

OP7

Evaluation of bactericidal activity of antiseptics and disinfectants commonly used in healthcare settings in Colombo District

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Background: Increasing risk of healthcare associated infections especially polymicrobial wound infections is a major problem in healthcare settings in Sri Lanka. Proper use of antiseptics and disinfectants may be useful in reducing the magnitude of such infections.

Objectives: To determine the efficacy of bactericidal activity in recommended concentrations and lower concentrations of selected antiseptics and disinfectants.

Methods: Bactericidal activity of 40%, 50% and 60% isopropyl alcohol, 1%, 5% and 10% povidone iodine, 1%, 2% and 4% chlorhexidine gluconate, 1.22%, 1.42% and 1.62% peracetic acid, 1.9% and 2.9% hypertonic saline and 1.5%, 2% and 2.5% of the mixture of 2-aminoethanol, didecyldimethylammonium chloride, potassium carbonate and bis (3-Aminopropyl) dodecylamine was evaluated with 9 standard strains of American Type Culture Collection (ATCC) and 13 clinical isolates of bacteria. Reduction of growth of methicillin sensitive *Staphylococcus aureus* (MSSA), methicillin resistant *Staphylococcus aureus* (MRSA), *Streptococcus pyogenes*, *Enterococcus faecalis*, *Acinetobacter baumannii*, *Escherichia coli*, *Klebsiella*

pneumoniae (ESBL and carbapenem resistant), *Pseudomonas aeruginosa* was assessed with contact times of 1 minute, 15 minutes and 24 hours by counting colonies comparing with test control which contains same volume of distilled water instead of antiseptic or disinfectant solution.

Results: All chemicals except hypertonic saline showed 100% bactericidal activity in all concentrations against all tested bacteria in stated contact times. Hypertonic saline in 1.9% and 2.9% showed significant reduction of Gram positive bacteria and *Acinetobacter baumannii* only after 24 hours. *Acinetobacter baumannii* was inhibited by 1.9% and 2.9% of hypertonic saline in 67.48% and 68.20% of respectively; however, other Gram negative bacteria were not inhibited.

Conclusion: Recommended concentrations of antiseptics and disinfectants have an accepted bactericidal activity against tested standard strains and clinical isolates. Hypertonic saline is only effective to inhibit Gram positive bacteria after 24 hours of contact time.

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