EP138

ePoster Session

Pneumonia: the right diagnosis and treatment

Association of macrolide use and cardiac events in patients treated for community-acquired pneumonia: post-hoc results from a cluster-randomized cross-over trial

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Objective International guidelines advocate the use of macrolide antibiotics as empiric therapy in pneumonia, yet observational studies have related macrolides to an increased risk of cardiac events. We examined whether macrolides were associated with cardiac events during hospitalization in patients with community-acquired pneumonia (CAP) in a competing risk analysis.

Methods We performed a post-hoc analysis of data from the CAP-START trial, a multicentre cluster-randomized cross-over trial comparing three antibiotic strategies for patients admitted with CAP to non-ICU wards. The strategies consisted of beta-lactam monotherapy, beta-lactam with a macrolide or fluoroquinolone monotherapy. These strategies rotated in participating centres as the preferred antibiotic strategy for CAP during periods of 4 months. Physicians could deviate from the treatment strategy for medical reasons. Data on the occurrence of a new or worsening episode of heart failure, arrhythmia, or myocardial ischemia were collected from medical charts by using pre-defined criteria.

We used a competing risk approach, assessing the cause-specific hazard ratio for the first occurrence of any new or worsening cardiac event during hospitalization, by using a Cox proportional hazards model. Competing risks were in-hospital death and discharge alive. We excluded patients from the analysis who experienced a cardiac event on admission. Macrolide use was modelled as a time-dependent covariate, for which exposure would last from the starting date of the macrolide to the end of hospitalization.

Results Of 2,269 patients from 6 hospitals, 176 patients were excluded because of a cardiac event on admission, leaving 2,093 patients for analysis, of whom 644 (30.8%) received at least 1 day of macrolide treatment. Median length of stay and in-hospital mortality were 6 (IQR 4-9) days and 2.5% in the total cohort, and 7(4-10) days and 3.9% in patients receiving macrolides. There were 142 (6.8%) patients with new cardiac events during admission, of whom 56 (8.7%) received macrolide treatment. The events consisted of 99 (60.4%) episodes of heart failure, 51 (31.0%) episodes of arrhythmia, and 14 (8.5%) episodes of myocardial ischemia. The median (IQR) time to a cardiac event was 3 (2-5) days. Macrolide use was associated with new cardiac events in the crude analysis (HR 1.49; 95% CI 1.14-1.84) and when adjusted for confounders (HR 1.73; 95% CI 1.37-2.09). Patients on macrolides had a longer length of stay (lower hazard of discharge alive) and there was a trend for an increased in-hospital mortality (Table).

Conclusion In a post-hoc analysis from a cluster-randomized cross-over trial, macrolides were associated with 63% increased risk of cardiac events for hospitalized CAP patients during admission. This might have led to a longer length of stay and higher in-hospital mortality.

	In-hospital death	**Discharge alive**	**Cardiac event**
Covariate	**Adjusted HR (CI)**	**Adjusted HR (CI)**	**Adjusted HR (CI)**
Macrolide use	1.69 (0.96-2.25)	0.79 (0.72-0.87)	1.74 (1.23-2.45)