Abstract:

Chronic mucocutaneous candidiasis (CMC) constitutes a selective inability to clear infection with the yeast Candida, resulting in persistent debilitating inflammation of skin, nails, and mucous membranes. The underlying defect is unknown. Only recently, IL-17-producing T cells have been reported to be involved in clearing Candida infections. In order to characterize T cellular immune response to Candida, we analyzed T-cell cytokine secretion to Candida antigen and mitogenic stimuli in CMC patients, immunocompetent patients suffering from acute Candida infection, and healthy volunteers. Peripheral blood mononuclear cells (PBMCs) from CMC patients produced significantly lower amounts of IL-17 and IL-22 mRNA and protein when stimulated with Candida albicans or mitogen in vitro compared with that in matched healthy individuals. Additionally, PBMCs from immunocompetent Candida-infected patients secreted more IL-17 and IL-22 than those of both CMC patients and healthy, non-infected controls. Flow cytometry revealed a decreased number of CCR6+ IL-17-producing T cells in CMC patients, whereas the amount of CCR6+/CCR4+ cells was not altered. Levels of differentiating cytokines for human Th17 cells, IL-1beta and IL-6, tended to be higher in CMC patients. The inability to clear C. albicans in CMC patients could be due to a defect in the immune
response of IL-17-producing T cells.