2319. Molecular Epidemiology of *Staphyloccoccus aureus* Isolated From Korean Children

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Background. Major community acquired-methicillin-resistant *Staphylococcus aureus* (CA-MRSA) clones have been reported worldwide including ST1 in Asia, Europe, United States, ST8 in Europe and United States and ST30 in Australia, Europe and South America. Panton–Valentine leukocidin (PVL) positive ST30-SCC*mec* IV has been reported as an important CA-MRSA in Singapore, Japan and Latin America, however reports in Korean children are limited. Therefore we investigated the antimicrobial resistance and molecular characteristics of *S. aureus* among children in Korea.

Methods. *S. aureus* previously isolated from children at Seoul National University Bundang Hospital (2010–2016) were analyzed for multilocus sequence type, SCC*mec* typing, and PCR of *PVL*, *qac* A/B, *smr* and *mup*A genes. Electronic medical records were reviewed for clinical data and antibiotic susceptibility results.

Results. A total of 79 isolates from skin and soft-tissue infection (SSTI) (N = 41, 51.9%), bone and joint infection (N = 26, 32.9%) and staphylococcal scalded skin syndrome (SSSS) (N = 12, 15.2%) were included. Among these, 32 (40.5%) were MRSA. Among children with underlying diseases (20.3%, 16/79), 56.3% (9/16) were MRSA. After excluding these cases, among children ≤1 month of age, 84.6% (11/13) were MRSA, whereas in children ≥2 months of age, 95.2% (20/21) of SSTI, and 90.0% (18/20) of bone and joint infection were MSSA. All SSSS cases were MRSA. Among MSSA strains, ST30 (N = 28, 59.6%) was the predominant clone and among ST30, 96.6% (28/29) were MSSA. MRSA strains included ST72-SCC*mec* IV (N = 15, 46.9%), ST89-SCC*mec* IV (N = 10, 31.3%), ST 5-SCC*mec* II (N = 3, 9.4%) and ST1-SCC*mec* IV (N = 3, 9.4%). ST30 was the most common clone in SSTI and bone and joint infection whereas ST89-SCC*mec* IV was most common in SSSS. *PVL* was detected in 3 strains (3.8%, ST30-SCC*mec* IV N = 1, MSSA ST30 N = 2) and *qac* A/B in 3 strains (MRSA = 3), *smr* in 3 strains (MSSA = 1, MRSA=2) and *mup*A in 7 strains (MRSA = 5, MSSA = 2).

Conclusion. The molecular epidemiology of *S. aureus* in Korean children differed from other countries. Among children with SSTI and bone and joint infection, ST30 was the predominant strain, and the majority was MSSA. Among MRSA isolates, ST72-SCC*mec* type IV was the most common clone in SSTI and bone and joint infection, and ST89-SCC*mec* type IV in SSSS.

Disclosures. **H. Lee**, National Research Foundation of Korea: Grant Investigator, Grant recipient

2320. Decolonization of the Oropharynx, an Important and Neglected Reservoir of *Staphylococcus aureus* Colonization

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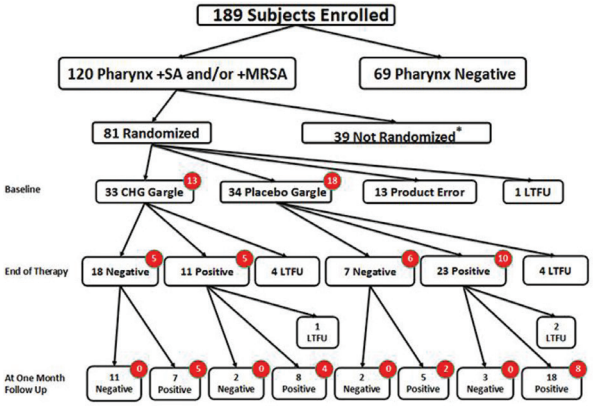
Background. Community-associated *S. aureus* skin and soft-tissue infections are common and recur in 20 to >50% of cases. Decolonization trials have been disappointing for unclear reasons, but may be related to untreated reservoirs. Given recent data that oropharyngeal (OP) *S. aureus* colonization is common with a prevalence comparable to nasal colonization, we performed a double-blind, placebo controlled trial of the efficacy of oral chlorhexidine gluconate (CHG) for OP *S. aureus* colonization.

