Lead Author: Juan Ruiz  
Degree objective when research was completed: Master’s  
Major: Biology  
College: COS  

Co-presenter(s): Not applicable  

Faculty Mentor(s): Dr. Jill Adler  

Session 2: University Library - 15-1802  
Time of Presentation: 2:15 PM  

Presentation Type: Oral presentation  

Project Title: Comparison of Efficacy and Drug Concentrations in Tissues of Candida Albicans-infected Mice Treated with Increasing Doses of AmBisome  

Synopsis: Mice were infected with Candida albicans to see if there was a correlation between efficacy and tissue drug concentrations with increasing dosages of the AmBisome anti-fungal drug.  

Abstract: Introduction: Candidiasis, a life-threatening fungal infection in immunocompromised people, can be treated with AmBisome (L-AmBi), a liposomal form of Amphotericin B. This study was done in Candida albicans infected mice to determine if there was a correlation between efficacy and tissue drug concentration with increasing L-AmBi doses.  
 Methods: Immunosuppressed mice were given 3.0x10^4 yeast/mouse intravenously, and treated intravenously with 5, 10 or 15mg/kg L-AmBi or 5% dextrose (control) every 24h for five days. Tissues were collected 24h post-treatment, homogenized, assayed for fungal burden and used in a bioassay to determine drug concentration. Results: Candida was undetectable in the liver and spleen of L-AmBi treated mice d6 post-challenge with a dose dependent reduction in kidney fungal burden. Decreasing amounts of yeast in kidneys correlated with increasing kidney drug concentrations. However, there was no correlation between prolonged survival and drug concentration since there was 90% survival with 5mg/kg L-AmBi, 80% survival with 10mg/kg L-AmBi, and 30% survival with 15mg/kg L-AmBi. This indicated some drug toxicity with 15mg/kg L-AmBi despite its reducing the fungal burden in all tissues.  
 Discussion: Increasing tissue drug concentration correlated with decreasing amounts of fungus in the kidneys, with the most fungal reduction at 15mg/kg L-AmBi while 5 or 10mg/kg L-AmBi produced better survival than 15mg/kg L-AmBi or control. We hypothesize that since Amphotericin B stimulates yeast cells to produce toxic oxygen radicals, the high levels of L-AmBi in the kidneys at 15mg/kg led to killing of both the yeast and the kidney host cells.