

POSTER PRESENTATION

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Is your antiseptic effective against clinical multidrug-resistant microorganisms? A chlorhexidine digluconate formulation demonstrates efficacy even in lower concentrations

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Introduction

Managing Healthcare-associated Infections (HAI) and multidrug-resistant Microorganisms (MDRO) is a daily challenge in hospitals. Universal decolonization by daily bathing with impregnated cloths can result in a reduction of HAIs.

Objectives

The objective of this study was to measure the effectiveness of a Chlorhexidine digluconate (CHG) formulation against clinical MDRO.

Methods

Gram-negatives were classified as extensively drug-resistant (XDR-GN) [1]. Additionally, MRSA and VRE isolates were tested. CHG was tested in concentrations of 20mg/ml, 10mg/ml, and 5mg/ml. Two analyses were performed. (1) A quantitative suspension test according to European Standard EN 12353 [2]. Briefly, bactericidal efficacy was determined without organic load, neutralizations was achieved by Caso-bouillon and LTHTh. (2) MIC testing procedures were based on those outlined in the FDA Tentative Final Monograph. Briefly, a 96 well microtitre plate containing doubling dilutions of CHG was set up; broth cultures were standardised to 1×10^8 CFU/mL and added. MIC was defined as the lowest concentration of CHG at which no bacterial growth was observed.

Results

The suspension tests showed good susceptibility to CHG of all strains. Reduction rates were 99.9-100% for all

strains even in lower concentrations. At 15 seconds and a CHG concentration of 5mg/ml a 99.97% reduction of XDR *P. aeruginosa*, a 99.99% reduction of XDR *K. pneumoniae*, and a 99.94% reduction of XDR *E. coli* could be demonstrated. The MIC analysis showed efficacy ranging 19.53 to 39.06 $\mu\text{g/ml}$ in XDR *P. aeruginosa*, 4.88 to 39.06 $\mu\text{g/ml}$ in XDR *K. pneumoniae*, and 4.88 to 9.77 $\mu\text{g/ml}$ in XDR *E. coli*. MRSA showed very low MICs ranging from 1 : 8192 to 1 : 65536; VRE showed MICs ranging from 1 : 512 to 1 : 2048.

Conclusion

In both analyses, CHG demonstrated an excellent performance against MDRO. The results of these clinical isolates studies and the concentration achieved on patient's skin demonstrate a very large safety margin when using this formulation. Effective decolonization of patients' skin can play an important role in reducing risk of HAIs.

Disclosure of interest

None declared.

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References

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2. European Normative: Chemical disinfectants [...] version EN 12353. 2013.

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