

Introduction

- Topical and systemic antibiotic agents used to treat burn wounds allow for fungal growth
- Fungal infections often occur later in the hospital course and carry a higher mortality rate than bacterial infections in critically ill burn patients
- Historically, the most common fungal genera seen in burn wound infections include *Aspergillus*, *Candida*, and *Mucor*
 - *Aspergillus* associated with highest mortality rates
- Previous data has shown that the most common indication for systemic antifungal use was concern for invasive fungal wound infection or fungal wound colonization
- Combination antifungal therapy is often used empirically
 - Lack of evidence to support the safety and efficacy of this approach

Objectives

- To describe antifungal use and potential adverse effects
- To describe the incidence and characteristics of fungal infections in our burn center

Methods

- Approved PI project
- Retrospective chart review
- Inclusion criteria:
 - Thermal, scald, electrical, or chemical burn
 - Administration of systemic antifungal agent
- Data that were normally distributed were reported as means \pm SD, and data that were not normally distributed were reported as medians and interquartile ranges (IQR)
- Fisher's exact was used to compare incidence of AKI and transaminitis between mono- and combination therapy groups

Results

Table 1. Demographic characteristics

Characteristic	n=90
Age, years	38 (29, 56.8)
Male gender	73 (81.1%)
Hospital LOS, days	48 (28, 73.4)
In-hospital mortality	38 (42.2%)
Burn size, % TBSA	35 (23.5, 53.5)
Inhalation injury	32 (35.6%)
Mechanism of burn	
Flame	73 (81.1%)
Scald	3 (3.3%)
Electrical	3 (3.3%)
Chemical	2 (2.2%)
Other	9 (10%)

Fungal isolates:

- *Candida* (n=133)
- *Aspergillus* (n=62)
- *Fusarium* (n=45)
- *Mucor* (n=8)
- Other (n=12)
- 62 subjects had histopathology results:
 - 41 subjects (66.1%) had fungus in non-viable tissue
 - 15 subjects (24.2%) had fungus in viable tissue
 - 13 subjects (21%) had fungal angioinvasion
- Combination antifungal therapy was utilized for 29 of 130 antifungal courses (22.3%)
- Most common combinations were:
 - Liposomal amphotericin B + voriconazole
 - Liposomal amphotericin B + posaconazole
- AKI incidence was low at 7.8% and was not significantly different between subjects who received monotherapy vs combination therapy (4.7% vs 15.4%; p=0.5)
- Transaminitis incidence was low at 3.3% and was not significantly different between subjects who received combination therapy vs. monotherapy (1.6 vs 7.7%; p=0.633)

Figure 1. *Mucor* IFI



Figure 2. *Aspergillus* IFI



Conclusions

- Subjects who were started on a systemic antifungal had a high mortality rate of 42.2%
- Common fungi isolated were *Candida*, *Aspergillus*, and *Fusarium*, which is consistent with previous literature
- Further research is needed on the prevention, early recognition, and management of fungal infections in this patient population

References

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