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Poster Session I

Basic science: pathogenesis of staphylococci

ARE STAPHYLOCOCCUS AUREUS PVL TOXIN POSITIVE ISOLATES CAUSING ACUTE BACTERIAL SKIN AND SKIN STRUCTURE INFECTIONS (ABSSSI) ASSOCIATED WITH MORE SEVERE PRESENTATION OR WORSE OUTCOME?

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Objective

To determine if the presence of PVL toxin in *Staphylococcus aureus* isolates influence the presentation or clinical course of patients with abSSSI.

Methods

Dalbavancin is a lipoglycopeptide antibiotic with activity against Gram-positive pathogens and a long half-life allowing for weekly dosing. DISCOVER 1 and 2 were identically designed, double-blind, double-dummy trials comparing dalbavancin with a regimen of vancomycin and a switch to oral linezolid in the treatment of abSSSI. Panton-Valentine leukocidin (PVL) toxin analysis was performed on baseline *S. aureus* isolates. The size of the erythema associated with abSSSI lesions was measured by ruler.

Results

Of 1312 patients enrolled in the DISCOVER program, 513 had *S. aureus* recovered from a baseline culture, of which 391 were retested for the presence of the PVL toxin.

Table 1: Area of erythema associated with *S. aureus* abSSSI by PVL toxin production

Measured area of cellulitis	PVL Toxin Positive	PVL Toxin Negative
N	219	172
Mean (cm ²)*	362.5	312.2
SD	317.68	177.77
Median (cm ²)	262.5	276.3
Min, Max	79, 2150	80, 1058

*p value 0.467

Table 2: Systemic signs of infection by PVL toxin production in patients with *S. aureus* abSSSI

Systemic Signs	PVL
Temperature >= 38°C	
WBC > 12,000 Cells/mm ³	
Elevated HS C-reactive Protein (mg/L)	

Table 3. Response to Treatment

Clinical Response	PVL Toxin Positive n/N (%)	PVL Toxin Negative n/N (%)	p value
Early Response at 48-72 hours (ITT*)	179 / 220 (81.4)	155 / 172 (90.1)	0.018
Clinical Status at End of Treatment (ITT)	189 / 220 (85.9)	154 / 172 (89.5)	0.212

*Intention-to-treat analysis population

Conclusions

PVL toxin-positive *S. aureus* isolates are not associated with greater areas of erythema at baseline in patients with abSSSI. Patients with a PVL toxin-positive isolate had lower rates of fever than those with a PVL toxin-negative isolate but had a higher frequency of leukocytosis. Early clinical response rates were lower for patients with PVL toxin-positive isolates. Patients with an abSSSI due to a PVL toxin-positive *S. aureus* may respond more slowly to treatment than those with a PVL toxin-negative strain.