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Oral Session
Improving treatment of severe infections

TAILORING THE EMPIRICAL ANTIMICROBIAL THERAPY IN VAP PATIENTS BY MEAN OF AN E-TEST BASED DIRECT TESTING

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Objectives: Intensive Care Units (ICU) patients developing VAP need the empirical ATB therapy to be adequate. Moreover, a rapid de-escalation of empirical broad-spectrum ATB constitutes a relevant goal in order to prevent ATB resistance. We have previously shown that direct specimen testing (DST) by applying E-tests strips directly onto agar plates seeded with bronchoalveolar lavage (BAL) samples was an accurate method for obtaining susceptibility data at H24 in patients with VAP[1]. The objective of this study is to assess whether the E-test approach could give appropriate microbial diagnosis more rapidly, i.e. after only ten hours of incubation of the clinical samples.

Methods: A prospective cohort study was conducted in a 13 bed medical ICU. BAL was performed in patients with suspected VAP based on a clinical pulmonary infection score (CPIS) ≥6 and patients with confirmed VAP were included. A combination of 11 different ATB E-test strips was directly applied to two Mueller-Hinton and one blood agar plates seeded with BAL samples. They were read after six and ten hours (H6, H10) and compared to the H24 results. The occurrence of major errors (isolates susceptible by the E-test at H6-10 and resistant at H24) and minor errors (isolates resistant by the E-test at H6-10 and susceptible at H24) were determined. The potential clinical decision on ATB therapy on the basis of the E-test results at H10 was retrospectively compared with the empirical ATB prospectively decided at the bedside by the physician.

Results: 28 patients with VAP were included in the study. Their CPIS score was 7±1,2. All BAL samples were taken at a median time of 12 [5-21] days of ventilation. At H6, 9/28 (32%) BAL samples were readable while 18/28 (64%) were at H10 ($p<0.02$). The others were only readable at H24. At H6 and H10, the antibiotic susceptibility profiles were in total agreement in 96 and 94 %, minor errors were observed for both time points in 2 %, and major errors in 2% and 4 %, respectively. Regarding major errors, three resistant bacteria were missed at H10 and were correctly seen at H24. From the clinical side, empirical ATB adequation was achieved in 94% by the physicians in the ICU. If the H10 E-test results were to be considered, these latter would have reached 89% (p=NS). Nevertheless, the H10 E-test results would have allowed de-escalation of the initial ATB therapy in 55%.

Conclusion: Our data suggest that this rapid adapted E-test approach could provide valuable antimicrobial informations for tailoring the ATB therapy in patients with VAP.

1) Direct testing of bronchoalveolar lavages from ventilator-associated pneumonia patients. *Boyer A*, *Medrano J, Mzali F et al.* Diagnostic Microbiology and Infectious Disease **2012**;4:297-374