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Staphylococcus aureus biofilm may constitute a major cause of virulence. Our main objective was to analyze whether there was an association between biofilm production and poor outcome in patients with S. aureus bacteremia” Guembe et al (2017).

Abstract:

Objective: Staphylococcus aureus biofilm may constitute a major cause of virulence. Our main objective was to analyze whether there was an association between biofilm production and poor outcome in patients with S. aureus bacteremia.

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Methods: We studied 485 *S. aureus* strains isolated from the blood of patients with bacteremia from 2012 to 2015. We assessed in vitro biomass production using the crystal violet assay (CV) and metabolic activity using the tetrazolium salt assay (XTT). Strains were classified in tertile ranks as follows: low biomass producers (LBP), moderate biomass producers, high biomass producers (HBP), low metabolically active (LMA), moderate metabolically active, and high metabolically active (HMA). We excluded for the analysis strains with moderate CV and XTT values. We defined poor outcome as fulfillment of one or more of the following conditions: 30-day attributable mortality, infective endocarditis, persistent bacteremia, and recurrent bacteremia.

Results: Outcome was poor in 199/485 (41.0%) of the *S. aureus* bacteremia episodes. The distribution of poor outcome with respect to biomass production and metabolic activity was as follows: LBP, 36.6% vs. HBP, 43.2% ($p=0.26$); and LMA, 43.5% vs. HMA, 36.2% ($p=0.91$). The presence of methicillin-resistant *S. aureus* was the only characteristic that was more likely to be present in the HMA group (17.4% vs. 39.3%, $p < 0.001$).

Conclusions: Biofilm production, as determined by any of the methods used in the present study, is not associated with poor outcome in patients with *S. aureus* bacteremia.

Reference:

Guembe, M., Alonso, B., Lucio, J., Pérez-Granda, M.J., Cruces, R., Sánchez-Carrillo, C., Fernández-Cruz, A. and Bouza, E. (2017) Biofilm production is not associated with poor clinical outcome in 485 patients with *Staphylococcus aureus* bacteremia. *Clinical Microbiology and Infection*. October 27th. .

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