



EDITORIAL

Guidelines for the diagnoses and treatment of adult lower respiratory tract infections: a true “European cooperative effort”

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Throughout history, the diagnosis and treatment of lower respiratory tract infections (LRTIs) has been a “European cooperative effort”. Since the experiments of R. Koch, many scientists have identified the role of infectious agents, including bacteria, in these conditions and different alternative treatments required to combat them. In 1888, E. de Freudenreich isolated bacterial secretions and noted their inherent, antibacterial properties. Later, in 1896, E. Duchesne noted that certain penicillium moulds killed bacteria, findings that were later confirmed by A. Fleming. We all know the history that follows ..., but today we have new challenges to overcome.

In the current issue of the *European Respiratory Journal*, WOODHEAD *et al.* [1] present the guidelines of the European Respiratory Society (ERS) and European Society of Clinical Microbiology and Infectious Diseases (ESCMID), based on a systematic appraisal of the existing literature for diagnosis and management of adult LRTIs. These guidelines provide recommendations for the diagnosis and treatment of the three most common LRTIs: community-acquired pneumonia (CAP), acute exacerbations of chronic obstructive pulmonary disease (COPD; AECB) and exacerbations of bronchiectasis.

CAP remains a common, serious and potentially life-threatening disease, particularly in elderly patients and those subjects associated with risk factors for resistant pathogens [2, 3]. Multiple sets of CAP guidelines have been published in order to address the continued changes in the complexity of this disease, including those in prior versions of the ERS guidelines [4–9]. These guidelines help clinicians to stratify patients by risk factors, and provide a range of diagnostic and treatment options in the community, hospital wards or intensive care units. The implementation of CAP guidelines have resulted in a significant reduction in morbidity and mortality [10–15]; safely identified patients that can be treated as outpatients, resulting in decreased hospitalisations rates [16]; decreased the length of time a patient needs to stay in

hospital [17, 18]; and led to the significant improvement in the processes of care of this disease [19, 20]. The CAP guidelines have also outlined the lack of clinical evidence in certain areas. These observations stimulated ongoing clinical research in order to further clarify the interaction between pathogens, their resistance patterns, antibiotic treatment and other cost-effective therapies.

The ERS/ESCMID CAP guidelines are centred on the following main questions: how do I diagnose or identify CAP?; how should I treat my patient with CAP?; and how should I prevent CAP? The guidelines emphasise the necessity that clinicians identify other conditions frequently confused with LRTI, such as aspiration pneumonia, pulmonary embolism and even chronic airway disease. In order to differentiate pneumonia from other LRTIs, the patient should have the following clinical findings: acute onset of cough, dyspnoea, new focal chest signs, tachypnea, and fever >4 days, with the presence of an infiltrate on a chest radiograph. Patients with a LRTI are frequently seen in the primary care setting. Thus, the guidelines do not recommend outpatient testing for aetiological causes of LRTI. The recommendations for the early use of antimicrobial therapy, is based on the severity of illness; frequency of specific pathogens; local patterns of microbial resistance; and safety profile. The guidelines emphasise that since there is a strong probability of a viral aetiology, antibiotics should be withheld to reduce cost and simultaneously minimise the emergence of antibiotic-resistant bacterial strains in the community. However, the guidelines did not take into consideration the local formulary restriction that healthcare providers may encounter. There is also no mention of resistant patterns in areas of Eastern Europe or other regions that may influence bacterial resistance in the rest of the continent. Furthermore, these guidelines have identified significant weaknesses in the information available to make decisions related to hospitalisation, the switch from parenteral to oral therapy and the length of stay in hospital. All these parameters are influenced by local healthcare systems and generalised recommendations may be impossible to implement.

We applaud the committee’s decision not to limit these guidelines to CAP but also to include other LRTIs. In particular, the inclusion of AECB is a milestone for the recognition of this disease. Chronic bronchitis is complicated by recurrent episodes of acute exacerbations, which contribute to significant impairment in patient’s quality of life, and

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overall morbidity and mortality [21, 22]. This is a clinical condition that is associated with an unacceptable rate of relapse and clinical failures that contribute to hospitalisations and mortality [23, 24]. Although we believe that it is a mistake to separate the use of antibiotics from other therapeutic measures, such as corticosteroids and bronchodilators, this topic was recently reviewed by the ERS and American Thoracic Society [25] and was beyond the "infectious approach" of this publication.

These ERS/ESCMID guidelines address significant controversial points, mainly the role of infection and the usage of antimicrobials in AECB. AECB is known to be precipitated by both noninfectious and infectious conditions [26]. It is important that the clinician recognises that noninfectious causes of AECB may be due to a broad, differential diagnosis, including congestive heart failure, pulmonary embolism, seasonal allergies, etc. Infectious processes have focused on bacteria, primarily nontypable *Haemophilus influenzae*, *Moraxella catharrhalis* and *Streptococcus pneumoniae*, but we have to recognise that other pathogens, such as viruses [27] and *Chlamydophila pneumoniae*, can also be involved [28]. The clinical decision becomes more complicated when many of the pathogens are present in the patient's lower airway during stable conditions, and multiple pathogens may be present at the same time during an acute exacerbation of COPD. We currently lack the appropriate diagnostic tools to make this differentiation. Thus, the guidelines focus on treatment recommendations based on the "place of care" (patients not requiring hospitalisation or admittance to hospital) and the identification of clinical characteristics that are related to bacterial pathogens, mainly *Pseudomonas aeruginosa*.

Despite all the benefits of clinical guidelines outlined in this Editorial, practitioners have not fully used or embraced LRTI guidelines. Guidelines were never meant to be followed in 100% of cases; clinicians should rely simply on sound clinical judgment when dealing with specific cases. For example, other factors such as the patient's ability to care for themselves have to be considered. It is possible that clinicians do not use treatment guidelines because of "guideline fatigue". Traditionally, these publications are long documents, which need to be studied in-depth in order to extract critical information that could be useful in patient care. These ERS/ESCMID guidelines are presented in a question and answer format, with a comprehensive summary and pertinent literature references to support each statement. This format is easy to search, read and remember. Therefore, the apparent gap between evidence-based medicine and clinical-practice in LRTIs has been significantly closed by these guidelines.

The LRTI ERS/ESCMID guidelines are the net result of a rigorous, evidence-based review process; in this case the committee members reviewed over 4,000 publications! National and international effort will be necessary to bring clinical science into clinical practice. In addition the impact of these guidelines will depend on the enthusiasm with which they are disseminated, their incorporation into clinical practice and, more importantly the clinician access to the information at the bedside. Thus, it is imperative to have pocket versions and/or personal handheld computerised, electronic versions.

The ERS/ESCMID guideline development has to be a dynamic process, in which the mechanisms for frequent updates have to be in place. The ERS/ESCMID and their respective journals must take advantage of their electronic capabilities in order to facilitate this process. Furthermore, it is necessary to expedite the process of literature review. For example, in this publication, most of the latest references are from 2003, yet there is a significant body of new information available related to rapidly emerging changes in susceptibility patterns for specific pathogens, changes in local susceptibility profiles, and availability of new antibiotics that are not included in these guidelines. These guidelines, though, are one more important step in the fight against LRTIs.

To conclude, these guidelines summarise the current knowledge of these diseases, but in order to understand the major challenge that we have ahead, let us remember what F. Marti-Ibanez, a Spanish physician and historian predicted in 1955: "Antibiotic therapy if indiscriminately used, may turn out to be a medicinal food that temporarily cleans and heals, but ultimately destroys life itself."

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