

Profile of Biofilm-Producing Staphylococcus epidermidis from Intravenous Catheter Colonisation at Prof. Dr. Margono Soekarjo Hospital Purwokerto

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Abstract	<p>Biofilm- producing Staphylococcus epidermidis has evolved to be a significant human pathogen, particularly in the use of medical devices such as an intravenous catheter. Furthermore, biofilm-producing bacteria 10-1000 fold less susceptible to several antimicrobial agents than free-bacteria. This simple survey aimed to describe the profile of biofilm-producing S. epidermidis from intravenous catheter colonization of some patients in surgical and internal medicine wards at the hospital Margono Soekarjo, Purwokerto, and the antibiotics resistance pattern. A vitek[®] 2 compact (Enseval Medika Prima) was performed to identify the bacterial species and to examine the 73 antibiotics for understanding the resistance pattern automatically. Microtiter plate biofilm assay with crystal violet staining was performed to measure biofilm optical density (OD) for analyzing the biofilm production capabilities. A scanning electron microscopy (SEM) was done to compare the thickness of ultrastructure of biofilm-producing S. epidermidis visually. The present study found that 2 of 8 Gram-positive bacteria (25%) were biofilm-producing S. epidermidis. One of S. epidermidis was moderate whereas the other was high biofilm-producing bacteria. Images of SEM showed that a high biofilm-producing S. epidermidis has a thicker ultrastructure of biofilm than the moderate biofilm-producing, whereas a control, the weak biofilm-producing S. epidermidis ATCC 12228 has the least biofilm. Both of S. epidermidis strains were sensitive to Gentamicin, Moxifloxacin, Quinupristin/Dalfopristin, Linezolid, Vancomycin, Doxycycline, Minocycline, Tetracycline, Tigecycline, and Nitrofurantoin. Furthermore, both S. epidermidis strains were resistant to the other (63) antibiotics. In conclusion, two strains of S. epidermidis in this study have different capabilities to form the biofilm which were showed that high biofilm-producing strain was thicker than moderate biofilm-producing strain by scanning electron microscopy. However, both of them were resistant to the same number of antibiotics.</p>
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