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P 04438 | Preliminary evaluation of T2 Candida Panel for the diagnosis of invasive candidiasis in critically ill patients

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PURPOSE / OBJECTIVES

Invasive candidiasis (IC) remains a problem of public health because of their high morbi-mortality. Current culture-based methods of diagnosis present an important limit of sensitivity (related to patients and infecting strains) or/and of specificity (related to the level of colonization). It was widely demonstrated that non-culture-based biomarkers may improve diagnosis of IC. The aim of this study, was to investigate the contribution of T2-Candida panel (T2CP) to the diagnosis of IC in ICU patients.

PATIENTS & METHODS

An observational retrospective evaluation of ICU patients at high risk of IC with suspected candidemia that had T2CP done from August 2017 to December 2020 in the University Hospital of Lille. Two hundred and ten patients were screened. Blood culture (BC) and blood samples for T2MR testing were taken at the initiative of the clinicians (mean interval of 1 to 7 days between BC and T2CP). Irregular serum sampling were also drawn during the same period. The diagnostic values of T2CP ((T2 Candida Panel, T2 Biosystems, Lexington, MA, USA), Candida Mannan antigen (Mnn) (Platelia Candida Ag, Bio-Rad, France; positivity cutoff ≥125 pg/ml) and 1,3bD-glucan (BDG) ((Fungitell, Associates of Cape Cod, Falmouth, MA, USA; positivity cutoff ≥80 pg/mL), were evaluated.

RESULTS

Two hundred and eight patients were screened, patients were classified with proven (Candidemia n=13), likely (n=21) and unlikely (170) IC. The average turn-around time for T2CP was 13 hours (5-30) vs. 34 hours (21-109) to initial positive BC result and 4 days to final positive BC result.

Thirteen (6.2%) patients (8M, 5F, mean age 59.8 years) were positive by blood culture. Among patients with candidemia (8 *C. albicans*, *2 C. glabrata*, *1 C. tropicalis*, 1, *C. parapsilosis*, 1 *C. krusei*) 9 displayed positive T2CP (69% concordance between BC and T2CP). In 6 of 13 cases, positivity of T2CP preceded that of BC by 1 to 5 days.

Discrepancies BC positive and T2CP negative were observed in 4 cases, all of them received empirical antifungal therapy for at least 3 days before BC sampling (3 with caspofungin and 1 with fluconazole) and three of them displayed high levels of BDG and/or Mnn.

A total of twenty patients (9.6%) presented with positive T2CP, for 9 of them results of T2CP were supported by BC positivity, 3 were supported by isolation of Candida species from intraabdominal samples (2 peritoneal fluids, 1 ascites fluid). Among the eight patients with positive T2CP without mycological documentation, 5 had concomitant positive glucanemia and/or positive mannanemia. Additional data are required to identifiy the clinical significance of T2CP positivity in patients with glucanemia and/or mannanemia.

Unlike glucan levels which persist for several days, detection of DNAemia/yeast cells by T2CP is transient.

RESULTS

Figure 1. Examples of kinetic of circulating mannan (MNN) and βD 1,3 glucan (BDG) in patients with positive T2CP and Blood culture

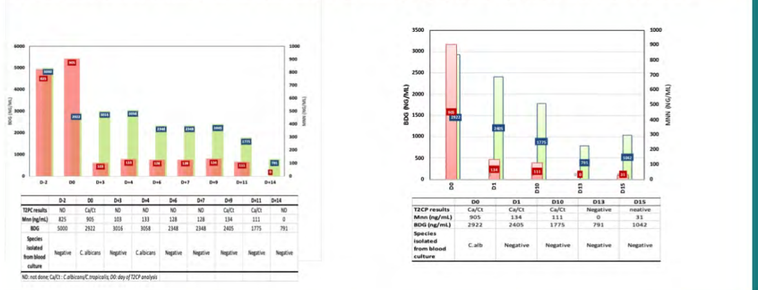
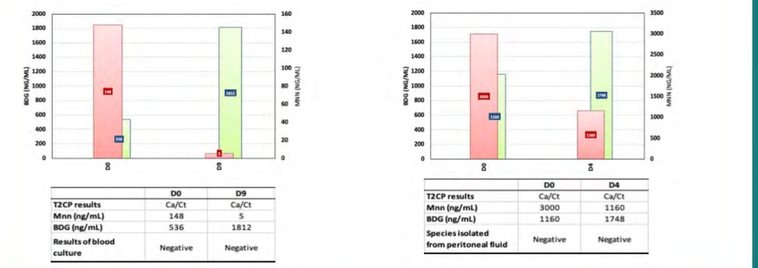


Figure 2. Examples of kinetic of circulating mannan (MNN) and βD 1,3 glucan (BDG) and T2CP results in IC patients with negative Blood culture.



SUMMARY / CONCLUSION

T2CP screening of high-risk patients contributed to improve the diagnosis of IC in at risk ICU patients. The diagnostic performance of T2CP was lower than previously reported in candidemic patients but was improved by combination with circulating Mnn and BDG.