Methods. We enrolled healthy outpatient children from ages 5 to 17 who were tested for OP *S. aureus* colonization. Colonized subjects were randomized to 0.12% CHG or placebo gargle twice daily × 7 days. Primary endpoint was OP colonization at the End of Therapy (EOT) visit using an intention to treat (ITT) model. We also measured OP colonization at 28 days and nasal *S. aureus* colonization at all study visits.

Results. Among 189 consented subjects, 120 (63%) had OP colonization; 81/120 (66%) were randomized and 67 were analyzable (CHG: N = 33; Placebo: N = 34). Fourteen subjects were not analyzable due to product error or loss to follow-up prior to study drug receipt (figure). In the ITT analysis, EOT OP *S. aureus* colonization was 45% (15/33) in the CHG group and 79% (27/34) in the placebo group (P = 0.004). In the as treated analysis, OP colonization was 40% (11/29) and 77% (23/30) in the CHG group and placebo groups (P = 0.003). At Day 28 in the ITT model, OP colonization was 61% (20/33) vs. 85% (29/34) in the CHG and placebo groups (P = 0.03). At EOT nasal colonization in those without OP colonization was 11/25 (44%) vs. 15/34 (44%) in those still OP colonized. At Day 28, nasal colonization was 0/18 (0%) in those without OP colonization vs. 19/38 (50%) in those with OP colonization.

Conclusion. One week of 0.12% oral CHG gargle was more effective than the placebo at eradicating *S. aureus* OP colonization in *S. aureus* colonized children. Significant differences persisted at Day 28. Persistent OP colonization at Day 28 was associated with nasal *S. aureus* colonization, suggesting that nasal colonization may contribute to persistence and relapse of OP *S. aureus* colonization. Our findings support decolonization trials that include OP *S. aureus* decolonization as part of a more aggressive *S. aureus* decolonization strategy.



Legend
Red circles represent number of subjects that had nasal *S. aureus* colonization at each visit. *Of the 39 not randomized, 31 were not randomized due to loss of contact (not returning calls, incorrect numbers given) with subjects, 4 subjects withdrew from the study, 2 subjects were not randomized due to being prescribed antibiotics upon initial screening, and 2 subjects were not randomized due to the expectation of re-hospitalization.

Disclosures. **All authors:** No reported disclosures.

2321. Epidemiology of *Staphylococcus aureus* Infections in Patients Admitted to Freestanding Pediatric Hospitals, 2009–2016

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Background. *S. aureus* causes a substantial number of pediatric infections in the United States each year, with potential for severe complications including death. Recent data suggest *S. aureus* infections are declining in adults, but a nationally representative and contemporary characterization of trends in pediatric *S. aureus* infections is lacking. Our objective was to describe recent pediatric hospitalization trends for *S. aureus* and associated antibiotic prescribing patterns.

Methods. We conducted a retrospective cohort study using Pediatric Health Information Systems data from 39 tertiary care freestanding children's hospitals in the United States. All inpatient encounters for patients ages <18 hospitalized between 1/1/2009–12/31/2016 at a continuously reporting hospital were included. Analysis was limited to patients with *S. aureus* infection, defined as: 1) having ≥1 ICD discharge code for methicillin-resistant (MRSA) or methicillin-susceptible (MSSA) *S. aureus*; and 2) ≥1 anti-staphylococcal antibiotic received. Analysis for rates were per 1,000 hospital admissions, antibiotic days of therapy (DOT) per 1,000 patient-days, and trends were analyzed using Cochran-Armitage tests; significance was set at $P < 0.05$.

Results. From 2009–2016 we identified 116,152 *S. aureus* hospitalizations. Patients had median age 3 (interquartile range: 0–11 years); 53.7% were male, 52.5% non-Hispanic white, and 18.8% non-Hispanic African American. From 2009 to 2016, *S. aureus* hospitalizations declined 36% from 26.3 to 16.8 infections per 1,000