

[P1114] Simple procedures to reduce ***Staphylococcus epidermidis*** adhesion to indwelling medical devices

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Objectives: The aim of this work was to develop expedite procedures to reduce *Staphylococcus epidermidis* adhesion to materials normally used in indwelling medical devices such as catheters and prosthesis using only a pre-contact of the material surface with two conditioning substances: heparin and gentian violet. Heparin is a proteoglycan with strong anticoagulant activity, normally used to minimise thrombus formation, and gentian violet is a triphenylmethane dye that is normally used as a biological stain and as antiseptic agent.

Methods: Three clinical *S. epidermidis* strains were studied: 9142-M10, 9142 and IE186. Acrylic and silicone were used as substratum. Coupons (2 cm × 2 cm) were immersed in heparin or in 1% gentian violet solution, left to soak for 2 hours and left to dry overnight at 21 °C. For the adhesion assays, the coupons were placed in 6 well tissue-culture plates with 4 mL of a cell suspension (1×10⁹ cells/ml), for 2 hours, at 37°C and 120 rpm. Each coupon was then stained with 4,6-diamino-2-phenylindole (DAPI) solution and adhered cells were visualised under an epifluorescence microscope and enumerated with appropriated software. The coupons with adhered cells were also observed by scanning electronic microscopy (SEM).

Results: The results of the adhesion assays point to a significant decrease in bacterial adhesion to silicone and acrylic after pre-contact with both conditioning substances. The only exception was observed for strain IE186, which adhered at a similar extent to acrylic pre-contacted with gentian violet and non-pre-contacted acrylic.

Conclusion: The results obtained in this work have a potential clinical significance showing that both heparin and gentian violet are effective in reducing bacterial adhesion. Pre-treatment of biomedical materials with these substances may constitute a successful and expedite procedure to reduce the incidence of nosocomial infections, especially during the insertion of indwelling medical devices.

Session Info: Infection control and nosocomial infections

Session Type: Posters

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