A Comparative Study Of Chlorhexidine-Alcohol Versus Povidone-Iodine For Surgical Site Antisepsis In Clean & Clean Contaminated Cases

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Abstract: Background: Surgical Site Infections are the third most commonly reported nosocomial infections all over the world. Despite the advances made in preoperative asepsis, patients subjected to operations naturally have to face the risk of complications due to infections. Patient’s skin is a major source of pathogens that cause Surgical Site Infection.

Materials and methods: Our study compares the efficacy of Chlorhexidene-Gluconate (2.5%) & Isopropyl Alcohol (63%) to Povidone-Iodine (5%) in preventing surgical site infections in 508 clean and clean contaminated cases. Patients were preoperatively evaluated which included Medical & Surgical history, Physical Examination, Routine hematologic and blood chemical laboratory tests. This study is conducted as a single blinded Randomised control trial.

Results: Our results showed that Surgical Site Infections are significantly less in Chlorhexidine-Alcohol group of patients than in Povidone-Iodine group (9.96% vs 15.95 p<0.05).

Conclusion: Chlorhexidene - Alcohol is more efficacious than Povidone-Iodine in preventing Surgical Site Infections in Clean & Clean Contaminated Cases.

Keywords: Chlorhexidine-Alcohol, Povidone-iodine, Surgical Site infection
the Povidone–iodine group (Fig. 1). Of the 740 subjects who qualified for the analysis, 251 received Chlorhexidine–alcohol and 257 received Povidone–iodine. 232 subjects were excluded from the per protocol analysis: 57 underwent Class III (Contaminated) and Class IV (Dirty) rather than Clean and Clean-contaminated surgery. 175 subjects (76 in the Chlorhexidine–alcohol group and 99 in the Povidone–iodine group) did not complete follow-up protocol. Therefore, 508 subjects (251 in the Chlorhexidine–alcohol group and 257 in the Povidone–iodine group) were included in the per-protocol analyses. The subjects in the two study groups were similar with respect to demographic characteristics, coexisting illnesses, risk factors for infection, preoperative antimicrobial prophylaxis and duration and types of surgery.

**Conclusion:**
The infection rates observed in Chlorhexidine-alcohol and Povidone-iodine in present study were 9.96% and 15.95% respectively. This difference in infection rates is statistically significant. This proves the hypothesis that Chlorhexidine is superior to Povidone iodine. The superiority of Chlorhexidine alcohol can be attributed to its various properties such as Chlorhexidine leaves a protective film whereas Povidone-iodine leaves no film once rinsed off the skin leading to longer residual action. Presence of blood or serum protein does not alter Chlorhexidine-alcohol’s bactericidal activity. Chlorhexidine-alcohol has rapid lethal action against both transient and resident flora, especially on anaerobic bacteria. Therefore it can be safely concluded that Chlorhexidine-alcohol can be used for preoperative skin preparation as an alternative to Povidone-iodine in clean and clean-contaminated surgeries. Since the superiority of Chlorhexidine-alcohol was proved in decreasing incision site colonization and postoperative wound infection, it would be prudent to use this regimen in contaminated and emergency surgeries as well.

**Key Words:**
Chlorhexidine-Alcohol, Povidone-iodine, Surgical Site infection.

**Bibliography**

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