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ePoster Viewing

Basic science: biofilm pathophysiology

BCR1 INDEPENDENT BIOFILM FORMATION OF OUTBREAK RELATED CANDIDA PARAPSILOSIS ISOLATES FROM NOSOCOMIAL BLOODSTREAM INFECTIONS

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Candida parapsilosis is notable for its ability to form biofilms on medical devices and to be frequently associated with nosocomial outbreaks.

Objectives: We sought to investigate the impact of biofilm formation compared to other virulence factors in *C. parapsilosis* isolates derived from an intravascular catheter causing nosocomial outbreak and to investigate the role of major biofilm regulator Bcr1.

Methods: Nine *C. parapsilosis* isolates from four patients included in a nosocomial outbreak were used. The entire *BCR1* gene was deleted in one isolate using the *SAT1* flipping strategy. Biofilm formation formed on three tested materials; silicone elastomer, Thermanox and polystyrene was quantified by assessing metabolic activity measurement using XTT assay [2, 3-Bis(2-methoxy-4-nitro-5-sulfophenyl)-2H-tetrazolium-5-carboxanilide inner salt]. Microscopic observation was performed simultaneously.

Results: Robust high levels of biofilm with a complex structure were observed for the outbreak isolates on three tested materials. Similarity in biofilm formation and structure was observed in consecutive isolates derived from the same patients. A complex biofilm structure consisting of macrocolonies with spider-like appearance composed of aggregated yeast cells and pseudohyphae which was independent of the biofilm regulator Bcr1 was a characteristic of the outbreak isolates. The outbreak isolates secreted little proteinase and no lipase which are regarded as major virulence factors.

Conclusions: Our results indicate that *BCR1* independent biofilm formation is a characteristic feature of the isolates involved in this nosocomial outbreak of catheter related infections which has implications for the development of treatment strategies targeting the biofilm.