



CA-MRSA: RESISTANCE AND TREATMENT IN A SOUTH TEXAS AMBULATORY RESEARCH NETWORK

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Background

Community-acquired methicillin-resistant *Staphylococcus aureus* (CA-MRSA) is linked to widespread increases in skin and soft tissue infections (SSTIs). The literature is abundant with CA-MRSA SSTI studies; however, few investigations have examined these types of infections in community settings. Furthermore, practitioners await improved management strategies to combat reported high rates of treatment failures and recurrent infections.

Objective

To test the hypothesis that CA-MRSA treatment outcomes depend on interplay of (1) antibiotic resistance, (2) bacterial exotoxins, and (3) pharmacokinetics-pharmacodynamics (PK-PD).

Methods

This ongoing, prospective, translational, community-based study involves six medical clinics in Central and South Texas. Patients suspected of CA-MRSA SSTI were eligible for study inclusion. All sites collected a medical information card, picture of the infection, and wound swab for each enrollee; data were processed centrally. Swabs were plated onto Tryptic Soy Agar (TSA) to promote logarithmic growth; MRSASelect™ agar was used for identification and isolation of MRSA. MRSA isolates underwent antibiotic susceptibility testing, via Etest® to anti-MRSA agents on Mueller-Hinton Agar (MHA). The following strains were used as quality controls (QC): ATCC 43300, positive MRSA Select™ QC, ATCC 25923, negative MRSA Select™ QC, and ATCC 29213, Etest® QC. Pathogens will be confirmed by chart review. Descriptive statistics were used to summarize data.

Methods



Results

Table 1: Patient Demographics

| | N | Overall |
|--|----|------------|
| Gender, % | 42 | |
| Male | | 23 (55%) |
| Female | | 19 (45%) |
| Race, % | 35 | |
| Black | | 2 (6%) |
| White | | 28 (80%) |
| Other | | 5 (14%) |
| Ethnicity, % | 40 | |
| Hispanic | | 32 (80%) |
| Non-Hispanic | | 8 (20%) |
| BMI (kg/m ²), median (IQR) | 31 | 30 (25-39) |
| Risk factors, % | 42 | |
| Diabetes | | 8 (19%) |
| Prior skin infection w/in 90 days | | 9 (21%) |
| MRSA | | 3 (7%) |
| Received antibiotic | | 9 (21%) |

* IQR, Interquartile range

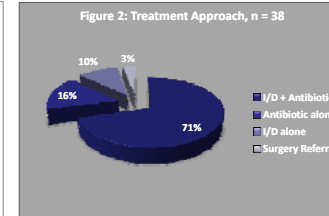
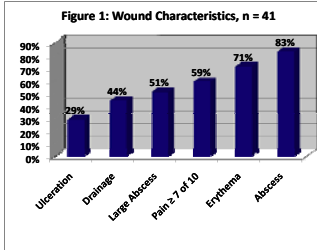


Table 2: MIC₅₀ Data, n = 17

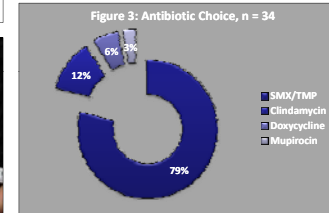
| Antibiotic | MIC ₅₀ (µg/mL) |
|-------------|---------------------------|
| SMX/TMP | 0.064 |
| Doxycycline | 0.064 |
| Clindamycin | 0.094 |
| Linezolid | 1.0 |
| Vancomycin | 1.5 |

Conclusion

Many patients with suspected community-acquired methicillin-resistant skin and soft-tissue infections were culture positive for MRSA; most received I/D, with anti-MRSA therapy. Genetic testing and PK-PD simulations are ongoing.

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