

O166

Abstract (oral session)

Performance of 1,3-beta-D-glucan (BDG) in the diagnosis and monitoring of invasive fusariosis

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Objectives: Serum 1,3-beta-D-glucan (BDG) is thought to be positive in patients with invasive fusariosis. However, its performance has never been evaluated. We investigated the performance of BDG in the diagnosis of invasive fusariosis, and its utility in the early diagnosis of the disease. **Methods:** We analysed all cases of proven or probable invasive fusariosis occurring in patients with hematologic diseases between 2008 and 2001 (n=11). We selected 23 controls from the same period, with similar underlying diseases, treatments, periods at risk, and no invasive fungal disease diagnosed in the period. Frozen serum samples were tested for BDG (Fungitell), and a value ≥ 80 pg/ml was considered positive. The sensitivity (Sen), specificity (Spe), positive and negative predictive value (PPV and NPV) was calculated. We also looked at the time relationship between the first positive BDG test and clinical manifestations of invasive fusariosis, and the BDG values at last follow-up. **Results:** From 2008 to 2011, 11 cases of invasive fusariosis were diagnosed in 348 patients at risk (3.2%). The median number of BDG tests performed was 13 (1 – 24) among cases and 5 (2 – 16) among controls. BDG was positive in 10/11 cases and in 14/23 controls, giving a Sen and Spe of 91% and 39%, respectively. Considering 2 consecutive positive BDG tests, the Sen decreased to 82% and the Spe increased to 61%. Given the 3.2% prevalence of invasive fusariosis, the PPV would be 5% with 1 positive test and 7% with 2 consecutive positive tests, while the NPV would be 99%. In all 10 cases with positive BDG, the test became positive before the first clinical manifestation of invasive fusariosis, at a median of 9 days (1 – 32). At day 90 after diagnosis of fusariosis, 5 patients were alive. BDG become negative in all 3 patients who were alive, compared with none of the 5 patients who died (p=0.17). The last BDG value was lower in survivals (44 vs. 316 pg/ml, p=0.09). **Conclusion:** BDG is positive in almost all cases of fusariosis, and becomes positive before the first clinical manifestation of the disease. The values seem to decrease in patients who respond to therapy. However, because of the high frequency of positive tests, its PPV is very low, while a negative test is useful to rule out invasive fusariosis (99% NPV).