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Prevalence of atopy in multiple sclerosis patients: a case-control study

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Sirs: Immune response is regulated by the production of specific cytokines in CD4⁺ T-cells. Interferon- γ and interleukin (IL)-12 (Th1 cytokines) are associated with the development of cell-mediated immunity, whereas IL-4, IL-5, IL-10 (Th2 cytokines) are essential for the production of IgE and differentiation of eosinophils. Overproduction of Th1 cytokines is thought to result in autoimmune inflammatory disease such as multiple sclerosis (MS), while an overproduction of Th2 cytokines may result in allergic diseases such as asthma and rhinitis [1]. Recent studies reported that the prevalence of allergic disease is decreased in patients with autoimmune illnesses, such as MS and rheumatoid arthritis [2, 3].

If genetic factors predispose one to a specific cytokine profile, Th2- and Th1-mediated diseases should not occur simultaneously in a given individual. We present the prevalence of atopy in a case-control study in the province of Genoa, Italy, with 312 MS patients and 312 controls.

Patients with clinically definite

MS (Poser et al. criteria) [4] were interviewed between April 1998 and June 1999. Patients were recruited during an epidemiological study in the Genoa area. All subjects resided in Genoa and were evaluated during an epidemiological study in the same area. Interviews were conducted in various neurological out-patient clinics throughout the province or in the patient's home by the same neurologist. The control group comprised primary care patients from throughout the province who were administered the same questionnaire as the patients by their general practitioner. Subjects were matched according to age, gender and area of residence. Clinical features of atopic disease were assessed using a questionnaire evaluating ocular-respiratory symptoms (sneezing, rhinorrhoea, conjunctivitis, asthma), cutaneous symptoms (erythema, pruritus), history of medication or food reaction and allergy medication use. The prevalence of atopy was compared between MS patients and controls using a logistic regression model correcting for age, sex and area of residence.

The mean age of MS patients was of 46.3 years (range 20–85) and mean Expanded Disability Status Scale 4.2 (0–9). The course was relapsing-remitting in 184 (59%) patients, secondary-progressive in 90 (29%) and primary-progressive in 38 (12%). The mean age, sex, disease duration and course distribution of the sample were representative of MS population of the studied geographic area (unpublished data). Control subjects had a mean age of 46.3 years (20–80). The proportion of subjects with ocular-respiratory and cutaneous symptoms did not differ significantly between the two groups (15.1% in the control group and 16.3% in the MS group, $P=0.66$). In the multivariate analysis only age was significant

(odds ratio 0.96, 95% confidence interval 0.95–0.98, $P < 0.001$), as younger persons have a higher frequency of atopy. Moreover, in multivariate analysis study, MS subjects reported a significantly higher frequency of adverse drug reactions than controls (8.7% vs. 1.6%; odds ratio 5.6, 95% confidence interval 2.1–14.8, $P=0.0005$). There was no significant variation in reports of food-related reactions between the two groups. The prevalence of atopy in our MS and control population was similar to that observed in the general population in Western countries [5]. Our results cannot demonstrate that, on the basis of a clinical evaluation, the prevalence of allergic disease is reduced in subjects with MS. This inconsistency with previously reported data could be explained by the fact that data in the present study was collected using a structured interview conducted by a physician. A structured interview format allows the interviewer to expand on information provided by the subject, thus recording exceptionally accurate data. This opportunity is lost when the subject is left to complete a self-administered questionnaire. The higher percentage in MS subjects with a history of adverse medication effects may be related to a greater use of drugs in a population affected by a chronic disease. Further studies, based on clinical, serological and immunological criteria, are necessary to address this issue further.

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