



THE IMPACTS OF CONTACT TIME AND CONCENTRATION CHLORHEXIDINE TO METHICILLIN RESISTANT STAPHYLOCOCCUS AUREUS (MRSA) GROWTH

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INTRODUCTION

Staphylococcal infection spread in the hospital especially as a nosocomial infection could be controlled by the using of proper antiseptic by the medical staff. This study carried out impacts of contact time and concentration chlorhexidine to Methicillin Resistant *Staphylococcus aureus* (MRSA) growth use in various contact time and concentrations. Chlorhexidine 0.25%, 0.5%, 1%, 2% and 4% had been tested to MRSA isolate in various contacttime i.e. 30", 60", 90" and 120". Control groups were MRSA contacted each to 0% chlorhexidine. All treatment replicated 4 times. Chlorhexidine inhibition effect compared to control group. The result showed there were different inhibition effects by chlorhexidine to MRSA growth in the control groups of all concentrations. Significance different in contact time only happened between 30", 60" and 90". The conclusion of the investigation showed that 0.25% concentration of chlorhexidine and 90" contact time were the most effective concentration and contacttime for inhibition Methicillin Resistant *Staphylococcus aureus* growth.

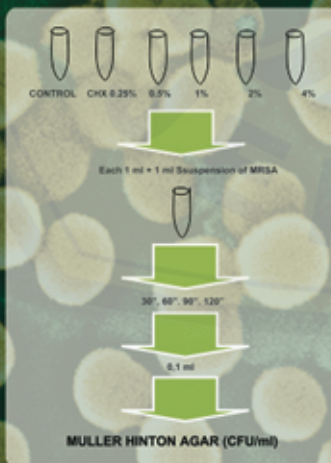
Key word: chlorhexidine, concentration, contact time, MRSA

INTRODUCTION

Staphylococcal infection spread in the hospital especially as a nosocomial infection could be controlled by the using of proper antiseptic by the medical staff. Methicillin-resistant *Staphylococcus aureus* (MRSA) continues to be a global problem in infection control. For many years it has been a major cause for nosocomial infections in many countries. The proportion of methicillin resistance among clinical isolates of *S. aureus* is still increasing. In southern European countries, the proportion may be as high as 55%. MRSA now even becomes an increasing problem in the community. Transmission of MRSA in community has been shown to be as high as 60%. Family members who are living with MRSA carriers are in danger of MRSA transmission. Dermal colonization with MRSA may be persistent, especially in the groin. That is why attempts are often undertaken to treat colonized MRSA patients. Antibiotics were shown to be effective in uncontrolled and controlled trials with eradication rates between 53% and 85%. But antibiotics are considered to be inappropriate for patients who are only colonized and not infected with MRSA. One reason is their potential to cause adverse effects, especially allergy, which can not be justified for patients who do not have an infection. More important is the risk of emergence of vancomycin-resistance in *S. aureus*. Topical antiseptic measures, however, are normally employed. The nasal cavity is usually treated with mupirocin or with tolerable antiseptic. Dermal colonization is eradicated with antiseptic liquid soap. Only few studies have addressed the question of MRSA eradication among colonized patients with liquid soaps in combination with nasal treatment. All of them are uncontrolled trials and most of them have different types of biases (Kampf & Kramer, 2004).

MATERIAL AND METHODE

Chlorhexidine 0.25%, 0.5%, 1%, 2% and 4% had been tested to MRSA isolate in various contacttime i.e. 30", 60", 90" and 120". Control groups were MRSA contacted each to 0% chlorhexidine. All treatment replicated 4 times. Chlorhexidine inhibition effect compared to control group.



RESULT AND DISCUSSION

The result showed there were different inhibition effects by chlorhexidine to MRSA growth in the control groups of all concentrations. Significance different in contact time only happened between 30", 60" and 90".

Table 1. Mean of MRSA growth after contact with chlorhexidine

Contact Time	Mean of MRSA colony count					
	Concentration of chlorhexidine					
	0%	0.25%	0.50%	1%	2%	4%
30	100	20.31	5.4	0	0	0
60	100	4.24	1.3	0	0	0
90	100	1.05	0	0	0	0
120	100	0.23	0	0	0	0

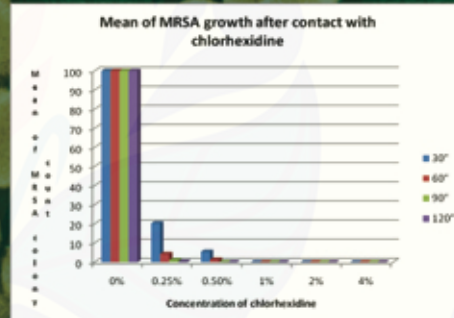


Fig 1. Mean of MRSA growth after contact with chlorhexidine



Fig 2. MRSA growth after contact with chlorhexidine 0.25%, contact time 90" and 120"

CONCLUSION

The conclusion of the investigation showed that 0.25% concentration of chlorhexidine and 90" contact time were the most effective concentration and contacttime for inhibition Methicillin Resistant *Staphylococcus aureus* growth.



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