosis. These are ≥1 of the following: (1) purulent (not clear) mucus or edema in the middle meatus or ethmoid region, (2) polyps in the nasal cavity or the middle meatus, or (3) radiographic imaging showing inflammation of the paranasal sinuses. In an office setting, the first 2 findings can be evaluated by nasal endoscopy.

The preceding definition of chronic rhinosinusitis requires neither a microbiologic diagnosis nor the isolation of a pathogen in the nasal sinuses. For example, at present it is often unknown in a given patient whether nasal polyposis is actually triggered by a microbe, microbial superantigen, or an environmental agent, or whether there is any foreign triggering agent in the first place. Nevertheless, chronic rhinosinusitis may involve biofilm formation that is accompanied by acute exacerbations of sinus infection [3].

The cornerstones of treatment of chronic rhinosinusitis are relief of inflammation of the nasal mucosa, facilitation of drainage of secretions, and if possible, restoration of mucociliary clearance within the sinuses [4]. The rationale in relieving inflammation is to reduce swelling of the mucosa, which may then open obstructed sinus cavities and improve drainage. Topical corticosteroids are widely used for this purpose. Short courses of oral steroids are used to reduce the size of nasal polyps and in selected cases to relieve overt inflammation in the nasal mucosa.

Saline nasal irrigation is also widely used in patients with chronic rhinosinusitis [5]. Self-administered saline irrigation helps to remove crusts, mucus, and irritants. Many patients report that saline irrigation improves their symptoms. It follows that an ideal treatment for a biofilm disease would be to remove the biofilm mechanically, which could at least to some extent be accomplished by saline irrigation.

Endoscopic sinus surgery is reserved for patients who fail to benefit from medical therapy. Here again the aim is often to improve drainage from the nasal sinuses. A common reason for surgery is to remove nasal polyps that do not respond to medical therapy.

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In this issue of Clinical Infectious Diseases, Ferguson et al present an observational study of patients with suspected chronic rhinosinusitis and the use of antibiotics [6]. They enrolled 125 consecutive patients with at least 2 of the following symptoms of chronic rhinosinusitis: nasal congestion, nasal discharge, or facial pain for 12 weeks. Objective evidence of chronic rhinosinusitis was evaluated by endoscopy and computed tomographic (CT) scans of sinuses.

Radiographic evidence of sinusitis was observed in 75 patients, and 50 patients had normal CT scans. Decreased sense of smell and discolored nasal drainage were reported more often in patients with positive CT scans, whereas headache, facial pain, and sleep disturbance were reported more often in patients with negative CT scans. Endoscopic mucopurulence was observed in 18 patients, each with a positive CT scan. Of the bacterial cultures, bacteria typically encountered in acute sinusitis, namely, Strep-tococcus pneumoniae, Haemophilus influenzae, Moraxella catarrhalis, or Strep-tococcus pyogenes, was found in only 5 patients. Other bacteria isolated included coagulase-positive and coagulase-negative Staphylococci as well as Gram-negative bacilli, including Escherichia coli, Enterobacter, and Pseudomonas. Investigators queried patients on antibiotic use and improvement of symptoms on antibiotics during the preceding year. The results of the query were similar among patients with a positive CT scan and among patients with a negative CT scan.

Although the study was observational, the report raises some important issues. First, the diagnosis of chronic rhinosinusitis cannot be made reliably by patient symptoms alone. Of the 125 patients, only 75 (60%) showed objective findings of chronic rhinosinusitis. The remaining patients did not seem to have chronic rhinosinusitis at all and may have suffered from atypical facial pain or migraine. This would imply that treatment of chronic rhinosinusitis as diagnosed by symptoms alone would lead to unnecessary antibiotic treatments. Second, there seemed to be no difference in the improvement of symptoms between patients with chronic rhinosinusitis (positive CT scan) versus patients who showed no objective findings of chronic rhinosinusitis. Although these data were obtained retrospectively and may be prone to error, they may imply that empirical antibiotic courses in chronic rhinosinusitis may be relatively inefficient in improving symptoms.

Evidence favoring long-term antibiotic treatments in chronic rhinosinusitis is sparse. In a recent Cochrane review, only 1 study found that a prolonged antibiotic treatment could reduce symptoms in patients with chronic rhinosinusitis without polyposis [7]. In that study, roxithromycin reduced the mean response score of patients relatively modestly, by 0.73 point on a 1- to 6-point scale, at 3 months after the start of treatment, but comparisons of sinonasal-outcome-test results from pretreatment and posttreatment at 24 weeks showed that the roxithromycin group fared no better than the placebo group. Thus, routine long courses of antibiotics in patients with chronic rhinosinusitis are not warranted, especially as the current definition of chronic rhinosinusitis encompasses disease entities that may not be infectious diseases.

The authors recommend a moratorium on the apparently widespread practice of prolonged courses of empiric antibiotics in patients with presumed chronic rhinosinusitis. Short-term courses of antibiotics may be reserved for acute exacerbations of the disease when purulence is identified, a practice recommendation shared by other authors [4]. This report emphasizes the importance of making the correct diagnosis before administering treatment, a universal but regrettably too often forgotten rule in medical practice.

Note
Potential conflicts of interest. Author certifies no potential conflicts of interest.

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