"Sinus" Headaches

Sinusitis Versus Migraine

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KEYWORDS

• Sinusitis • Rhinosinusitis • Sinus pain • Sinus headache • Facial pain • Migraine • Trigeminocervical complex

KEY POINTS

- Viruses, not bacteria, are by far the most common cause of acute rhinosinusitis, accounting for most (90%–98%) acute sinus infections.
- There is significant overlap between viral and acute bacterial rhinosinusitis (ABRS), and chronic rhinosinusitis (CRS) and migraine.
- Antibiotics should not be used unless IDSA criteria for ABRS are met; topical steroid nasal sprays and nasal saline irrigations are the mainstay of CRS treatment; triptans should be considered when migraine is suspected.
- Sinus CT scans are helpful if patients are not getting better, or if symptoms continue to recur; however, "sinus" migraine and sinus disease can be comorbid conditions.
- Migraine should be strongly considered in patients with chronic and recurrent "sinus" headache who complain of sinus pain/pressure and nasal congestion, especially when other findings (eg, endoscopy, CT) are lacking or symptoms do not improve with traditional sinus modalities.

"SINUS" AS A PRIMARY COMPLAINT

"Sinus" is a vexing problem for family medicine and otolaryngology practitioners alike. Approximately 30 million people per year annually for the past decade are affected with sinus symptoms in the United States.[1,2] This ranks sinusitis as one of the nation's top five most common health care complaints according to the Mayo Clinic Proceedings,[3] with a direct annual health care cost of $6.9 to 9.9 billion that stems mainly from ambulatory and emergency department services.[4] Annual medication costs for sinusitis were estimated at between $1547 and $2700 USD per patient,[5] with more than one in five antibiotics prescribed in adults for sinusitis, making it one of the top five most

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common diagnosis for which an antibiotic is prescribed.[5,6] In addition, estimates for a total annual economic burden range between $22 billion and $64.5 billion USD.[4,5]

Most sinusitis (90%–98%) is caused by the same viruses associated with acute nasopharyngitis (common cold) and acute bronchitis.[2,7] Only 0.5% to 2% of healthy adults and 5% of healthy children develop bacterial superinfections.[7,8] Regardless of the low incidence of true bacterial involvement, and despite the fact that placebo-controlled trials have demonstrated greater than 70% of patients diagnosed with sinusitis show improvement when given placebo,[9] antibiotics are still prescribed at rates upwards of 81% for these patients.[10] To complicate matters further, there is a growing body of evidence that a significant portion of patients with sinus pain/pressure and nasal congestion may have underlying migraine rather than infection as the cause of their symptoms.

SYMPTOMS OF "SINUS" AND DIAGNOSTIC CRITERIA FOR ACUTE BACTERIAL RHINOSINUSITIS

The diagnosis of acute bacterial rhinosinusitis (ABRS) is based on the presence of specific clinical criteria (**Box 1**)[7]; however, these symptoms do not differentiate bacterial from viral sinusitis.[7,11] It is nearly impossible to determine viral infection versus bacterial infection based on clinic symptoms, because of the similar symptomology. Multiple, identical upper respiratory symptoms are associated with both viral and bacterial sinusitis: purulent nasal secretions, maxillary sinus pain, maxillary tooth pain (which is actually uncommon with sinusitis), hyposmia/anosmia, and worsening symptomology after initial improvement form the "short list" of signs and symptoms with some "predictive value," but even these are not an accurate predictor of bacterial involvement.[9]

SYMPTOMS OF "SINUS" AND DIAGNOSTIC CRITERIA FOR CHRONIC RHINOSINUSITIS

The symptoms associated with chronic rhinosinusitis (CRS; sinus symptoms lasting for greater than 12 weeks) are usually the same as the symptoms associated with ABRS.[12] Although CRS symptoms tend to be milder than those of ABRS and may manifest as a single symptom (eg, hyposmia or anosmia), the most common and important symptoms when formulating a differential diagnosis are headache, facial pain/pressure, nasal obstruction, and rhinorrhea.[12]

To confuse and complicate diagnosis and treatment further, many of the same symptoms associated with sinusitis (other than fever) are also associated with sinus headache, making differentiation even more difficult (**Table 1**).[12,13] Additionally,

Box 1
Infectious Disease Society of America criteria for ABRS

- Any one of the following clinical symptoms
  - Onset with persistent symptoms or signs compatible with acute rhinosinusitis, lasting for ≥10 days without any evidence of clinical improvement;
  - Onset with severe symptoms or signs of high fever (≥39°C [102°F]) and purulent nasal discharge or facial pain lasting for at least 3 to 4 consecutive days at the beginning of illness;
  - Onset with worsening symptoms or signs characterized by the new onset of fever, headache, or increase in nasal discharge following a typical viral upper respiratory infection that lasted 5 to 6 days and were initially improving ("double-sickening").

From Chow AW, Benninger MS, Brook I, et al. IDSA clinical practice guideline for acute bacterial rhinosinusitis in children and adults. Clin Infect Dis 2012;54(8):e72–112.

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