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Titel des Beitrags: Mixed T helper cell signatures in chronic rhinosinusitis with and without polyps.

Abstract: In chronic rhinosinusitis (CRS) different phenotypes have been reported based on cytokine profile and inflammatory cell patterns. The aim of this study was to characterize the intracytoplasmatic cytokines of T cells infiltrating the inflamed sinonasal mucosa. Infiltrated T cells and tissue homogenates from sinonasal mucosal samples of 7 healthy subjects, 9 patients with CRS without nasal polyp (CRSsNP), 15 with CRS with nasal polyps (CRSwNP) and 5 cystic fibrosis patients (CF-NP) were analyzed for cytokine expression using flow cytometry and multiplex analysis respectively. Intracytoplasmic cytokines in T cells were analyzed after stimulation of nasal polyps with Staphylococcus aureus enterotoxin B for 24 hours. The number of T cells per total living cells was significantly higher in patients with CRSwNP vs. CRSsNP and controls. 85% of the CD4(+) T cells showed to be memory T cells. The effector T cells present in all tissues have a predominant Th1 phenotype. Only in CRSwNP, a significant fraction of T cells produced the Th2 cytokines IL-4 and IL-5, while nasal polyps from CF patients were characterized by a higher CD4/CD8 T cell ratio and an increased number of Th17 cells. 24 h stimulation with SEB resulted in a significant induction of CD4(+) T cells producing IL-10 (Tr1 cells). T cell cytokine patterns in healthy and inflamed sinonasal
mucosa revealed that Th2 cells (IL-4 and IL-5 producing cells) are significantly increased in CRSwNP mucosal inflammation. Exposure to SEB stimulates Tr1 cells that may contribute to the Th2 bias in CRSwNP.