Reply to Yamamoto et al

To the Editor—We have read the comments of Yamamoto and colleagues about our recent publication [1], and wish to address their concerns.

We applied our algorithm to patients with healthcare-associated pneumonia (HCAP) in a noncomparative fashion, because no national guideline for HCAP existed in Japan at the time of the study. The American Thoracic Society/Infectious Diseases Society of America guideline recommends that all patients with HCAP receive empiric broad-spectrum therapy [2], but we demonstrated that 151 of 321 HCAP patients (groups I and III in the algorithm) could receive...
narrower-spectrum antibiotic therapy than recommended by guidelines, and still achieve appropriate therapy and a good outcome [1]. Using our algorithm, 93% of HCAP patients with an identified pathogen received appropriate therapy, and among those who were treated with narrow-spectrum antibiotics according to the algorithm (groups I and III), 97% received appropriate therapy, with a mortality rate of 8.6%. Although future randomized controlled trials of our algorithm are desirable, we believe that we have demonstrated the safety of using a selective application of empiric broad-spectrum therapy in patients with HCAP.

Initial treatment failure was the most important independent variable to predict 30-day mortality, and we do not agree that it is likely to lead to overadjustment when used in the model. Others have used similar variables, and shown that patient response to therapy, rather than therapy choice, is the best predictor of outcome in patients with complex pneumonia, such as those with intensive care unit–acquired pneumonia [3]. In fact, in our study and in others, the frequency of treatment failure and mortality exceeded the rate of inappropriate therapy, pointing to the role that host factors play in determining outcomes during the therapy of pneumonia. We did include inappropriate therapy in our mortality model, and it did not emerge as either a univariate or multivariate predictor of outcome, but this may reflect the low rate of inappropriate therapy that occurred when using our algorithm. As suggested by Yamamoto et al, we reanalyzed the predictors of 30-day mortality using inappropriate therapy in the model, with and without including initial treatment failure, and in neither case was inappropriate therapy a significant univariate or multivariate mortality predictor. Yamamoto et al also stated that stepwise selection of independent variables should not be done and that clinically relevant risk factors should not be eliminated, even if not significant in univariate analysis. We disagree, and are aware of other similar studies that have used the same stepwise approach to select variables for multivariate analysis [4]. We do not believe that we have excluded any clinically relevant risk factors from our mortality prediction model.

After careful review, for the reasons stated above, we strongly disagree with the comments of Yamamoto et al.

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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