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Title: Could the initial use of antipseudomonal agents improve the prognosis for non-hospital acquired pneumonia?

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Body: Background: Antipseudomonal agent (APA) therapy is recommended for certain patients with non-Hospital acquired pneumonia (non-HAP). However, evidence of the initial use efficacy of APA is lacking and randomized controlled trials are difficult because of ethical restraints. Objectives: To clarify the difference in mortality between pneumonia patients who underwent initial APA therapy and those who did not, we conducted a retrospective cohort analysis using propensity scores. Methods: All non-HAP patients admitted to our hospital from April 2007 to June 2012 were eligible for this study. We calculated the propensity score using 69 potential confounding variables. The primary outcome was defined as the 30-day mortality of non-HAP patients and the secondary outcome as 30-day mortality for healthcare-associated pneumonia (HCAP) patients. Using the inverse probability of treatment weights, we estimated mortality in non-HAP patients using the average treatment effect on the treated (ATT) method. For HCAP patients, we used the ATT and average treatment effect (ATE) methods. Results: A total of 1783 non-HAP patients were enrolled in our study. In the non-HAP patient cohort, the mortality of the initial treatment and non-treatment groups were 22.2% vs 5.7% (P<.001) and 22.2% vs 10.4% (P<.001, ATT), respectively. For HCAP patients, the mortality of the two groups were 25.5% vs 7.8% (P<.001), 25.5% vs 9.5% (P<.001, ATT) and 17.5% vs 8.1% (P=.0054, ATE), respectively. Conclusions: Our analysis suggests the initial use of APA may worsen the prognosis for non-HAP and HCAP patients. Randomized control trials are required to evaluate the role of initial use of APA.