OP 21

Detection of biofilm forming ability of coagulase negative *Staphylococcus* isolated from patients with central venous catheter infections and catheter colonization at a tertiary care hospital in Colombo

Medis LSD[1*], Dissanayake DMBT[2], Kottahachchi J[2], Weerasekera MM[2], Namali D[3]

[1]*Department of Medical Laboratory Sciences, Faculty of Allied Health Sciences,General Sir John Kotelawala Defence University, Sri Lanka,* [2]*Department of Microbiology, Faculty of Medical Sciences, University of SriJayewardenepura, Sri Lanka,* [3]*Colombo North Teaching Hospital, Sri Lanka.*

Background: Biofilm is a community of microorganisms embedded in extracellular polymeric matrix. Biofilm formation on indwelling medical devices leading to infections is well-known. Coagulase-negative *Staphylococcus* species are a leading cause of Central Venous Catheter-Related Bloodstream Infections (CRBSIs) and catheter colonization. Biofilm formation seems to be an important factor related to the pathogenicity of coagulase-negative *Staphylococcus* species (CoNS).

Objective: To detect the biofilm forming ability of CoNS species isolated from patients with central venous catheter related blood stream infections and catheter colonization at a tertiary care hospital in Colombo using two biofilm detection methods.

Method: CRBSI and catheter colonization were determined according to microbiological standards by simultaneous peripheral and catheter blood cultures using time to positivity and catheter tip culture by Maki's roll-plate method. Fourteen isolates of CoNS from patients with CRBSI and 21 CoNS isolates from patients with colonized catheters were detected. All 35 isolates were subjected to microtiter plate assay and 3-(4,5-dimethylthiazole-2-yl)-2-5-diphenyl-2H-tetrazolium bromide (MTT) assay to detect their ability to produce biofilms. Biofilm forming CoNS were further classified as strong or moderate biofilm producers.

Results: All 35 CoNS isolates showed biofilm formation by both methods. All 14 isolates from CRBSI patients were strong biofilms formers. Eighteen (85.72%) and three (14.28%) isolates from colonized catheters were strong and moderate biofilm producers respectively.

Conclusion: Both microtiter plate assay and MTT assay displayed similar results in detecting biofilm formation. Strong biofilm formation is seen in CoNS causing CRBSI and catheter colonization. The significance of this finding in the pathogenesis of CRBSI warrants further study.

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