

LETTER

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Chlorhexidine still has skin in the game



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To the editor:

We read with great interest the recent study by Buetti et al. that described similar infection risk of short-term central venous or arterial catheters covered with either chlorhexidine (CHG) gel or sponge dressings [1]. It was additionally concluded that concomitant use of CHG for skin antisepsis may significantly increase contact dermatitis. In this investigation, contact dermatitis was subjectively reported by nurses when there were any findings beyond “normal skin” including “mild redness only” during dressing changes and line removal. This methodology is simple, but it requires adequate training for the results to be correctly interpreted and used [2].

Despite this, we still favor CHG over povidone-iodine antisepsis, as multiple trials collectively reveal significant reduction in catheter-related blood stream infections by up to 50% [3]. Although severe contact dermatitis may theoretically increase the risk of major catheter-related infection due to skin breakdown, concern for this complication should not preclude use of CHG dressings. In a case series of seven patients with

erosive irritant contact dermatitis due to CHG-containing dressings, simply switching to an alternative antimicrobial dressing led to resolution of the lesions. Most notably, extensive infectious workup for the included patients was negative [4]. Alternative options for CHG-sensitive individuals may include topical antibiotics, silicone and silver-impregnated dressings, and cleansing with alcohol and povidone-iodine.

Many potential materials for central lines and their dressings remain unstudied. Although chlorhexidine and silver sulfadiazine-impregnated catheters have been investigated, these interventions have not been found to significantly reduce catheter-related bloodstream infections compared to standard catheters [5]. However, trials seeking statistically significant conclusions regarding major catheter-related infections must compose a very large sample size due to the small number of events that occur with the current standard of care.

With this in mind, we thoroughly appreciate the high-quality analysis of 3700 catheters with CHG-impregnated dressings set forth by Buetti and colleagues.

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Authors' response: Alcoholic 2% chlorhexidine for skin disinfection should be usedNiccolò Buetti^{1,3} and Jean-François Timsit^{1,2}¹University of Paris, INSERM IAME, U1137, Team DesCID, Paris, France²Medical and Infectious Diseases Intensive Care Unit, AP-HP, Bichat-Claude Bernard University Hospital, 46 rue Henri Huchard, 75877 Paris Cedex, France³Infection Control Programme, University of Geneva Hospitals and Faculty of Medicine, Geneva, Switzerland

To the editor,

We read with great interest the letter by Lackey et al. and their statement on chlorhexidine gluconate (CHG) skin disinfection and CHG-impregnated dressings [6].

The aim of our study was to perform a comparison between CHG-impregnated sponge-dressing and CHG-gel-dressing [1]. A supplementary analysis showed that concomitant use of CHG for skin antisepsis and CHG-impregnated dressing may increase contact dermatitis among CHG-gel-dressings. We agree with Lackey et al. that the outcome ICDRC ≥ 1 should be interpreted with caution. Therefore, we performed a sensitivity analysis using as outcome an ICDRC ≥ 2 (i.e., "red and slightly thickened skin"). This sensitivity analysis confirmed the results of the main analysis using as outcome an ICDRC ≥ 1 [1]. Moreover, we performed a supplementary analysis for addressing this question using the ordinal variable "ICDRC": we used mixed effects ordinal logistic regression models for clustered data (PROC GENMOD of SAS) with the response variable ICDRC, and we adjusted for the time between catheter insertion and dressing change and the ICU. The odds ratio for the increase by one ICDRC degree at each dressing change was 4.71 (95% CI 2.12–10.46, $p < 0.001$) for Gel-dress (versus Sponge-dress). Therefore, our results were confirmed taking into account all ICDRC degrees of contact dermatitis.

We completely agree with Lackey et al. regarding CHG skin disinfection. The most recent meta-analysis on this topic showed that CHG skin disinfection reduced catheter-related bloodstream infections (CRBSI) although the evidence was low grade [7]. These findings were confirmed by the CLEAN trial that illustrated the superiority of alcoholic 2% CHG (versus alcoholic 5% povidone iodine) in CRBSI prevention [8]. We are, therefore, convinced that alcoholic 2% CHG should be used for skin antisepsis prior to any intravascular catheter insertion in the ICU [9]. However, the additional benefit in CRBSI prevention of CHG-impregnated dressings after skin antisepsis with alcoholic CHG 2% remains unknown [9]. In our opinion, the use of CHG-impregnated dressings should be

considered only in ICUs having infection rates above the institutional goals [9]. Moreover, in our analysis, only alcoholic $\leq 0.5\%$ CHG was used: the frequency and impact of contact dermatitis using concomitantly 2% CHG for skin disinfection and CHG-impregnated dressings remain an unresolved issue.

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AL wrote the preliminary letter to the editor after reviewing the original article with BK and AP. BK and AP edited and contributed additional commentary to the final draft. The authors read and approved the final manuscript.

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Consent for publication

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