Evaluation of an Alcohol-Based Antiseptic for Nasal Decolonization of Methicillin-Resistant Staphylococcus aureus (MRSA)

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Introduction

- Due to concerns for emergence of mupirocin resistance, there is an interest in use of topical antiseptics for nasal decolonization of Staphylococcus aureus
- Alcohol-based nasal antiseptics have recently been developed as an alternative to mupirocin, but there is limited data on efficacy, particularly among patients where the burden of carriage is often high

Methods

- We evaluated the effectiveness of a one-time application of a commercial alcohol-based nasal sanitizer for reduction in nasal methicillin-resistant S. aureus (MRSA) in MRSA-colonized patients with positive baseline cultures for nasal MRSA
- Intervention: a single dose (N=15 subjects) or triple dose (N=22) of nasal sanitizer administered over 3 minutes; the triple dose is recommended for preoperative dosing
- Controls: no treatment for single dose group (N=15) and phosphate-buffered saline application for the triple dose group (N=23)
- Efficacy: quantitative culture for nasal MRSA (log₁₀ colony-forming units per swab) at baseline and 10 minutes, 2 hours, and 6 hours after application
- For a subset of patients (N=23), cultures for MRSA were collected from hands and clothing

Results

- Of 75 MRSA carriers, 72 (96%) were male and the mean age was 65
- As shown in Fig.1 (Panel A), the single dose application reduced mean MRSA concentrations from baseline at 10 minutes and 2 hours after dosing, but the reductions were not statistically significant in comparison to baseline levels or to untreated controls
- As shown in Fig.1 (Panel B), the triple dose application significantly reduced mean MRSA concentrations in comparison to controls at 10 minutes and 2 hours, but not 6 hours, after dosing
- As shown in Fig.2 below, MRSA was frequently recovered from the clothing and hands of MRSA carriers, even in those with low burden of nasal carriage

Conclusions

- A single application of an alcohol-based nasal sanitizer did not significantly reduce nasal MRSA, and a triple dose only transiently reduced the burden of MRSA
- Additional studies are needed to determine if higher alcohol doses or repeated applications might result in improved efficacy