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FREQUENCY OF T_H17-CELLS IN PERIPHERAL BLOOD IS MARKEDLY ENHANCED IN CHILDREN WITH ALLERGIC ASTHMA

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T_H17 cells represent a subset of proinflammatory T helper lymphocytes, which recently have been found to play a role in the pathogenesis of allergic diseases. Hitherto, to the best of our knowledge, studies on T_H17 cells in childhood asthma do not exist.

The objective of our study was to evaluate whether the frequency of T_H17 cells in peripheral blood is altered in allergic children. PBMCs from 31 allergic and 25 healthy non-atopic children (age 1-17 years) were obtained by density centrifugation and analysed by four-colour flow cytometry.

Whereas the frequency distribution of major lymphocyte subpopulations (B cells, natural killer cells, total CD4+ T cells, CD8+ T cells, T regulatory cells) was maintained in allergic children, we found considerable differences in the pattern of T_H subpopulations: PBMCs from allergic children showed elevated proportions of (CD3+CD4+CCR4+CRTH2+) T_H2 cells (141%±81% compared to healthy controls) and an enhanced percentage of (CD3+CD4+CRTH2+CD45RO+) memory T_H2 cells (173%±93%; $p< 0.001$). In non-allergic children, T_H17 cells (CD3+CD4+CD161+CCR6+) accounted for 2.7% of all T cells. With 3.6%, this proportion was enhanced in allergic children (132%±66%; $p=0.003$). This correlation was particularly pronounced in children with allergic asthma (n=24), who displayed a percentage of 4.0% T_H17 cells (147%±66% compared to controls; $p=0.001$).

In summary, we found a significant increase in the frequency of T_H17 cells in PBMCs from allergic children, which was even more pronounced in children with allergic asthma, implying a putative role of T_H17 cells in the immune dysregulation during the allergic response.

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