O186

2-hour Oral Session

Invasive fungal infections: what is new?

Prospective evaluation of serum beta-glucan in patients with invasive fungal diseases

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Objectives: The incidence of invasive fungal diseases (IFD) is currently increasing as a consequence of the growing population of immunocompromised patients. A key to IFD prognosis relies on early diagnosis, allowing early initiation of antifungal therapy. Over past years, the detection of the fungal (1-3)-β-D-glucan (BG) antigen has been increasingly used as an early IFD marker. However, different studies evaluating the performances of the BG assay in different target populations found contradictory results. In the present study, we assessed BG serum concentrations (Fungitell®, Associates of Cape Cod) in patients with documented IFD at time of diagnosis (TOD) and during antifungal treatment.

Methods: We included 118 adults and 23 children with candidemia, invasive aspergillosis (IA) or rare IFD. Patients with two concomitant IFD or a possible cause of false-positive BG results were excluded. For candidemia and IA, serial sera were prospectively collected. The first serum was sampled respectively within [-3;+7] or [-7;+7] days toward mycological diagnosis. The follow-up period was of 2 and 6 months, respectively. Patients with rare IFD were included when at least one BG dosage was available within [-7;+15] days toward diagnosis. Whenever possible, a BG follow-up was performed until the IFD was controlled.

Results: Thirty-three patients with candidemia and 31 with IA (28 probable and 3 proven IA) were included. They were patients with hematological diseases, solid organ transplant or patients hospitalized in ICU. Serum BG at TOD was negative in 44% of patients with candidemia and 52% with IA. No correlation was observed between negative BG at TOD and particular *Candida* species, catheter use, IA type, category of patients or recent administration of antifungals. Overall, for 18% and 14% of patients with candidemia and IA, BG remained not detected during the entire follow-up period. Among patients with candidemia or IA who had positive BG at TOD, >80% reached their peak value within the subsequent 2 weeks. Afterwards, the decrease of BG concentrations was rapid (half-concentration <1 week) in 50% of patients with candidemia, slow (half-concentration >3 weeks) in 20%, while 30% had persistently high BG. Thirty-three percent of patients with IA had a rapid decrease (half-concentration in <2 weeks) while 67% had very slow decrease (half-concentration >2 months). Regarding rare IFD, we included 77 patients with 26 different infections. While some IFD (scedosporiosis or cryptococcosis) had variable patterns toward BG at TOD, other were associated in all our cases with negative BG (fusariosis, microsporidiosis) or moderate to high (≥ 200 pg/ml) BG (hepatosplenic candidiasis, eumycotic mycetoma, subcutaneous phaehypho- or dermatophytomycosis, trichosporonosis).

Conclusion: Altogether, our results offer valuable information for the clinical use of BG assay in various IFD and highlight the high percentage of patients with documented IFD, mainly candidemia and IA, for whom BG are negative at TOD.