

P0040

Poster Session I

How to improve fungal diagnosis

IL 17A, IL 22 AND KYNURENINS IN PATIENTS WITH CANDIDEMIA AND HEALTHY CONTROLS

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Objectives

C. albicans could shift tryptophan metabolism, leading to fewer kynurenines and more 5-hydroxytryptophan metabolites. The increased 5-hydroxytryptophan levels subsequently inhibit host IL-17 production. IL 17A is considered an important component in host defense against fungal infections. Whereas live *Candida albicans* cells in vitro dampens host defense by downregulating IL 17A production heat killed *Candida albicans* induces IL 17A. IL 22 protects mucosal-sites from growth of *Candida albicans* by inducing anticandidal proteins. The interplay between *Candida*, interleukins and tryptophan metabolites have been studied in murine as well as in ex vivo human studies but data of IL 17A, IL 22 and kynurenine from patients with candidemia are lacking. We therefore determined IL 17A, IL 22 and kynurenine in healthy adults (ILs in 35, kynurenines in 31 subjects) and in candidemic patients (ILs in 27, kynurenines in 25 subjects).

Methods

Cytokines were simultaneously determined according to the instructions of the manufacturer (Bio-Plex Pro™ Human Th17 Cytokine Plex Assay, Biorad, Hercules, CA 94547). Standard curves for each analyte were generated by using the reference analyte concentration supplied by the manufacturers. Each sample was performed in triplicates on different 96-well. Cytokine concentrations were calculated using a five-parameter standard curve derived from three measurements of reference cytokine concentrations supplied by the manufacturer. Kynurenine serum levels were determined by high-performance liquid chromatography. *Candida* cultures from blood defining candidemic patients were performed by routine microbiological methods.

Results

Candidemic patients had higher IL 17A levels (0.9 to 13.69 pg/ml, mean 2.33) compared to healthy controls (below detection limit 1pg/ml) ($p < 0.05$). There was no difference of IL 22 between candidemic patients and healthy controls. Serum kynurenine levels were higher in candidemic patients (1.73 to 13.4 μmol/l, mean 5.22) compared to healthy controls (1.4 to 4.1 μmol/l, mean 2.35).

Conclusions

IL17A and kynurenine levels are elevated in patients with candidemia compared to healthy controls. Our results correspond to in vitro data where killed *Candida albicans* cells induced IL 17 and kynurenine production.