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LUNG ALERT

Invariant natural killer T cells in asthma and COPD: back to square one!

▲ Vijayanand P, Seumois G, Pickard C, *et al*. Invariant natural killer T cells in asthma and chronic obstructive pulmonary disease. *N Engl J Med* 2007;**356**:1410–22.

Recent studies have suggested the possibility of invariant natural killer T cells (iNKT) playing an important role in the pathogenesis of asthma. To explore this hypothesis, the authors measured the numbers of iNKT in the airways of patients with stable mild/moderate asthma, patients with stable or exacerbated chronic obstructive pulmonary disease (COPD) and controls.

Cells from induced sputum, bronchoalveolar lavage (BAL) and/or bronchial biopsies were labelled with fluorescent monoclonal antibodies for CD3, CD4 and iNKT specific domains: Vα24, Vβ11, Vα24-Jα18 and CD1d tetramers loaded with αgalactosylceramide. Flow cytometry with serial gating was used for phenotyping and excluded cells other than iNKT—the failure to do so may have been a drawback of a previous study. Quantitative polymerase chain reaction to detect gene expression for Vα24 and Vβ11 domains was also used.

iNKT constituted <2% of CD3+ cells and <1.5% of CD3+/CD4+ cells in BAL from patients with asthma. Positive controls confirmed the accuracy of antibodies/gating strategy to detect iNKT. Similarly, very few iNKT were identified in induced sputum of controls, patients with asthma and patients with COPD with no significant differences among groups. iNKT constituted <1.7% of CD3+ cells on biopsy analysis. BAL and sputum cells from patients with asthma and COPD did not express mRNA for Vα24 and Vβ11, despite the presence of T cell receptors. This ruled out the presence of numerous iNKT among T cells and confirmed flow cytometry findings.

The authors concluded that iNKT are a minority cell population in airways of patients with asthma and COPD. The authors questioned the role of iNKT in the pathogenesis of asthma. These findings, in contrast with a recent report, suggested that future therapeutic strategies should continue to focus on class II major histocompatibility complex restricted cells.

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