

P2681 *Serratia marcescens* outbreak in a neonatal unit of a tertiary care university hospital in Spain

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Background: *Serratia marcescens* is a Gram-negative bacterium that is found in hospital environments and commonly associated with outbreaks in neonatal intensive care units (NICUs), with significant associated morbidity and mortality. A *S. marcescens* isolate was detected from a bloodstream culture from a neonatal patient in our hospital in August 2018. Thus, a rapid response is required to stem transmission of the organism to further infants. The aim of this study was to describe the molecular epidemiology of *S. marcescens* outbreak in the neonatal unit that included NICU and intermediate care unit.

Materials/methods: In order to investigate the outbreak samples for surveillance, cultures were obtained from rectal swabs of all patients admitted in these units from August to September 2018 every week. Isolates of *S. marcescens* from clinical or screening specimens were identified by using the identification method routinely employed in our clinical microbiology laboratory. Environmental samplings were obtained from potential sources in September 2018. Isolates were typed using pulsedfield gel electrophoresis (PFGE) after digestion of the total DNA with XbaI enzyme; typing results were compared to identify epidemiological relationships. A Dice coefficient of ≥ 0.85 was considered suggestive of possible clonal relatedness.

Results: Seventeen isolates from 16 patients had a *S. marcescens*-positive sample at NICU and intermediate care unit. Nine of the patients were from NICU and seven from intermediate care unit. Fifteen isolates were epidemiological samples and two clinical samples. Colonies from all isolates have produced red pigmentation. A total of 36 environmental surveillance samples were collected, one of which resulted to be positive for *S. marcescens*. Using a similarity cut-off of 85%, all the 18 isolates, including the isolate from environmental sample, were indistinguishable by PFGE.

Conclusions: These data confirmed a unique clone of *S. marcescens* in neonatal unit with isolates including patients and environment isolates. These findings suggested the importance of study the combination of patient and environmental samples, and molecular strain typing for the formulation of specific control measures aiming to limit unwanted nosocomial transmission.

