

**Stenotrophomonas Maltophilia infection in the Neonatal Intensive Care unit: A retrospective study of risk factors and outcome in a Children's hospital in New York**

Background: *Stenotrophomonas maltophilia* (*S. maltophilia*) remains an important nosocomial gram-negative bacillus on the rise with limited studies in the neonatal population. The aim of the present study was to review the risk factors and outcomes of *S. maltophilia* infections in the neonatal intensive care unit (NICU) of a tertiary hospital in Brooklyn, New York City.

Material/methods: A retrospective review and analysis of electronic medical records of patients admitted to NICU with culture positive *S. maltophilia* and matched controls in a period of 12 years from 2008-2020 was carried out. The JMP 10.0 (SAS Institute Inc., Cary, NC, USA) software package was used for data analyses. T-test was used to determine if there was a significant difference between the data of interest among cases and controls.

Results: Twenty-one cases of *S. maltophilia* were compared with 42 controls in the study (case control ratio of 1:2). Of the 21 patients with *S. maltophilia* infections, 13 (70%) were females and 8 (30%) were males. The median birth weight of neonates with *S. maltophilia* infection was 705g versus 770.5g in the control group. The median length of NICU stay in culture positive cases was 134 days while the median duration in control was 92 days ( $p < 0.01$ ). The median duration of total parenteral nutrition (TPN) was 113.5 days in cases while it was 19.5 days in control ( $p < 0.001$ ). The median duration of mechanical ventilation in cases was 54 days versus 20.5 days in control ( $p < 0.01$ ). The median duration of antibiotic use was 67.5 days in cases while it was 23 days in the control group ( $p < 0.01$ ). Six patients in the cases group underwent abdominal surgery and the overall mortality rate in the case group was 28.5%. Conclusion: This study demonstrated that invasive interventions such as mechanical ventilation and TPN are associated with *S. maltophilia* infection. In addition, long hospital stays and extended antibiotic use are risk factors.