Antifungal Therapy after Candida-Positive Bile Cultures: Impact on Patient Prognosis

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Introduction:
The detection of *Candida* species in bile cultures has been increasingly observed, raising concerns if this represents colonization or an active infection, referred as 'Candida cholangitis' or biliary candidiasis. The presence of *Candida* in bile was linked to poorer prognosis and potential progression to candidemia, however, the necessity of antifungal treatment remains unaddressed. This study aimed to evaluate the epidemiology of patients with *Candida*-positive bile cultures and the impact of initial antifungal therapy on patient outcomes.

Methods:
A retrospective observational study was conducted involving 661 bile cultures from ERCPs performed between 2010 and 2016, of which 170 cultures (25.7%) from 151 patients showed Candida species growth. Patient charts were reviewed via Cerner EMR and the Indiana Health Information Exchange's CareWeb, with death dates confirmed through the Database Registration of Indiana's Vital Events (DRIVE). Data on patient demographics, medical history, ERCP details, and outcomes were catalogued and analyzed using REDCap, Excel, and GraphPad Prism.

Results:
Over six years, 25.7% of bile cultures performed post-ERCP showed *Candida* species. Only 19.2% of these patients received antifungal therapy within seven days of the procedure. A chi-square test for homogeneity showed no significant differences in sex ($p=0.09$), race/ethnicity (0.26), comorbidities ($p=0.47$), or other factors between treatment groups. All patients started on antifungals within seven days were inpatient prior to ERCP ($p<0.01$), potentially indicating more severe prior comorbidities or more diligent monitoring of bile culture results prompting antifungal intervention. Despite antifungal intervention, differences in mortality within one year ($p=0.89$), recurrence of Candida cholangitis ($p=0.96$), development of invasive candidiasis ($p=0.94$), and rehospitalization rates ($p=0.42$) were not statistically significant between treated and untreated groups.

Discussion:
Initial results suggest antifungal treatment does not significantly impact patient outcomes within one year. To enhance statistical power, the data sample will be expanded to include ERCP bile cultures from 2017-2023 prior to further manuscript submission or publication.