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O0039 Combination of aspirin plus macrolide improves survival in patients with severe community-onset pneumonia: a multinational propensity score-weighted analysis

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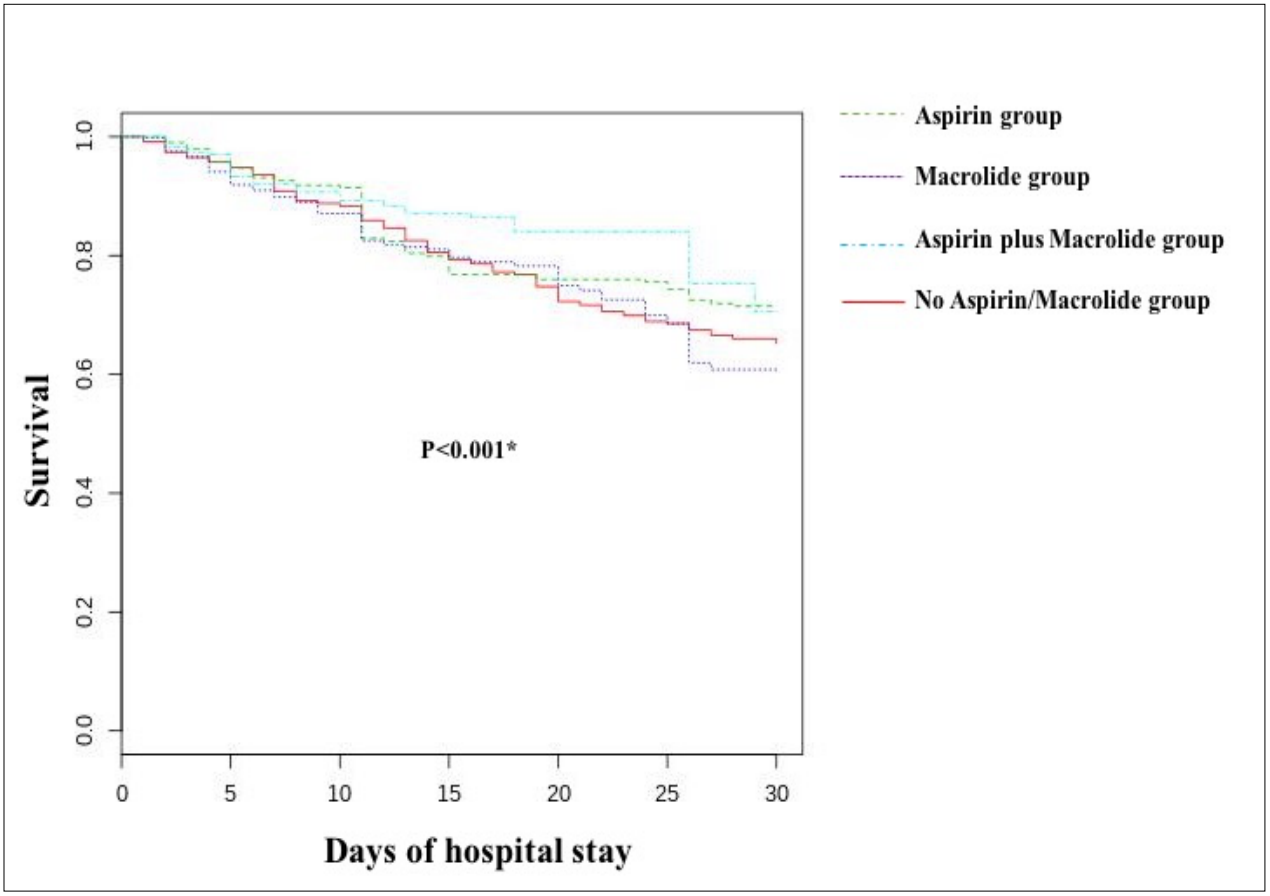
Background. While the inflammatory response to severe pneumonia is paramount in reining in and resolving the infection, the excessive inflammation can lead to deleterious effects. We theorized that patients treated with macrolides and another anti-inflammatory/anti-platelet compound, aspirin, would receive benefit beyond conventional antibiotic therapy.

Materials/methods. An observational study was conducted on patients with severe community-onset pneumonia admitted to 5 teaching hospitals in Italy, USA, Japan, and China. Severe pneumonia was defined according to ATS/IDSA criteria. Patients were divided in 4 groups: 1) Aspirin only (AG), 2) Macrolides only (MG), 3) combination Aspirin + Macrolides (AMG), or 4) neither (NAMG). Survival for the 4 groups was evaluated after adjustment for confounders. To correct for possible bias arising from the observational nature of the experiment, we weighted all relevant effect estimates and p-values with the propensity score. We determined the candidate variables a priori referring to risk factors for mortality reported in previous studies (age, sex, CURB-65, presence of ≥2 comorbidities, cardiovascular disease, liver disease, diabetes, COPD, renal disease, neoplasm, previous hospitalization, pleural effusion, delirium, PaO2-FiO2 ratio, ARDS, bacteremia, leukopenia, multidrug-resistant etiology, and ICU admission).

Results. A total of 1295 patients were included in the analysis. There were 237 (18.3%) patients in the AG, 294 (22.7%) in the MG, 148 (11.4%) in the AMG, and 616 (47.6%) in the NAMG. Mortality at 30 days was 15.5% in the combined group, compared to 34.2% of the NAMG, 23.8% of the MG, and 21.1% of the AG. After propensity score weighting, the receipt of aspirin plus a macrolide was associated with higher 30-day survival (HR 0.71, 95% CI 0.58-0.88, p=0.002). The beneficial effect of aspirin plus macrolide combination was significant when compared to patients belonging to NAMG (HR 1.39, 95%CI 1.12-1.71, p=0.002) and to MG (HR 1.54, 95%CI 1.24-1.9, p<0.001).

Conclusions. Our data suggest a protective effect of aspirin plus macrolide combination on 30-day survival. Given the observational methodology of the study, further randomized studies will need to be undertaken to confirm our findings.

Figure 1. Kaplan-Meier curves about 30-day survival after propensity score-weighted analysis



***Descriptive p-value for the non-parametric ANOVA/chi-square hypothesis**