A217 - Influence of amikacin inhalation on the efficacy of ventilation-associated pneumonia and ventilation-associated tracheobronchitis treatment caused by multi-drug resistant gram-negative bacteria: comparative study

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Introduction:
The aim of the study was comparative evaluation of the clinical and microbiological efficacy of combination of amikacin thru nebuliser Aeroneb Pro and standard antimicrobal therapy (AMTcomb) with standard antimicrobal therapy (AMTst) in treatment of ventilator-associated pneumonia (VAP) and ventilator-associated tracheobronchitis (VAT) caused by multi-drug resistant gram-negative bacteria.

Methods:
In prospective two-center study with retrospective control included patients with VAP and VAT. In AMTst group (retrospective, n=25) we used combination of meropenem 1 g every 8h iv as continuous infusion, cefoperazon/sulbactam 4 g every 12 h iv as continuous infusion and amikacin 1 g iv every 24 h. In AMTcomb group (prospective, n=25) we used combination of AMTst and amikacin inhalation 500 mg every 12 h thru nebuliser Aeroneb Pro.

Results:
In AMTcomb clinical cure rate was 84%, while in AMTst 29,2% (p<0,001), Clinical Pulmonary Infection Score (CPIS) on day 7 was 6 (4-7) points in AMTst and 2 (0-4) points in AMTcomb (p<0,001). Recurrence of VAP/VAT was 29,2% in AMTst and 12,5% in AMTcomb (p=0,008). On day 7 infectious agent titer in tracheal aspirate was 10^7 (10^3-10^8) CFU/ml in AMTst group, while 10^3 (no growth-10^6) CFU/ml in AMTcomb (p=0,016). Microbiological eradication observed in 13 patients in AMTcomb vs in 1 patient in AMTst and microbiological persistance observed in 6 patients in AMTcomb vs 17 patients in AMTst (ð=0,002). In AMTcomb on 3rd day sputum was less purulent (p=0,016). Amikacin nebulisation didn’t led to deterioration of organ dysfunction: on day 7 there was no difference in platelet count, creatinine and bilirubin levels as compared to day 0 (p=0,102; p=0,297, p=0,532, respectively).

Conclusion:
Addition of amikacin inhalation 500 mg every 12 h thru Aeroneb Pro nebuliser in patients with VAP and VAT was more efficacious than intravenous standard antimicrobial treatment with comparable safety profile.