Pneumonia in the Community Caused by Multidrug-Resistant Organisms: Keep Working on Probabilistic Scores

To the Editor—Two main concepts have gained importance during the past decade in both the literature and clinical practice: (1) Multidrug-resistant organisms (MDROs) causing pneumonia in the community represent a real and emerging problem, and (2) the classification of healthcare-associated pneumonia (HCAP) does not allow physicians to properly identify pneumonia caused by MDROs [1]. Risk factors of the HCAP classification should be weighted differently, and previous hospitalization and nursing home residency are major determinants for the acquisition of MDROs. As an alternative to the HCAP classification, some investigators have developed scoring systems to weight each risk factor for MDRO infection individually [2].

We read with interest the article by Shorr et al [3], who tested a score for predicting the presence of pneumonia caused by MDROs in a cohort of patients admitted to a single American hospital. Points were assigned based on the presence of the following risk factors: recent hospitalization, residence in long-term care facility, chronic hemodialysis, and admission to intensive care unit (ICU). The authors found that the clinical risk score performed moderately well at classifying patients regarding their risk for MDRO infection. The approach proposed by Shorr et al is innovative, even though the score has been derived from a retrospective cohort of patients with severe pneumonia. In fact, more than one-half of the patients were directly admitted to the ICU and the main pathogen isolated was methicillin-resistant Staphylococcus aureus, followed by Pseudomonas aeruginosa and Streptococcus pneumoniae.

In order to evaluate this score in a different population, we used a prospective cohort of 935 patients with pneumonia coming from the community who were admitted to an Italian university tertiary care hospital from April 2008 through April 2010. Study methodology and baseline characteristics of the study population have been published previously [4]. Eight patients from the study population were directly admitted to the ICU. Among the 170 patients who had a bacterium isolated, 33 had an MDRO. The score proposed by Shorr et al [3] was evaluated in comparison with the HCAP definition with regard to both the actual infection with an MDRO and the in-hospital mortality. The receiver operating characteristic (ROC) curves of both scores are depicted in Figure 1. With regard to the actual infection with an MDRO, the area under the ROC curve was 0.704 (95% confidence interval [CI], .592–.815) and 0.709 (95% CI, .604–.813) for the score and HCAP classification, respectively (Figure 1).

In view of the important weight of ICU admission in the scoring system proposed by Shorr et al [3], this score could be fully appreciated in a selected population of patients with severe pneumonia. We strongly believe that the probabilistic approach should be pursued in evaluating the presence of MDROs causing pneumonia in the community. Different scoring systems should be tested in populations of patients hospitalized for moderate to severe pneumonia in a multicenter, prospective trial [4].

Note

Potential conflicts of interest. All authors: No reported conflicts. All authors have submitted the ICMJE Form for Disclosure of Potential Conflicts of Interest. Conflicts that the editors consider relevant to the content of the manuscript have been disclosed.

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Figure 1. Receiver operating characteristic curves of the score and healthcare-associated pneumonia classification with respect to the actual infection with a multidrug-resistant organism (A) and the in-hospital mortality (B). Abbreviation: HCAP, healthcare-associated pneumonia.