

**TITLE:** *Stenotrophomonas maltophilia* CAUSING AN OUTBREAK EPISODE IN A HEMODIALYSIS CENTER

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**ABSTRACT:**

Patients undergoing hemodialysis are more susceptible to bloodstream infections (BSIs) because of constant invasive procedures. *Stenotrophomonas maltophilia*, an opportunistic pathogen, have been reported as causative of outbreaks in hemodialysis facilities, and its treatment is considered limited due lack of therapeutic options. Thus, this study aimed to characterize *S. maltophilia* obtained from a hemodialysis center in a tertiary-care hospital in the state of São Paulo, Brazil, from November, 2018, to July, 2020. Isolates were recovered from the blood of patients with symptoms of BSI during hemodialysis and from water samples circulating in the dialysis systems. The identification and susceptibility to levofloxacin (LEV) and sulfamethoxazole/trimethoprim (SXT) were performed by automated system. A qualitative polyvinyl chloride tube method was used to assess the ability to form biofilm. Molecular typing was performed by restriction with *Xba*I-PFGE, and isolates presenting  $\geq 90\%$  similarity were considered as the same cluster. A total of 30 isolates were recovered from blood of 21 patients and 1 isolate from water. The PFGE typing distinguished 18 pulse types resulting in 4 groups. One cluster grouped 10 isolates obtained from seven different patients during a period of 72 days, showing the persistence and circulation of the isolates in the hemodialysis center. In addition, patients containing two distinct lineages were also observed. The isolate obtained from water dialysis system was 79% similar to those 10 ones forming a cluster, suggesting a possible source of contamination for the patients. Twelve isolates (40%) were resistant to SXT, and three (10%) to LEV, with only one isolate resistant to both antibiotics. Moreover, 83% of the SXT-resistant isolates were clustered by PFGE typing. Eighteen isolates (60%) showed positivity for biofilm formation, being seven (39%) identified as strong biofilm producers, and 11 (61%) as moderate, including the isolate obtained from water. In our study, the permanence and circulation of *S. maltophilia* resistant to the available antibiotics in different patients and period of time may be associated with the ability of bacteria to form biofilm. Our findings illustrate the importance in recognizing the source of bacteria and effectively apply infection control practices in order to provide acceptable health care to debilitated patients.

**Keywords:** *Stenotrophomonas maltophilia*, bloodstream infections, hemodialysis, biofilm formation, outbreak

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