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P0310 Characterization of staphylococcal strains causing prosthetic joint infections

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background: *staphylococci* are the most common bacteria responsible for prosthetic joint infections (pji) due to their ability to form biofilm on the implants. *staphylococci* can produce at least two types of biofilms: ica-dependent, mediated by polysaccharide intercellular adhesin(pia)/poly-n-acetyl-1,6-b-glucosamine(pnag),and ica-independent, mediated by proteins. we aimed to analyze the biofilm formation and the composition of the extracellular matrix produced by *staphylococci* causing pji.

materials/methods: all *staphylococci* isolated from explanted implants for infection reasons at complejo hospitalario de navarra were included from 2/16 to 2/17. the diagnostic procedure included sonication of the removed implants followed by conventional culture of the sonication fluid. the clinical strains were grown in conditions favorable for biofilm production. extracellular matrices were analyzed as previously described following 3 different treatments with proteinase k, $naio_4$ and dispersin b. *s. aureus* atcc 15981 (ica-dependent biofilm) and *s. aureus* v329 (protein -dependent biofilm) were included as positive controls.

results: among 34 pji, 22 (65%) were caused by *staphylococci*. these 22 isolates included 11 *s. epidermidis*, 5 *s. aureus*, 4 *s. capitis*, 1 *s. hominis* and 1 *s. saprophyticus*. seven out of the 22 isolates (3 *s. epidermidis*, 3 *s. capitis and* 1 *s. saprophyticus*) showed strong capacity to form biofilm in our experimental conditions. analysis of biofilm matrix composition revealed that the 3 *s. epidermidis* and the 3 *s. capitis* isolates produced exopolysaccharide (pia-pnag) dependent biofilm whereas the *s. saprophyticus strain* produced proteinaceus biofilm matrix. all 5 *s. aureus* strains showed weak capacity for biofilm formation. all *s. aureus* were isolated from acute pji.

conclusions: coagulase-negative *staphylococci* are more prevalent among pji. the majority of *staphylococci* isolated from pji build a polysaccharidic biofilm matrix. characterization of the composition of biofilms on pji may provide a basis for the development of better strategies for developing coatings that prevents and facilitate treatment of pji.