

O125

Abstract (oral session)

Multifaceted approaches for reducing the spread of multidrug resistant Gram-negative (MDR-Gn) in hospital setting: which is the most effective combination of interventions for different epidemiological contexts?

MA Cataldo*, B. Cookson, G. De Angelis, M. Falcone, U. Frank, J. Rodriguez-Bano, S. Dancer, A. Pan, M. Venditti, N. Petrosillo, E. Tacconelli (Rome, IT; London, UK; Heidelberg, DE; Sevilla, ES; East Kilbride, UK; Cremona, IT)

Objectives. Multidrug-resistant Gram-negative bacteria (MDR-Gn) have been reported with increased frequency worldwide and are likely to surpass MRSA incidence in a few years. No specific indications for infection control measures are available although a multifaceted strategy (MS) seems to be the best option. We reviewed the literature to define the effect of different combinations of interventions on the acquisition rate of MDR-Gn. **Methods.** Literature up to May 2011 was searched, to identify MS studies to control MDR-Gn hospital spread. The rate of the MDR-Gn acquisition after MSs was the major assessed outcome. If this rate decreased significantly or ceased that MS was considered to be “efficient”. **Results.** Seventy studies were included in the review (61 outbreaks; 4 interrupted-time-series; 2 before-after; 3 prospective surveys) focussing on *Acinetobacter baumannii* (28), Enterobacteriaceae (28), *Burkholderia cepacia* (7), *Pseudomonas aeruginosa* (6), and *Stenotrophomonas maltophilia* (1). Interventions included contact precautions (CP, 86%), environmental cleaning (EC, 74%), hand-hygiene implementation (HH, 64%), education (EDU, 41%), room isolation (IR, 40%), active screening culture (ASC, 37%), patients’ and/or staff cohorting (34%), ward closure (29%), antibiotic restriction (24%), health care workers (HCW) screening (16%), and alert code (8%). The combination of interventions varied widely between studies (range, 2-11) and was effective in 63%. The following combinations of interventions were more likely to be associated with a positive outcome: 1) HH, EDU, CP and EC (OR 6.2, $p=.01$); 2) HH, EDU, and CP (OR 7.6, $p<.01$); and 3) HH, EDU, CP and IR (OR 8.3, $p<.01$). Neither the inclusion of ASC nor of staff-patients cohorting and HCW screening impact significantly on the efficacy of the MS. Multivariate analysis identified the combination of HH, EDU, CP and IR as independently associated with the MS’s success. Stratification by epidemiological setting was not possible since the small number of studies in endemic situation. **Conclusions.** Our systematic review suggests that including HH, EDU, CP and IR in a MS has the greatest chance of success in controlling the nosocomial spread of MDR-Gn. The heterogeneity of MS combinations and the lack of RCTs represent a major gap in the establishment of the evidence supporting the effectiveness of different MSs. Further studies are required to show how applicable are our findings to endemic and non endemic situations.