

THE JOURNAL OF
**Allergy AND Clinical
Immunology**

January 2002, part 2 • Volume 109 • Number 1

629 IgE to **Crossreactive Carbohydrate Determinants**: A Demographical and Allergological Study

Rosa Ferrara*

Adriano Mari§

*National Health Service,
Rome, Italy

§National Health Service,
Latina, Italy

IgE to **crossreactive carbohydrate determinants** (CCD) have been described in patients with allergic diseases. A prevalence up to 40% of positive CCD-IgE have been reported in pollen allergic subjects, but extended epidemiological studies have never been carried out. The aim of the present study was to evaluate the distribution of CCD-IgE in a cohort of 1557 subjects with allergic or allergy-like respiratory diseases. Subjects with respiratory symptoms underwent SPT with a panel of allergenic sources and with purified bromelain. IgE to bromelain were detected in each subject (CAP, Pharmacia), and a discrepant result between positive IgE to bromelain and a negative SPT to the same glycoprotein was assumed to detect the presence of CCD-IgE. Specific IgE to SPT-negative allergenic sources were randomly detected. Positive and negative CCD-IgE subgroups were comparatively evaluated for total IgE. Four subjects had positive SPT to bromelain. The overall prevalence of CCD-IgE was 22%. Distribution of the IgE values ranged between 0.4 and 94 kU/L, most being classes I-III values. A higher prevalence of male subjects was recorded in the positive CCD-IgE subset (61 vs 47 %). Differences were recorded when age distribution was considered. 30% of the CCD-IgE positive subjects were found among the pediatric subgroup, even in subjects as young as three, whereas 22% were among CCD-IgE negative subset. Positive CCD-IgE were mainly found among pollen allergic patients (313, 32%), but 20 (8%) allergic to non-pollen sources and 17 (5%) non-allergic patients were found positive. Comparative evaluation of specific IgE to SPT-negative allergenic sources in CCD-IgE positive and negative subjects gave the following results (% values): Birch 62 vs 11; Juniper 52 vs 9; Olive 72 vs 17; Grass, Timothy 52 vs 5; Pellitory 79 vs 21; Mugwort 78 vs 19; Ragweed 78 vs 32; Dermat. p. 28 vs 3; Cat 35 vs 3; Horse 53 vs 15; Blatella g. 53 vs 8; Alternaria 32 vs 5; Candida 40 vs 6; Latex 67 vs 19; Bee venom 46 vs 10; Peanuts 71 vs 16. IgE

values to allergenic extracts correlated well with IgE to bromelain. Higher mean total IgE values were recorded in the positive CCD-IgE subgroup and differed significantly when compared with the negative one. Nevertheless, a large number of subjects with high total IgE values and negative CCD-IgE were found. IgE to CCD is a relevant occurrence in the pollen allergic population. Data on CCD-IgE to SPT-negative allergenic sources further confirm the absence of biological activity of such determinants. IgE to CCD should be always detected in order to correctly evaluate the results of serum IgE determination. Research laboratory use of allergic sera should always take into account the presence of CCD-IgE.