

Principles of Appropriate Antibiotic Use for Treatment of Nonspecific Upper Respiratory Tract Infections in Adults

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The number of antibiotic-resistant organisms has increased in the past decade. The causes for this phenomenon include widespread use of antibiotics in agriculture, increased use of antibiotics in pediatric patients, and excessive use of antibiotics in adults. The majority of antibiotics prescribed to adults seen in U.S. ambulatory practice are for acute respiratory tract infections, in particular acute sinusitis; acute pharyngitis; acute bronchitis; and nonspecific upper respiratory tract infections, including the common cold. Because decreasing community use of antibiotics is an important strategy for combating the increase in community-acquired antibiotic-resistant infections, the American College of Physicians–American Society of Internal Medicine made this issue a priority for guideline development and physician education.

The four guidelines in this issue are based on a series of papers discussing the appropriate use of antibiotics in upper respiratory tract infections. The series, sponsored by the Centers for Disease Control and Prevention, was developed by a panel of physicians representing internal medicine, family medicine, emergency medicine, and infectious diseases. For more detailed information about the background and methods of development of these papers, please refer to “Principles of Appropriate Antibiotic Use for Acute Respiratory Tract Infections in Adults: Background, Specific Aims, and Methods” in this issue (see pages 479–486).

The goal of the guidelines and accompanying papers is to provide clinicians with practical strategies for limiting antibiotic use to the patients who are most likely to benefit from it. These guidelines are targeted to primary care physicians and subspecialists. They apply only to

immunocompetent adults with no important comorbid conditions, such as pulmonary or cardiac disease. The targeted clinical setting is outpatient practice, but the guidelines can also apply to residents of long-term care facilities (if they fit the patient inclusion criteria). Along with these guidelines, patient education on antibiotics and their use is fundamental to decreasing unnecessary prescriptions.

The urgency of limiting antibiotic use in ambulatory practice has been fueled by the epidemic increase in antibiotic-resistant *Streptococcus pneumoniae*. Special attention to antibiotic resistance profiles of *S. pneumoniae* is warranted, since this pathogen is the leading cause of community-acquired bacterial pneumonia, bacterial meningitis, bacterial sinusitis, and otitis media in the United States. Previous antibiotic use is the most important factor in carriage of and infection with antibiotic-resistant *S. pneumoniae*. Community-based studies have shown that the prevalence of antibiotic-resistant *S. pneumoniae* and group A streptococcus decreases in response to reductions in community use of antibiotics. Thus, beyond reducing costs for patients and payers and the risk for side effects (including anaphylaxis), decreasing antibiotic prescription in the community decreases antibiotic resistance in common pathogens.

Physicians have reported that unrealistic patient expectations, patient pressure to prescribe antibiotics, and insufficient time to educate patients about the inefficacy of antibiotics are some of the reasons why antibiotics are prescribed for upper respiratory tract infections. However, how patients present also appears to affect the decision to prescribe antibiotics. Patients who present with a predominant clinical feature, such as acute cough, are

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taken to have acute bronchitis; nasal and sinus symptoms are diagnosed as sinusitis; and acute sore throat is considered pharyngitis. Acute respiratory symptoms in the absence of a predominant symptom is typically diagnosed as “upper respiratory tract infection.” A study that used a standardized recording form for symptoms and physical examination findings concluded that clinicians identify and treat with antibiotics a subset of upper respiratory tract infections primarily characterized by the presence of purulent manifestations. Reported or observed purulent nasal discharge or production of green phlegm, presence of tonsillar exudates, and current tobacco use were independent predictors of antibiotic treatment of upper respiratory infection.

In this guideline, we present the evidence and make specific recommendations on how clinicians can differentiate upper respiratory tract infection as bacterial or viral in origin and whether use of antibiotics in this infection is beneficial. The numbers in square brackets are cross-references to the numbered sections in the accompanying background paper, “Principles of Appropriate Antibiotic Use for Treatment of Nonspecific Upper Respiratory Tract Infection in Adults: Background,” which is part 2 of this guideline (see pages 490-494).

NONSPECIFIC UPPER RESPIRATORY TRACT INFECTION

Diagnosis

The diagnosis of upper respiratory tract infection should be used to denote an acute infection in which sinus, pharyngeal, and lower airway symptoms, although frequently present, are not prominent. With rare exceptions, upper respiratory tract infections have a viral etiology. When symptoms are severe, and particularly when they are accompanied by muscle aches and fatigue, influenza and parainfluenza infections are the most common causes, whereas rhinoviruses predominate when symptoms are mild. Other important causes of upper respiratory tract infection in adults include adenovirus and respiratory syncytial virus. Most cases of uncomplicated upper respiratory tract infection in adults resolve spontaneously. The duration of illness typically is 1 to 2 weeks, and most patients feel much better within the first week. A small proportion of upper respiratory tract infections become complicated by bacterial sinusitis or pneumonia [1.1, 1.2].

Several factors may drive the clinician’s decision to

prescribe antibiotics for upper respiratory tract infection. The presence of purulent secretions may lead them to believe that the infection is bacterial in origin; they (or the patients) may believe that antibiotics will decrease the duration of symptoms; and they may seek to prevent complications.

Treatment

Seven randomized, placebo-controlled trials of antibiotic use in children and adults with upper respiratory tract infection show that antibiotic treatment did not affect resolution of illness or loss of work. Three trials involving only adult patients also showed no benefit of treating routine upper respiratory tract infections with antibiotics. Although purulent sputum or nasal discharge is often used by clinicians as an indicator of bacterial infection or a specific diagnosis, such as acute sinusitis or acute bronchitis, these signs are also common in uncomplicated upper respiratory tract infection. Placebo-controlled trials in patients with acute nasopharyngitis have found no difference in outcomes between patients with and those without purulent nasal discharge. Other studies have also failed to find a clinical benefit of antibiotic treatment of adults with cough who had purulent sputum. In pediatric trials, early antibiotic treatment of upper respiratory tract infection did not appear to prevent such complications as pneumonia and acute otitis media. No trials of the impact of antibiotic treatment on complication rates in adults have been published [2.1, 3.0].

Summary

In previously healthy adult patients, the diagnosis of nonspecific upper respiratory tract infection should be used to denote an acute infection in which sinus, pharyngeal, and lower airway symptoms, although frequently present, are not prominent. These infections are predominantly viral in origin, and complications are rare. Purulent secretions from the nares or throat in such patients predict neither bacterial infection nor benefit from antibiotic treatment. Antibiotic treatment of adults with nonspecific upper respiratory tract infections does not enhance resolution of illness or prevent complications.

RECOMMENDATIONS

Recommendation 1. The diagnosis of nonspecific upper respiratory tract infection should be used to denote an acute

infection in which sinus, pharyngeal, and lower airway symptoms, although frequently present, are not prominent. These infections are predominantly viral in origin, and complications are rare.

Recommendation 2. Antibiotics should not be used to treat nonspecific upper respiratory tract infections in previously healthy adults. Purulent secretions from the nares or throat do not predict bacterial infection or benefit from antibiotic treatment. Antibiotic treatment of adults with non-specific upper respiratory tract infections does not enhance illness resolution or prevent complications.

Note: Clinical practice guidelines are “guides” only and may not apply to all patients and all clinical situations. Thus, they are not intended to

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