

Aspiration Risks Factors, Microbiology and Empiric Antibiotics for Patients Hospitalized with Community Acquired Pneumonia

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Background: Previous aspiration events relate to the risk of developing community acquired pneumonia and in particular aspiration pneumonia. The identification of aspiration events represent a challenge to clinicians at the time of selection of antibiotics, as it is common knowledge the association of anaerobes in patients who aspirate. However, limited evidence suggest that anaerobic bacteria may not represent a relevant causative agents of aspiration CAP and anti-anaerobic antibiotics may not be needed for these patients. Therefore, we aim to characterize the risk factors, microbiology and empiric therapy in CAP with aspiration and risk factors for aspiration. **Methods:** We conducted an international, multicenter, point-prevalence study of adult patients hospitalized with CAP in 222 hospitals from 54 countries over four non-consecutive randomly selected days. We included immunocompetent patients with microbiology tests (such as respiratory or blood bacterial samples) and excluded hospital acquired or ventilator associated pneumonia patients, respectively. In order to assess the microbiology and empiric treatment we stratified the patients in three groups: 1) CAP with aspiration (ACAP) 2) CAP with aspiration risk factors (CAP+ARFs), and 3) CAP without risk factors for aspiration (CAP-ARFs), respectively. Descriptive analysis and a multivariate analyses were performed using aspiration as a dependent variable. **Results:** We enrolled 2606 hospitalized patients stratified in three groups: 7.4% (n=193) with ACAP, 80.2% (n=2090) with CAP+ARFs, and 12.4% (n=323) as CAP-ARFs. Half of the population presented more than two ARFs. Patients with ACAP were independently associated with gender (OR=1.6, 95%IC: 1.2-2.3), feeding enteral tube (OR=5.8, 95%IC: 2.6-12.9) and neurocognitive dysfunction (Dementia: OR=4.8, 95%IC: 3.3-6.9; Stroke: OR=2.1, 95%IC: 1.4-3.3 and Mental illness: OR=2.3, 95%IC: 1.4-3.6). ACAP patients had more comorbidities and more severe pneumonia than other groups (CAP+ARFs and CAP-ARFs). The most prevalent pathogens among patients with ACAP were *K. pneumoniae* (19.6%), *S. pneumoniae* (17.9%) and *P. aeruginosa* (17.9%) and mixed anaerobic flora was observed in less than 2% of the cases. In contrast the 16% of ACAP patients received empiric anti-anaerobic coverage compared to 5% and 4% among patients with CAP+ARFs and CAP-ARFs, respectively. **Conclusions:** Aspiration risk factors are frequent among patients hospitalized with CAP. In contrast to the low prevalence of mixed anaerobic flora seen in ACAP or CAP+ARFs there are no major differences in microbiology compared to CAP patients without aspiration risk factors. This study support the recommendation that anti-anaerobic antibiotics may not be need to

empiric manage patients with ACAP or CAP+ARFs.

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