Abstract

Title: The association between timing of antibiotic therapy and outcomes in adult emergency department patients with community acquired pneumonia – A cohort study

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Background: Community acquired pneumonia (CAP) is a leading cause of hospitalization and mortality worldwide. Critical decisions regarding timely initiation of antibiotic therapy must be made and international guidelines commend that the initial dose of antibiotic therapy is administered within 4 hours upon arrival to the emergency department. However, this creates a clinical dilemma of striving to follow the 4-hour criteria for an administration of antibiotic therapy while being considerate to the emerging antimicrobial resistance.

Objective: To compare 30-day mortality, 30-day readmission and length of stay among patients with CAP receiving early versus delayed antibiotic therapy defined as <4 hours and ≥4 hours upon arrival to the emergency department.

Method: This is a single-centre retrospective register-based cohort study that includes all contacts (≥18 years) attending the emergency department at Aarhus University Hospital in a full year period from 1st of July, 2016 to 30th of June, 2017. Patients were identified using the final discharge diagnosis (ICD10 codes: J15 and J18) (n=385) and data were retrieved from the Central Denmark Region Business Intelligence. Exposure was time to antibiotic therapy and outcomes were 30-day mortality, 30-day readmission and length of stay. For binary outcomes a logistic uni- and multivariable regression model was applied, and a Wilcoxon Rank-Sum test determined difference in length of stay.

Results: Patients with CAP who received antibiotic therapy ≥4 hours did not have significantly higher odds of 30-day mortality (OR=1.43, p-value=0.38) or of a readmission within 30 days compared to the <4 hours group (OR=1.39, p-value=0.32). The group <4 hours had a median length of stay of 3.88 (IQR: 1.70-6.18) days and the group ≥4 hours 3.75 (IQR: 1.96-6.36) days, (p=0.68).

Conclusion: This study found no association between timing of antibiotic therapy and 30-day mortality, 30-day readmission or length of stay among patients with CAP in the emergency department.