**Title of Presentation**

Staphylococcus aureus Colonization Site and Topical Antibiotic Susceptibilities in Pediatric Patients with Atopic Dermatitis

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**Case Summary**

**BACKGROUND:** S. aureus infections in patients with atopic dermatitis (AD) are associated with clinical deterioration and related to higher rates of colonization.1 While routine to evaluate nasal colonization, evidence suggests rectal colonization may be significant in children with S. aureus SSTIs.2 The significance of this colonization site has not been evaluated in the AD population. Additionally, there is rising incidence of antibiotic resistance among S. aureus. Bacterial resistance to topical antimicrobials, a mainstay of therapy, is not routinely tested. Our aim is to further characterize S. aureus colonization patterns in children with AD, including colonization sites and topical antibiotic resistance patterns.

**METHODS:** Cases were enrolled prospectively over a 3 year period; patients 0-17yrs with AD were eligible. Routine antimicrobial sensitivities were recorded from bacterial cultures of nares, perianal skin and active area(s) of dermatitis. Isolates are then tested for susceptibility to a panel of topical antimicrobials (mupirocin, bacitracin, polymyxin, neomycin, retapamulin, sodium hypochlorite).

**RESULTS:** 421 cultures were obtained from 134 cases. EASI score ranged from 0-55 (mean 13.4). Of the cases: 77% had positive cultures, 44% had all sites positive, 23% had all sites negative, 18% had positive culture only at the area of dermatitis and 7% only at the colonization site. 56% of all cultures were positive: 49% nasal, 51% perianal &amp; 68% dermatitis cultures were positive. 83% of isolates were MSSA, 17% MRSA &amp;amp; &amp;1% were GAS. Odds ratio (OR) of positive culture from dermatitis vs nares was 4.27 (95% CI 2.05-8.88, p&amp;lt;0.001); OR of positive perianal culture vs nares was 1.11 (95% CI 0.59-2.09, p=0.747).

EASI score was found to correlate with presence of S. aureus. Mean EASI in cases with negative cultures was 8 less than cases with 1 or more positive culture, 6.8 vs 15, respectively (95%CI -12.4, -4, p&amp;lt;0.001). EASI increased with number of positive cultures; 6.8, 11.1, 10.5 and 21 in cases with 0, 1, 2, and 3 positive cultures respectively (p&amp;lt;0.001).

Mupirocin resistance was found in 15% MSSA and 56% MRSA isolates; clindamycin resistance was noted in 13%. Susceptibility studies in progress for bacitracin, polymyxin, neomycin, retapamulin and sodium hypochlorite (anticipate data prior to presentation).

**CONCLUSIONS:** In pediatric AD, bacterial isolates are more likely to be found on areas of active dermatitis. EASI score correlated with presence of S. aureus. MRSA represented 17% of isolates. Mupirocin resistance was 15% in MSSA and 56% in MRSA isolates in line with recent data from our institution.3

**References**

**Title of Presentation**
Creation of an Atopic Dermatitis Management Algorithm for Primary Care Providers and Assessment of Its Usefulness as a Clinical Tool

**Presentation #**
1

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**Case Summary**
There is a lack of primary care provider (PCP) understanding of atopic dermatitis (AD) treatments and topical steroid use. [1-3] An expert panel has concluded that a clear rationale exists to support AD guideline development. [4-6] We designed an AD management algorithm for pediatric PCP’s addressing four main themes: use of topical steroids, treatment of infection and itching, gentle skin care, and trigger avoidance. We hypothesized that the management algorithm would improve pediatric PCP’s knowledge of AD diagnosis and management. Pediatric primary care resident and attending physicians at UCSF, UTSW-Austin, and Stanford participated in an AD algorithm survey study administered through a Qualtrics electronic survey. Participants were randomized into two balanced groups with similar baseline knowledge and prior dermatology training and given a pre-intervention survey containing demographic questions and 19 knowledge-based questions. The intervention group then received a 30-minute lecture and a copy of the algorithm to use in inpatient or outpatient settings for two months. The control group did not get the algorithm or additional education. A similar post-intervention survey was administered to both groups. Statistical analysis was performed using a two-tailed unpaired t-test and significance was achieved at p=0.05. Of the 54 physicians who completed the surveys, there was significant individual improvement in knowledge scores from pre-test to post-test in those physicians who received the intervention (+0.73 ± 2.49, N = 26) versus the control group (-0.82 ± 2.93, p= 0.04, N = 28). The intervention group had a higher average score on the post-test knowledge questions (71% correct) compared to the control group (65% correct), p=0.005. The majority of physicians who received the algorithm agreed or strongly agreed that they liked using the algorithm (65%). Physicians used the steroid management section of the algorithm the most (81%) and the triggers section the least (46%). The intervention group did not report more confidence in managing atopic dermatitis or improved frequency of appropriate assessment and treatment in the four areas compared to the control group. Thus, in our study, the use of an AD management algorithm improved physician knowledge about the diagnosis and treatment of AD and was well accepted by physicians. Use of this management algorithm in the future may lead to improved patient outcomes, including faster recognition of and therapy for super-infection and improved quality of life for patients and parents.

**References**
**Title of Presentation**

Infantile Hemangioma of the Breast: Long-term Assessment of Outcomes

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**Case Summary**

Background: Infantile hemangioma (IH) is the most common tumor of infancy, occurring in 2-10 percent of newborns. The tumor can distort nearby anatomic structures in its proliferative phase. Surgeons may be pressured to resect involuted hemangioma near the nascent breast because of psychosocial concerns in childhood; however, there is also concern about iatrogenic hypoplasia in the future and inability to breast-feed. There is little written on the clinical course of IH of the nipple-areola and possible effect on breast development. The aim of this study is to characterize the clinical presentation, management, and long-term outcomes of IH arising in the breast.

Methods: We performed a retrospective review of patients with IH of the breast. We identified 39 female patients, seen at Boston Children's Hospital between 1980 and 2011, who were diagnosed with IH of the breast. We excluded patients younger than 11-years of age (average age of thelarche) and those with IH outside of the nipple-areolar complex. We sent a request to 22 eligible patients/parents; only 8 were located and agreed to participate in the study. Breast development was ascertained by a structured telephone interview.

Results: The average age of patients in the study was 18.1 years (11-35 years). Breast asymmetry was noted in 5/8 patients, most had hypoplasia (n=4), and 3 of these had at least one prior resection in the age range 4-13 years. Two of these patients required a procedure to correct asymmetry after breast development was complete: one patient had a reduction of the larger breast and the other had an implant placed in the smaller breast. The patient with hypoplasia, who did not have a pre-pubertal excision, is scheduled for augmentation. Of note, one patient with reportedly symmetrical breasts had staged excisions of involuted hemangioma at age 4 and 5-years.

Conclusion: Infantile hemangiomas involving the nipple-areolar complex can be associated with breast asymmetry, usually hypoplasia, caused either by early resection or hemangiomatous destruction of the breast bud.

Limitations: The major limitation in the study is the small sample size because of the difficulty in locating patients for long-term evaluation. Another confounder is that 40% of women with “normal” breasts exhibit slight asymmetry.

**References**