CORRESPONDENCE

The Diagnosis and Treatment of Acute Cough in Adults

by Dr. med. Felix Holzinger, Dr. med. Sabine Beck, Dr. med. Lorena Dini, Christiane Stöter, PD Dr. med. Christoph Heintze in issue 20/2014

Limits for Antibiotic Treatment Set too Narrow

The authors are right to say that purely viral infections do not require antibiotic treatment (1). However, these are rare since secondary bacterial infections frequently occur. During my 45 years as a general practitioner I have noticed that almost all patients with common cold and coughing developed purulent yellow sputum over the course of the infection. Therefore, I believe Holzinger et al. (1) should have mentioned these frequently occurring secondary bacterial infections. The German *Pschyrembel Clinical Dictionary* (2) mentions as causes of acute bronchitis: „[...] a viral infection with myxoviruses, ECHO viruses, adenoviruses or rhinoviruses; while primary bacterial bronchitis is rather, secondary bacterial infection complicating an existing bronchitis is common (typically caused by *Streptococcus pneumoniae*, *Haemophilus influenzae*, *Moraxella catarrhalis*)“. Likewise, Herold et al. (3) describe purulent sputum as a sign of secondary bacterial superinfection and then bronchopneumonia as a complication of viral bronchitis.

In their article Holzinger et al. state, “Administration of antibiotics can be considered in individual patients with serious chronic diseases or immune deficiencies, because in such cases it is often difficult to rule out pneumonia“. I think that this recommendation is too restrictive. Since I know, also from surgery, that pyogenic pathogens are not viruses but bacteria, such as *Staphylococcus aureus*, among others, which can be treated with antibiotics (4), the following sentence (1) does not appear to be plausible: “Even in the case of bronchitis with yellow–green sputum or mild fever, the patients can be reassured that the infection is most likely viral, so antibiotic treatment is unnecessary.” The yellow–green sputum mentioned should therefore be regarded as a bacterial superinfection secondary to a viral infection, which I have always treated successfully with antibiotics in adult patients with common cold-associated bronchitis, thereby preventing bronchopneumonia as a complication.

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Prophylactic Vaccination

Unfortunately, vaccination to prevent pneumonia is not mentioned in the article (1). Its efficacy and indication remain unclear. Some European countries do not recommend this vaccination at all, for example Belgium, Denmark, Estonia, Finland, and Poland, or limited it to special risk situations, for example France, Italy, Monaco, and Norway (this selection is not comprehensive; for more detailed information see [2]).

We shall have to wait for the publication of the now completed Pfizer-sponsored CAPiTA study (see clinicaltrials.gov) on the efficacy of the 13-valent Prevanar vaccine in adults older than 65 years.

Still I would be grateful to hear the authors' opinion on this extremely important topic.

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In Reply:

Dr. Pries raises the topic of pneumococcal vaccination: Approximately 40–50% percent of cases of community-acquired pneumonia (CAP) are caused by *Streptococcus pneumoniae*. With regard to this vaccination, there is conflicting evidence. The available 23-valent polysaccharide vaccine appears to be capable of lowering the number of cases with invasive pneumococcal disease (IPD) among young healthy adults. Unfortunately, the preventative effect cannot be reliably demonstrated for elderly and chronically-ill patients. Likewise, the available evidence does not show that this vaccine prevents pneumonias in general (all-cause pneumonia) – at least not in high-income countries. Also, meta-analyses found no reduction in overall mortality (1, 2).

Its indication is a subject of international controversy. The Standing Committee on Immunization of the Robert Koch Institute (STIKO) has so far maintained its general recommendation of vaccinating individuals older than 60 years. With regard to the issue of revaccination, the available evidence from studies is also difficult: The effect of revaccination is generally weaker than that of the primary vaccination and often minor, especially among the elderly; marked local reactions have also been reported. Consequently, it is not currently possible to issue recommendations for or against pneumococcal vaccination. Dr. Pries is right to draw

our attention to ongoing studies. Here we would like to emphasize that the presented guideline is focused on the symptom “cough” and not on the comprehensive description of the various causative diseases. For CAP, a special S3 guideline is available. However, we will raise the issue again in our next update and address potentially available new evidence.

At the heart of the guideline, there is the recommendation to avoid any antibiotic treatment of uncomplicated upper respiratory tract infections which is not indicated. Concerning this, Dr. Feldmann notes that in most cases a bacterial superinfection is involved, recognizable by the presence of yellow-green sputum. However, this is not supported by epidemiological microbiological data: Although bacteria can indeed be detected in approximately 10–50% of patients with bronchitis (depending on the study), the marker “yellow sputum” is not a good predictor for bacterial involvement in cough associated with common cold (positive predictive value (PPV) = 16%—see the paper of Altiner et al. (2009) cited in our article). Here, the paradigm “pus = bacteria” does simply not apply.

But even more important is: Even if there is bacterial (co-) involvement with the bronchitis, the disease is typically harmless and self-limiting in otherwise healthy individuals. In cases with yellow sputum, the

outcome is by no means worse, even without antibiotic treatment; bronchitis does certainly not progress regularly to pneumonia (3). As explained in the guideline, the benefit in time (faster complete healing) resulting from antibiotic intervention is marginal (4) and does not justify the routine use of antibiotics.

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Conflict of interest statement

The authors of all contributions declare that no conflict of interest exists.