Theme 8: Infections and Antibiotics OP41

Bacteria in burn wound, antibiotic sensitivity pattern, associated risk factors among burn patients admitted to Surgical wards and Plastic surgery unit, Teaching Hospital Jaffna

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Introduction and Objectives: Burn injury causes disruption of normal skin barrier of body. The surfaces of the burn wounds are sterile instantly after the thermal injury. With the increase of time, wounds are colonized with bacteria such as *Staphylococcus aureus* and gram-negative bacteria *Pseudomonas aeruginosa*, Coliforms, *Acinetobacter* spp. This study aimed to determine the prevalence of bacterial pathogens in burn wounds, antibiotic sensitivity patterns, the association between bacterial colonization and risk factors among patients admitted to the surgical wards and plastic surgery unit at Teaching Hospital, Jaffna.

Methods: This was a laboratory-based descriptive cross-sectional study performed on patients admitted to surgical wards and plastic surgery unit, Teaching hospital, Jaffna. Wound swabs specimens of burn patients were collected from 10th of May to 19th of August 2021, inoculated, and the antibiotic sensitivity pattern was tested for all isolated bacteria. Obtained data were analyzed by Statistical Package of Social Sciences version 25. The p-value of <0.05 was considered to indicate a statistically significant difference. The correlation between factors of burn patients was assessed by using Fisher's exact test.

Results: Out of 38 wound swab samples from the patients, 32 (84.2%) yielded significant growth. Study revealed that the prevalence of *Staphylococcus aureus* 17 (39.6%), *Pseudomonas aeruginosa* 13 (30.2%), Coliforms 08 (18.6%), *Acinetobacter* spp 05 (11.6%). All the isolated *Staphylococcus aureus* 17 (100.0%) were sensitive to Teicoplanin and Linezolid. All the isolated *Pseudomonas aeruginosa* 13 (100.0%) were sensitive to all first-line and second-line antibiotics. All the isolated Coliforms were sensitive to Amikacin, Ceftazidime, Cefepime, Ticarcillin-clavulanic acid. *Acinetobacter* spp. were resistant to 100.0% Ticarcillin-Clavulanic acid. There were significant relationships between the culture positivity and the duration of wound, and types of dressings, p <0.05. Culture positivity was increased with the time duration of the wound. There were no significant relationships between culture positivity and total burn surface area, site of specimen collection, underline diseases, age and gender.

Conclusion: The most common isolate was *Staphylococcus aureus*. Positive cultures were more frequent among patients with over two-weeks (>15 days) duration of burn wounds. Early detection and proper treatment can prevent the bacterial infection of burn wounds.

Keywords: Burn wounds**,** Bacteria, Antibiotic sensitivity