

Letter to the Editor

CT genotype of promotor polymorphism C159T in the CD14 gene is associated with lower prevalence of atopic dermatitis and lower IL-13 production

Editor,

CD14 is part of the receptor for lipopolysaccharides (LPS) and enhances the production of T-helper-cell 1 (Th-1) cytokine interleukin (IL-) 12. A polymorphism in the promotor region of the CD14 gene, C159T, is controversially discussed as associated with atopy. Recently, Leung et al. (1) reported in the *Journal of Pediatric Allergy and Immunology* that a C-to-T polymorphism at -159 is associated with serum total IgE concentration in atopic Chinese children. Moreover, it was shown that skin prick test positive children with TT genotype had lower total serum IgE levels and higher soluble CD14 levels than CC homozygotes and heterozygotes (2). Furthermore, CC homozygotes had a higher frequency of hay fever and allergic rhinitis (3). Thus it has been speculated that this polymorphism in the CD14 gene might modulate the susceptibility to allergic disease. *In vitro* studies showed that the T allele decreases the affinity of Sp protein binding and enhances the transcriptional activity of the CD14 gene which might explain the results of Baldini and Koppelman (4). However, a recent study failed to confirm the association between CD14 genotypes and atopic disease (5).

We recently conducted a prospective investigation into the potential association of cytokine production by cord blood mononuclear cells on the development of atopic dermatitis (AD) at the age of 3 yr (n = 40). The cytokines interleukin (IL-)13, and interferon (IFN)- γ in the cell culture supernatants in response to phytohemagglutinin (PHA) and house dust mite allergen (Der p 1) were measured using the ELISA technique. After 3 yr, symptoms of AD were obtained with a questionnaire completed by the parents. We observed significantly higher IL-13 levels in response to PHA in children who subsequently

developed symptoms of AD (S: median, 291 pg/ml) compared with asymptomatic children (No-S: 149 pg/ml; p = 0.021, Wilcoxon test). Similarly, in response to Der p 1 significantly higher IL-13 levels were observed in symptomatic children (S: 168.6; No-S: 61.6 pg/ml; p = 0.0084). No significant differences were found when comparing IFN- γ , IL-18 and IL-10 in CBMC cultures stimulated with PHA and Der p 1 (6).

In a pilot study we investigated the potential association of CD14 polymorphism C159T with the prevalence of AD and cytokine production in response to PHA and Der p 1 (n = 30). In children with genotype CT we observed significantly lower prevalence of AD at the age of 3 yr (p = 0.017, chi-square test) compared with genotype CC- and TT-homozygotes (Table 1). Furthermore, IL-13 levels in response to PHA in children with genotype CT were significantly lower (CT: median, 102.8 pg/ml) compared with CC- and TT-homozygotes (CC: median, 234.3 pg/ml, TT: median, 157.3 pg/ml; p = 0.02, chi square test). In response to Der p 1 there were no significant differences in IL-13 production between the groups.

Our data might indicate that CT genotype of C159T polymorphism decreases the risk for atopy by lowering IL-13 production.

Table 1. Association of CD14 genotype with atopic dermatitis

	Children without atopic dermatitis (%)	Children with atopic dermatitis (%)	Total (%)
CC	4 (13.3)	5 (16.7)	9 (30)
CT	13 (43.3)	1 (3.3)	14 (46.7)
TT	3 (10.0)	4 (13.3)	7 (23.3)
Total	20 (66.6)	10 (33.3)	30 (100)

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