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Diagnostic utility of serum beta D glucan test to prescribe antifungal treatment and its effect on patient’s outcome: a study from a tertiary care center in Western India
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Serum Beta D glucan has 75-85% sensitivity and 80% specificity to make a diagnosis of invasive candidiasis.

Objective: This study was designed to understand real world diagnostic utility of Beta D glucan (BDG) on antifungal prescription patterns associated patient outcomes.

Methods: Study design: Retrospective cohort study

Study Population: All consecutive patients who underwent BDG (flour assay) testing with candida (positive or negative) results in the intensive care unit (ICU) setting between January 1, 2021 to December 31, 2021 at a tertiary care center in western India.

Statistical Methods: We assessed the difference in continuous variables across grouped using the independent samples t-test and binary logistic regression for categorical variables. We summarized the study results as odds ratios and 95% confidence intervals. All P-values are 2-sided and set at 5% for all comparisons. All data analyses were performed using IBM SPSS ver 24.

Results: A total of 4461 patients were admitted in the ICU, of which 198 patients underwent BDG testing. Of the 198, 113 tested positive and 45 negative and formed the denominator for the study. Patients with intensive BDG (24/121%) were excluded from the analysis. The mean (SD) age for the study cohort was 57.5 (14.7) years with 30.8% females. All the patients were receiving broad-spectrum antibiotics at the time of BDG collection. A total of 24 study patients had a positive blood culture (23 bacterial isolates and 1 Candida parapsilosis). The groups positive and negative results test for BDGs; were comparable for neutrophil count (P < 0.73), vasopressor prescription (P < 0.70), history of surgery (P = 0.79) central line placement (P = 0.40), liver disease (P = 0.44), CRP (P = 0.44), COVID-19 pneumonia (P = 0.28), WBC count (P = 0.37), CRP (P = 0.76), and serum procalcitonin (P = 0.78). Patients with idiopathic heart disease (IHD) (P = 0.013) and acute kidney injury requiring hemodialysis (AKI/ERD) (P < 0.017) were significantly higher in the test positive group. Test negative group patients received early BDG testing, mean (SD) stay of 3.3 (3.7) days as compared to test positive (6.9 days (P = 0.04). Mean test positive patients received antifungal therapy (P = 0.001), while 20.4% didn’t receive antifungals. Caspofungin (23.9%), fluconazole (18.4%), amphotericin (17.5%), voriconazole (6.5%), and combination antifungals were used in 10.9% of study patients. Logistic regression model showed no difference in mortality between the two groups (P = 0.43) with higher Odds of mortality at test positives patients (1.157, 95% CI 1.075-2.409). Treatment with caspofungin was associated with higher Odds of mortality (3.497, 95% CI 1.324-9.239, P = 0.032) as compared to fluconazole. Similar trend was observed with anidulafungin (OR: 4.089 95% CI 1.022-15.888, P = 0.042) as compared to caspofungin. This significance remained for caspofungin (OR: 3:407 (1.242-10.311) P = 0.017) while anidulafungin (OR: 3.534 (0.941-13.032) P = 0.06) didn’t show significance with the univariate model.

Conclusion: Probable invasive candidiasis as diagnosed with positive BDG test doesn’t increase the risk of mortality. Patients treated with fluconazole were associated with better survival as compared to caspofungin.

Poster Presentations