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Abstract (poster session)

Carriage of antibiotic-resistant bacteria in the respiratory tract during SDD and SOD: preliminary results of a cluster-randomised cross-over study

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Objectives: Selective Digestive tract Decontamination (SDD) and Selective Oropharyngeal Decontamination (SOD) aim to eradicate Gram-negative bacteria (GNB) from the respiratory tract in intensive-care-unit (ICU) patients. In both regimens tobramycin and colistin are administered in topical form in the oropharynx 4 times daily. In a previous study the unit-wide prevalence of ARB in the respiratory tract was lower during SDD/SOD as compared to standard care, but significantly increased in time during these measures (Oostdijk et al AJRCCM 2010;181:452). We conducted a 16-center cluster-randomized cross-over (CRCO) study in the Netherlands, comparing 12 months periods of SDD and SOD to determine effects on carriage with antibiotic-resistant bacteria (ARB). This is a preliminary analysis on the ecological unit-wide effects of SOD and SDD on respiratory tract carriage with antibiotic-resistant bacteria (ARB). **Methods:** All patients with an expected ICU-stay of >48hrs were eligible to receive SDD/SOD. Prevalence of respiratory tract carriage with ARB was determined once monthly in all ICU patients (receiving or not receiving SDD/SOD), through inoculating swabs on selective media supplemented with either colistin or tobramycin and a chromogenic ESBL agar. This preliminary analysis includes 265 of the planned 384 point prevalence surveys (69%): 130 during SDD and 135 during SOD, from 14 out of 16 hospitals. Trend analysis was performed of consecutive point prevalence surveys during 24 months of study. **Results:** Respiratory samples were obtained from 2359 patients (1110 during SOD and 1249 during SDD) of which 236 patients (10%) had growth on selective media with Enterobacteriaceae (209 cultures) or *Pseudomonas aeruginosa* (72 cultures). Completeness of culture taking was 89% based on 100% quality control checks. ESBL production was detected in 1.2% (n=28) of all cultures (SOD vs SDD p=0.66). Resistance to aminoglycosides, ciprofloxacin and colistin was detected in 88 (3.7%), 71 (3.0%) and 15 (0.6%) cultures, respectively (p=0.22, p=0.38 and p=0.11 for SOD vs SDD). In time, a gradual decrease in the prevalence of aminoglycoside resistance and ciprofloxacin was observed (beta-coefficients -0.14 (p<0.05) and -0.83 (p<0.05)), whereas resistance prevalence for ESBL and colistin remained stable. **Conclusion:** Longitudinal trends in respiratory tract carriage of antibiotic-resistant bacteria (ARB) in patients in 14 Dutch ICUs reflected low prevalence to beta-lactam antibiotics, aminoglycosides and colistin, and no determinable increase of resistance during 24 months of study.