

Session: P002 Community-acquired respiratory infections

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**Superinfection in hospitalized patients with community-acquired pneumonia: incidence, aetiology, antimicrobial resistance and prognosis**

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**Background:** The frequency, causes, and impact of superinfection among hospitalised patients with community-acquired pneumonia (CAP) have not been specifically explored. We aimed to determine the incidence, aetiology, antimicrobial resistance, and prognosis of superinfection in a large cohort of patients with CAP.

**Material/methods:** Observational analysis of a prospective cohort of hospitalised adults with CAP (2002-2015). Superinfection was defined as any new infection occurring during hospitalisation. Patients with superinfection were compared with the remaining patients.

**Results:** A total of 3550 patients with CAP were included, 403 of whom were hospitalised in the ICU and 3147 in conventional wards. Superinfection occurred in 73 (18.1%) of ICU patients and 16 (0.5%) in those hospitalised in conventional wards. There were 121 episodes of superinfection in ICU-admitted patients, ranging from 1 to 8 episodes per patient. The most common superinfections in ICU patients were VAP (64 episodes; 53%), catheter-related BSI (33; 27%), urinary tract infection (13; 11%), and skin infection (6; 5%). The most common isolated pathogens were *Pseudomonas aeruginosa* (35 isolates; 30%), *Acinetobacter baumannii* (15; 12%), other GNB (27; 22%), *Staphylococcus aureus* (13; 11%), CNS (10; 8%), enterococci (8; 7%), *Candida* spp. (7; 6%), *Aspergillus fumigatus* (6; 5%). Seventy-six (63%) of the 121 bacterial isolates were multidrug-resistant (MDR). Empirical treatment was inadequate in 34 (29%) of 116 episodes of superinfection with available information. In-ICU mortality was higher in patients who developed superinfection than in the

remaining (38% vs. 22%,  $p=.005$ ); in 17 (24%) patients the death was attributed to superinfection. Regarding the 16 patients who had superinfection while hospitalized in conventional wards, all but one had just one episode. Among these 16 non-ICU patients, the main infections were nosocomial pneumonia that occurred in 8 (50%) cases and urinary tract infection in 4 (25%). A total of 13 organisms were isolated, being the most frequent *P. aeruginosa* (6 isolates; 46%) and other GNB (3; 23%). Seven (54%) strains were MDR. Inadequate empirical antibiotic therapy was given to 3 (23%) of 13 microbiologically documented cases. None of these non-ICU patients died.

**Conclusions:** Superinfection is a significant problem among ICU-admitted patients for CAP, mainly VAP and catheter-related BSI. *P. aeruginosa* and other GNB are the most frequently isolated organisms, and MDR strains are particularly frequent. Patients with superinfection receive often an inadequate empirical antibiotic therapy and have high mortality.