

# A study on bacterial profile and their antibiograms of burn wound infections in Burn Intensive Care Unit

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## Abstract

**Introduction:** Infection is an important cause of mortality in burns. It has been estimated that 75% of all deaths following thermal injuries are related to infections. The rate of nosocomial infections are higher in burn patients due to various factors like nature of burn injury itself, immunocompromised status of the patient, invasive diagnostic and therapeutic procedures and prolonged ICU stay. The study was carried out to determine the bacterial profile and antimicrobial susceptibility of the isolates and to describe the change in trends over the study period.

**Methods:** A retrospective study of major aerobic bacterial isolates from pus/wound swabs taken from patients admitted to the burn intensive care unit (BICU) at Imam Reza Hospital, Mashhad, Iran, over a period of 3 years (March 2012-March 2015) was undertaken. The specimens were cultured using aerobic microbiological techniques. Antimicrobial susceptibility testing to different agents was carried out using the disc diffusion method.

**Results:** Of 1163 cultures 145 of them (12.5%) were negative. *Acinetobacter* spp. was found to be most common isolate (41%) followed by *Pseudomonas aeruginosa* (17.5%), *Klebsiella* spp. (16.9%), *Proteus* spp. (3.3%), *Enterobacter* spp. (2%), *Staphylococcus aureus* (1.2%) and others (5.6%). Although *Acinetobacter* spp. continued to remain the predominant isolate over the three years, a constant and significant increase in the incidence of *Klebsiella* spp. and *Acinetobacter* spp. were found. Colomycin was found to be the most effective drug against gram negative bacteria, however, resistance to it was significantly increased over 3 years. For *S.aureus* Vancomycin (95.3% Suseptible) found to be the most effective drugs. Most of the isolates showed high level resistance to antimicrobial agents. Susceptibility of *P. aeruginosa* to ceftazidime has decreased markedly.

**Conclusion:** In-depth knowledge of the bacteria causing infectious complications and of their antibiotic susceptibilities is a prerequisite for treating burn patients. Our study shows shifts in the microbial spectrum and their antibiogram, which mandate frequent reassessments.

**Key words:** Bacterial profile, Antibiogram, Burn