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Titel des Beitrags: Intracellular T-cell cytokine levels are age-dependent in healthy children and adults.

Abstract: Intracellular detection of cytokines via fluorescent antibody staining and flow cytometry has quickly become a standard method in experimental immunology. However, in pediatrics most studies have been hampered by the exclusion of healthy control individuals or have been skewed by neglecting to observe age-dependent differences in cytokine production. We therefore intended to establish normal values for different age groups and to describe the age-dependent development of cytokine profiles. Whole blood from 46 healthy children and 33 adults was analyzed by flow cytometry after stimulation with PMA, ionomycin and Monensin, and staining with anti-cytokine and surface antibodies. In the pediatric population, we found a significant positive correlation between age and intracellular cytokine levels of IFN-gamma, IL-2, IL-4 and TNF-alpha in CD4+ cells, as well as for IFN-gamma and TNF-alpha in CD8+ cells. In adulthood, no such striking trend could be detected, but significant correlation was found for IL-10 in CD4+ cells and IFN-gamma in CD8+ cells as well as for TNF-alpha in both cell subgroups. We present here the first systematic analysis of intracellular cytokine production in normal, healthy children between the ages of 0 to 18 years compared to results in adults. These data may provide a reference basis for the study of cytokine
secretion patterns, and they also demonstrate a significant maturation of the T-cell cytokine production capacity from birth to adulthood.