

Abstract:

AIM: The aims of the study are to evaluate the impact of a 4% chlorhexidine (CHG4%) bathing on the occurrence of central-line-associated bloodstream infection (CLABSI) and to identify risk factors (RFs) for CLABSI in our population. This is a retrospective monocentric cohort study in the paediatric surgical intensive care unit at the Necker Enfants Malades Hospital, Paris, France.

METHODS: All hospitalised patients with central venous catheters (CVCs) in 2015 were included. CHG4% bathing was prescribed in CLABSI high-risk patients, defined by the presence of exposition factors (EFs): constitutive or acquired immunosuppression, presence of an invasive medical device (IMD) and the carriage of *Staphylococcus aureus*. The overall 2015 CLABSI incidence rate was compared with 2014 CLABSI incidence rate (before CHG4% bathing).

RESULTS: In all, 775 patients were analysed. Some 182 had at least one EF, and 49 received CHG4%. The incidence rates of CLABSI in 2014 and 2015 were, respectively, 6.1 and 2.3/1000 days CVC ($P < 0.01$). The presence of at least one EF was associated with the CLABSI's occurrence: odds ratio = 15.13 (95% confidence interval: 4.26-53.71; $P < 0.0001$), particularly acquired immunosuppression, IMD and *S. aureus* colonisation. Other RFs were age < 1 year and carrying duration > 16 days.

CONCLUSIONS: This study showed a significant reduction in incidence of CLABSI after introduction of a targeted CHG4% bathing protocol. Presence of IMD, *S. aureus* colonisation, immunosuppression, age < 1 year and carrying duration > 16 days were CLABSI RFs. Regarding the literature, the presence of IMD seems to be underestimated in CLABSI prevention.

Reference:

Martinez, T., Baugnon, T., Vergnaud, E., Duracher, C., Perie, A.C., Bustarret, O., Jugie, M., Rubinsztajn, R., Frange, P., Meyer, P., Orliaguet, G. and Blanot, S. (2020) Central-line-associated bloodstream infections in a surgical paediatric intensive care unit: Risk factors and prevention with chlorhexidine bathing. *Journal of Paediatrics and Child Health*. January 15th. doi: 10.1111/jpc.14780. (Epub ahead of print).