

45 minutes of an oral challenge of lansoprazole in the same patient. Skin testing results were positive to omeprazole, lansoprazole, and pantoprazole, and similar to findings in our patient, the tryptase level was increased 3 hours after lansoprazole challenge. These reports would contrast with the report from Fardet et al,² in which the reaction appeared specific to pantoprazole and not cross-reactive with an alternative proton pump inhibitor.

In our patient the positive skin test response and increased tryptase level are consistent with prior case reports of proton pump inhibitor anaphylaxis and suggest an immediate hypersensitivity mechanism. The specific mechanism of anaphylaxis to this class of drugs, however, remains to be definitively established. Although mutations in the *CYP2C19* gene were not identified, the timing of anaphylactic events invokes the possible involvement of modifying pharmacogenetic factors, variations in relative levels of drug-specific IgE, or both. Pantoprazole should be considered in the differential diagnosis of idiopathic anaphylaxis.

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Alterations of stress-induced expression of membrane molecules and intracellular cytokine levels in patients with atopic dermatitis depend on serum IgE levels

To the Editor:

Atopic dermatitis (AD) is a chronically relapsing inflammatory skin disease that can be divided into an allergic form, among others characterized by high serum IgE baseline levels, and a nonallergic form.¹ AD results from an interaction between various genetic, environmental and immunologic factors.² As we previously reported, patients with AD respond to mental stress immunologically differently compared with healthy controls (HC).³ To our knowledge, differences between subtypes of AD concerning the immunologic responsiveness to mental stress have not yet been measured. Therefore, we used serum-specific IgE (CAP RAST FEIA-System, Pharmacia, Uppsala, Sweden) to identify specific IgE antibodies. Thereby, we reanalyzed previously published data dividing the group of AD patients into 2 subgroups, discriminating patients with high serum IgE baseline levels (IgE^{high}; n = 6) and patients with low serum IgE baseline levels (IgE^{low}; n = 9) (cutoff, 1000 kU/L).

Significant psychological arousal, indicated by an increase of heart rate and blood pressure,^{3,4} was observed in all 3 groups equally. However, in contrast to our previous results, no significant stress-induced increase of the absolute number of CD8⁺ T lymphocytes was observed in any group. Nevertheless, stress induced a significant increase of CD8⁺ T lymphocytes with intracellular IL-4 ($P_{\text{Baseline-Stress}} [P_{\text{tB-S}}] < .05$ for time effect; Fig 1), as well as an increase of IL-4 in the supernatant of stimulated PBMCs ($P_{\text{tB-S}} < .05$) only in IgE^{high}. In contrast, no significant increase was found in IgE^{low} for HCs for both CD8⁺ T lymphocytes with intracellular IL-4 and IL-4 in the supernatant of stimulated PBMCs. Furthermore, no significant effect was detectable for CD4⁺ and CD8⁺ T lymphocytes with intracellular IL-4. Stress induced an increase of CD4⁺ T lymphocytes with intracellular IL-5 immediately after the stress procedure ($P_{\text{tB-S}} < .05$) only in IgE^{high} (Fig 1). Furthermore, 2×3 ANOVA revealed a significant group effect for CD4⁺ ($P < .01$) and CD8⁺ T lymphocytes with intracellular IL-5 ($P < .05$) because of an increased number of these cells in IgE^{high} compared with the other groups. There were no significant changes for CD4⁺ or CD8⁺ cells or CD8⁺ T lymphocytes with intracellular IFN- γ detectable in any group.

Stress induced a significant increase in CLA⁺/CD8⁺ lymphocytes in all 3 groups (2×3 ANOVA; $P_{\text{t}} < .01$). A further differentiation revealed that this increase was obviously resulting from a significant increase in the CLA⁺/CD8⁺ T-lymphocyte subpopulation in IgE^{high}

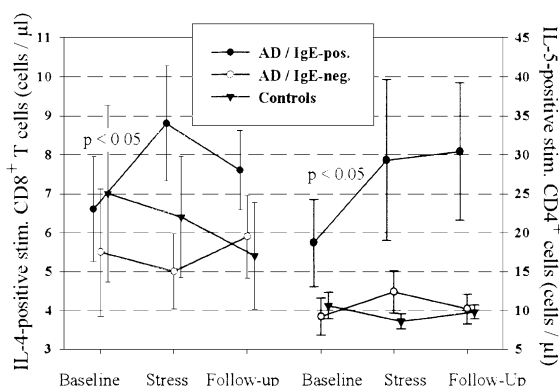


FIG 1. Time course of IL-4⁺ CD8⁺ T lymphocytes and IL-5⁺ CD4⁺ T lymphocytes in the peripheral blood 1 hour before (*Baseline*), immediately after (*Stress*), and 1 hour after stress exposure (*Follow-Up*) in healthy controls, AD patients with low serum IgE baseline levels (*AD/IgE-neg.*), and AD patients with high serum IgE baseline levels (*AD/IgE-pos.*). Significant contrasts between *Baseline* and *Stress* or between *Stress* and *Follow-Up* are indicated by *P* values.

($P_{tB-S} < .01$). In this group, 1 × 3 ANOVA revealed a significant effect over the 3 measurements ($P_{tBaseline-Stress-Follow-Up} < .05$).

Surprisingly, our results show that only IgE^{high} seem to respond to psychosocial stress with an activation of functionally important immunological parameters, indicating an altered stress responsiveness, compared with IgE^{low} and HC. Increases in IL-4- and IL-5-secreting T_H2-type cells and decreases in IFN-γ-secreting T_H1-type cells are typical blood abnormalities noted in patients with AD,⁵ indicating a shift in the T_H1/T_H2 balance toward T_H2-like memory cells producing IL-4 and IL-5. Even the increased IgE responses observed in AD reflect an increased expression of T_H2 cytokines.⁶ Furthermore, a significant inverse correlation has been reported between IFN-γ generation *in vitro* and IgE serum concentrations *in vivo* in AD.⁷ It is interesting to note that we found increases of IL-4 in PBMCs and high baseline levels of IL-4 in IgE^{high} in contrast to HC and IgE^{low}; this supports the findings that T_H2 cells produce IgE synthesis promoting IL-4.⁸ Furthermore, we found increases of T lymphocytes with intracellular IL-5 immediately after the stress exposure only in IgE^{high}. This increase of IL-5 correlates with increases of CLA⁺ T-cell levels after stress. CLA⁺ is a very important cell adhesion molecule that participates with its counterreceptor E-selectin (CD62E) in skin-selective T-cell homing.⁵ Isolated CLA⁺ T cells from patients with AD, but not healthy subjects, showed a spontaneous production of IL-4, but not IFN-γ.⁵ In addition, recent studies have demonstrated that CLA⁺ T cells in AD spontaneously secrete IL-5 and IL-13, functionally prolong eosinophil survival, and induce IgE synthesis.⁹

In summary, these findings provide the first evidence of different stress responsiveness of patients with AD depending on serum IgE baseline levels. High serum IgE baseline levels are associated with higher increases of

CLA⁺ CD8⁺ T lymphocytes and of T cells expressing T_H2 cytokines upon psychological stress.

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Latex aeroallergen concentrations in ambulances

To the Editor:

Natural rubber latex (NRL) has emerged as a significant sensitizer contributing to respiratory allergy, particularly among health-care workers.¹ Absorbable dusting powder aerosols that carry NRL allergenic proteins become airborne when powdered latex gloves are used.²⁻⁴ The concentration of NRL aeroallergen in a 7-m³ challenge chamber that induced an asthmatic reaction in a group of health-care workers with NRL-induced asthma ranged