Abstract:

Objective: To determine the effects of chlorhexidine gluconate (CHG) on skin inflammation and stratum corneum barrier integrity at peripherally inserted central catheter (PICC) sites among patients in the neonatal intensive care setting.

Study Design: In a within-subject design, PICC sites with CHG plus semipermeable dressing (PICC) were compared with contralateral dressing sites and untreated controls among 40 neonates (gestational age 32.14.7) at weekly dressing changes, using quantitative measures of skin erythema, dryness and barrier integrity (transepidermal water loss, TEWL). Data were analyzed using analysis of variance and linear mixed methods.

Results: At week 1, all three sites differed for erythema with the highest value indicating poorer skin condition at the PICC site. Dressing-site erythema was higher than the untreated control. Dryness and TEWL were higher, indicating poorer skin integrity, for the PICC site than either the dressing or the control. After 2 weeks, erythema and dryness scores were higher for the PICC site than the dressing and control skin. By week 3, scores were comparable for PICC and dressing sites and both were higher than the control for erythema and dryness. After 3 weeks, PICC skin TEWL was higher than both dressing and control and they did not
differ from each other.

Conclusion: The dressings used to secure PICC lines contribute to the observed skin compromise at CHG-treated skin sites and may affect skin barrier development in similar populations of neonates.