“Our aim was to study the relationships between culture-positive catheter exit site skin swabs, percutaneous central venous catheter segments and blood to determine the magnitude of associations between exit site skin colonisation, catheter colonisation and catheter-related sepsis.” Ponnusamy et al (2014).

Reference:


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Abstract:

AIM: The commonest mode of catheter colonisation is via the extraluminal route with skin bacteria. Catheter-related sepsis causes significant mortality and morbidity in neonates. Our aim was to study the relationships between culture-positive catheter exit site skin swabs, percutaneous central venous catheter segments and blood to determine the magnitude of associations between exit site skin colonisation, catheter colonisation and catheter-related sepsis.
METHODS: In a prospective study, an exit site skin swab and three formerly in-vivo catheter segments (proximal, middle, and tip) were taken for culture at catheter removal. In those neonates who were clinically unwell at catheter removal a peripheral blood culture was also collected. Univariate and multivariate analyses were used to study associations.

RESULTS: Skin swabs were culture-positive in 39 (21%) of 187 catheter removals. With a culture-positive skin swab the risk of associated catheter colonisation was nearly eight times higher (OR: 7.84, 95% CI: 3.59 to 17.15) and the risk of definite catheter-related sepsis with the same organism was nearly 10 times higher (OR 9.86, 95% CI: 3.13 to 31.00).

CONCLUSION: Culture-positive skin swabs from the catheter exit site were strongly associated with catheter colonisation and with definite catheter-related sepsis with the same organism. These data provide further evidence supporting catheter colonisation via the extraluminal route and highlight the importance of optimising skin disinfection before catheter insertion.

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