A Novel Integrated Chlorhexidine-impregnated Transparent Dressing for Prevention of Vascular Catheter-related Bloodstream Infection: A Prospective Comparative Study in Healthy Volunteers

INTRODUCTION

Catheter-related bloodstream infections (CRBSIs) remain a major source of morbidity and mortality. Chlorhexidine gluconate (CHG) is the most widely used antimicrobial agent for cutaneous prepping of patients undergoing vascular access procedures, but its efficacy against the skin microbiome is limited. CHG in alcohol-based solutions is highly effective in reducing skin microbial load but can cause irritation, tissue necrosis, and biofilm formation, particularly in neonates and immunocompromised patients. A novel integrated transparent CHG-impregnated dressing showed significantly lower bacterial counts than CHG-impregnated dressings, providing substantial protection against CRBSI.

METHODS

A double-blind, randomized, controlled trial comparing CHG-impregnated sponge dressing, CHG-impregnated transparent dressing, and no dressing was conducted. The study included 22 healthy volunteers, who were randomly assigned to receive the dressing. The dressing consisted of a reusable CHG-impregnated collodion dressing that was applied to the skin site and covered with a sterile nonmedicated second dressing.

RESULTS

The study found that the novel integrated CHG-impregnated transparent dressing significantly reduced bacterial counts compared to CHG-impregnated sponge dressing and no dressing. The dressing was well tolerated and provided significant protection against CRBSI.

DISCUSSION

The study results indicate that the novel integrated CHG-impregnated transparent dressing is a promising solution for reducing the risk of CRBSI.

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REFERENCES