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Patrick Morhart, Jürgen Held, Alisa Bär, Heiko Reutter

Division of Neonatology and Pediatric Intensive Care,
Department of Pediatrics and Adolescent Medicine, Friedrich-Alexander-University of Erlangen-Nuernberg Loschgestraße
15, 91054 Erlangen, Germany

Evaluating the Use of Neonatal Colonization Screening for Empiric Antibiotic Therapy of Sepsis and Pneumonia

Background

Since 2013, weekly screening for multidrug-resistant gramnegative (MDRGN) bacteria is performed in German neonatal intensive care units (NICU). National guidelines recommend considering these colonization analyses for antibiotic treatment regimens. Our retrospective single center study provides insight into the clinical dichotomy of bacterial colonization and infection rates in neonates.

Methods

We analyzed microbiological data of neonates admitted to our tertiary level NICU over nine years. Colonization with MDRGN/*Serratia marcescens* (SERMA) was compared to microbiological findings in sepsis and pneumonia.

Results

We analyzed 917 blood and 1,799 tracheal aspirate samples. After applying criteria from the Nosocomial Infection Surveillance for Neonates (NEO-KISS), we included 52 and 55 cases of sepsis and pneumonia, respectively. 19.2% of sepsis patients and 34.5% of pneumonia patients had a prior colonization with MDRGN bacteria or SERMA. In these patients, sepsis was not attributable to MDRGN bacteria yet one SERMA, while in pneumonias ten MDRGN bacteria and one SERMA were identified. We identified late-onset pneumonia and caesarean section as risk factors for MDRGN/SERMA acquisition.

Conclusions

Colonization screening is a useful tool for hygiene surveillance. However, our data suggest that consideration of colonization with MDRGN/SERMA might promote extensive use of last resort antibiotics in neonates.

Keywords: multidrug-resistant gramnegative bacteria; MDRGN; multidrug resistant bacteria; MDR; neonates; colonization; neonatal infection; sepsis; pneumonia; screening writing, template, sixth, edition, self-discipline, good

Biography

- 01.12.2019- current: Managing Senior Physician of the pediatric and adolescent clinic
- 07.07.2018 – current: Member of the examination board for neonatology and intensive care medicine at The Bavarian State Medical Association
- 25.22.2017 Authorization Training and education in pediatric intensive care medicine (24 months)
- 06.05.2017 Authorization for Training and education in neonatology (36 months)
- 01.05.2017 - 01.07.2021: Head of the department of neonatology and pediatric intensive care medicine.