Healthcare-Associated Pneumonia and Predictive Scores

To the Editor—We read with interest the recent manuscript by Jeong and colleagues [1]. Their investigation shows that the performances of the Pneumonia Severity Index (PSI) and CURB-65 (confusion, urea, respiratory rate, blood pressure, age ≥65) scores for predicting 30-day mortality in patients with healthcare-associated pneumonia (HCAP) were comparable to those in patients with community-acquired pneumonia (CAP), although the discriminatory powers of PSI and CURB-65 were significantly lower in patients with HCAP than those with CAP.

As Jeong et al stated, their results are consistent with the performance of both PSI and CURB-65 in HCAP patients described in the study we recently published [2].

Even though the HCAP population analyzed by the investigators is comprehensive of 5% patients undergoing hemodialysis, the main HCAP characteristics are similar to those of our study, in particular, for the high number of patients with cancer; hence, we obtained comparable results.

To determine more accurate scores to predict outcome of HCAP patients, we tested retrospectively, in our prospectively recruited study population (N = 307) [2],
the performance of 2 recently described scores: A-DROP (age, dehydration, respiratory failure, orientation disturbance, low blood pressure) [3] and SOAR (systolic blood pressure, oxygenation, age, respiratory rate) [4].

Both A-DROP and SOAR showed poor predictive power for 30-day mortality (area under the curve [AUC] of 0.618 and 0.602, respectively) and performed more poorly than CURB-65 and mostly PSI (AUC of 0.620 and 0.684, respectively).

Moreover, because most HCAP patients are elderly and the main concern toward the PSI scoring system regards the high weighting of age in this score, we reproduced the analysis of Chen et al [5] in our HCAP population to investigate if age cutoff modification could have a role in improving PSI performance in such patients. Modified PSI according to Chen et al had slightly a lower AUC (0.637) compared to the original one.

We studied also the performance of PSI after removing age from the original score system and compared the AUC of the modified score with that of the original score containing the age variable. Compared with the original score, PSI without age showed the same accuracy in predicting 30-day mortality (AUC of 0.672). Therefore, age does not seem to be the condition determining the high score obtained in such patients. In these patients, age does not seem to be a relevant factor for pneumonia severity assessment.

It is currently widely debated whether a multidrug-resistant (MDR) active empiric antimicrobial regimen can be recommended on the basis of identification of the clinical features of HCAP patients. Owing to sample size limitation, we could not apply the scoring tool proposed by Park et al [6] to predict infection with MDR pathogens. However, we observed that as PSI score increased, the prevalence of MDR pathogens also increased. It is also noteworthy that almost all of MDR bacteria (93.5%) have been isolated in patients belonging to PSI classes 4 and 5, suggesting that all patients at risk of MDR are grouped in the highest classes.

Our analysis confirms that in HCAP patients—mainly in cancer patients with risk factors for HCAP—the 20-variable PSI could be a good framework to start building the a suitable score for predicting 30-day mortality. Our efforts must be addressed to identify the variable(s) that may improve its discriminatory power.

Note

Potential conflicts of interest. Both authors: No reported conflicts.

Both 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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References