

European Respiratory Society Annual Congress 2013

Abstract Number: 2843

Publication Number: P2453

Abstract Group: 2.1. Acute Critical Care

Keyword 1: Lung injury **Keyword 2:** Acute respiratory failure **Keyword 3:** Intensive care

Title: Antibiotic utilisation and indication during mechanical ventilation in surgical and medical ICU patients

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Body: Background: Antibiotics are powerful agents for bacterial infections. However, they cause side effects and provoke the emergence of drug-resistance. Especially in ICU patients the reluctance to use antibiotics, in absence of good diagnostic tests, is small. Objectives: To assess antibiotic utilisation and indication in mechanically ventilated surgical and medical ICU patients. Methods: Preliminary data from the multicentric prospective BioVent study were analysed. The number of antibiotics and their proposed indication were assessed every day, from start of mechanical ventilation up to 14 days on mechanical ventilation. Results: In 118 medical ICU patients (mean age 60 ± 18 years; mean duration of mechanical ventilation 8 ± 10 days) the number of utilised antibiotics was fairly stable during the first week and decreased during the second week (figure). In contrast, antibiotic usage in 213 surgical ICU patients (mean age 64 ± 17 years; mean duration of mechanical ventilation 5 ± 7 days) increased after the first days of mechanical ventilation, mainly due to respiratory and intra-abdominal infections. Whereas prophylactic antibiotic indication continuously decreased, ventilator-associated pneumonia accounted for a substantial

number of antibiotics in the second week, in both groups.

Conclusions: Antibiotic utilisation and indication differs in surgical and medical mechanically ventilated patients.