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Amphotericin Washout of Fungal Peritonitis in Liver Transplant Recipient: A Novel Approach

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Amphotericin B Washout of Fungal Peritonitis in Liver Transplant Recipient

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Background
Invasive fungal infection (IFI) has been shown to have significant prevalence as well as morbidity and mortality among the organ transplant recipient population. From 2001-2006 a prospective surveillance study consisting of 15 US transplant centers was conducted resulting in screening of 18,000 transplant recipients with identification of 1208 patients with invasive fungal infections. The pertinent results of the study showed an increase in fungal infections during the period of the study with an aim at focusing on the incidence, timing and mortality to improve prevention and treatment (1). From 2003-2012 a retrospective study identified 120 liver transplant recipients of which 13.5% were shown to have fungal infections (2). A review paper found a range in the literature of 5.42% of patients having at least one fungal infection post-transplant (3).

Fungal peritonitis is often difficult to diagnose early due to lack of symptoms or specific clinical findings. Studies have shown that fungal infections usually occur within the first 3 months of liver transplantation (1,4). The risk factors identified are multiple including, long continuous parenteral nutrition time, poorly controlled high blood sugar, long-term mechanical ventilation, rejection treatment, cytomegalovirus (CMV) viremia or disease, acute hepatic insufficiency, early bowel failure, re-transplantation, prolonged preparative hospitalization (particularly in the intensive care unit (ICU)), preoperative use of broad-spectrum antibiotics, fungal colonization (2). A study with 152 liver recipients identified 2 independent risk factors for IFI as renal insufficiency requiring CVVH or HD and correlation with the amount of fresh frozen plasma transfused (4). A review of 10 centers in Europe over 3 years in which 1208 liver transplants were performed resulted in 42 invasive fungal infections identified. The most significant risk factors were found to be respectively re-operation, presence of cholecdojoejunostomy and initial operating time of >8hrs (5).

Patient Description
HPF: A 64 y/o female presented electively for orthotopic liver transplant.
Allergies: NDKA
PMH: Cirrhosis, Hepatitis C, GERD, Bacterial peritonitis
PHS: Cesaeran section, Ventral hernia repair, Multiple paracentesis
Social Hx: Former smoker, No ETOH or Drug use

Familiar Hx: Non-contributory

Pertinent clinical information:
- Poor nutrition
- Chronic hypertension
- Nephrology recommendations for CVVH in the OR until reperfusion of transplanted liver

Intervention and Rationale
The patient continued to have significant ascites, requiring paracentesis which showed profound PMNs, signifying what was originally thought to be a secondary bacterial peritonitis with staph epidermidis from the cultures as a morbidity of the liver transplant however, further cultures resulted in identification of Candida species.

A meta-analysis of 23 papers noted that abdominal washout with antibiotics compared to saline showed a significant decrease in mortality (12).

Previous studies have also shown some successes with use of antifungal medications including antifungal medication washout in patients with peritoneal dialysis catheters developing fungal peritonitis and also using antifungals for bladder irrigation in candiduria as well as intra-venal injections for fungal endophthalmitis (13, 14).

An intraoperative discussion with the infectious disease team lead to the decision to use an amphotericin dwell during abdominal washout.