

High Incidence of Chlorhexidine-Induced Rash Among Thai Health Care Workers

TO THE EDITOR—Chlorhexidine gluconate cloths and baths are an adjunct measure for source control and reduced bioburden of several multidrug-resistant pathogens in health care settings [1–3]. Although adverse skin reaction induced by chlorhexidine has been rare in the United States, anaphylactic reactions and eczema have been reported [4, 5]. To date, chlorhexidine gluconate has not been widely used in Asia-Pacific regions. We report findings from a pilot study to evaluate the incidence of skin reaction induced by chlorhexidine gluconate among health care workers (HCWs).

During the period 1–10 May 2011, we applied 4% aqueous-based chlorhexidine gluconate to the right forearm of all HCWs from 3 intensive care units who consented to participate. Study nurses monitored the occurrence of skin reactions from day 1 through day 7 according to a validated grading system [6]. Among the HCWs who developed any skin reaction from 4% aqueous-based chlorhexidine gluconate, 2% aqueous-based chlorhexidine gluconate was applied to the left forearm 2 weeks after the original skin reaction was resolved. Data collected included demographic characteristics, underlying diseases, and the occurrence of rash induced by aqueous-based chlorhexidine gluconate for all participants.

There were a total of 92 HCWs from 3 intensive care units, and all consented to study participation. Participants'

mean age was 27 years (range, 24–52), 82 (89%) were female, 88 (98%) were nurses and nurse assistants, and 4 had underlying diseases (dermatitis [2], allergy [1], and systemic lupus erythematosus [SLE; 1]). Five (5%) of the 92 HCWs developed a grade I skin reaction at the right forearm site where 4% aqueous-based chlorhexidine gluconate was originally applied. The median time to onset of rash was 1 day (range, 0–3 days), and no severe reactions were associated with the rash (eg, anaphylaxis or angioedema). Only 1 HCW (20%) took any medication during the 2 weeks prior to the onset of rash (steroids for SLE). Three (60%) of 5 HCWs with skin reactions had a history of either dermatitis ($n = 2$) or allergy to dust ($n = 1$). The incidence of chlorhexidine-induced skin rash was 2% (2/94) among HCWs who had no underlying diseases of dermatitis or allergy to dust. All 5 HCWs who developed rash consented to application of 2% aqueous-based chlorhexidine gluconate to the left forearm 2 weeks after resolution of the initial skin rash. Grade I skin reactions were detected in all 5 participants. The median time to onset of rash was 1 day (range, 0–2 days), and there were no severe reactions associated with the rash.

In this study, we found a high incidence (5%) of aqueous-based chlorhexidine gluconate-induced skin reaction among Thai HCWs. The rash occurred after exposure to 4%, and later 2%, chlorhexidine gluconate concentrations. The majority of HCWs who developed rash had underlying diseases, such as dermatitis or allergy to dust. Although there was no clear explanation for this chlorhexidine-induced rash, this may be related to genetic factors [7] or to the increased proportion of immunoglobulin E and immunoglobulin G antibodies to chlorhexidine that has been shown among Japanese patients [8]. Our study findings highlight the need to monitor for HCW

skin reactions to hand hygiene and antiseptic products in Asian populations, particularly among patients who had underlying diseases of dermatitis or allergy. Additional studies are needed to provide more insight into the high incidence of chlorhexidine-induced skin reaction.

Notes

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