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Frequencies of Allergic Diseases Among Children with Autism Spectrum Disorders

Fatma AKPINAR[1], Günsel KUTLUK[2], Gülcan ÖZOMAY[3], Özgür YORBİK[4], Feyzullah ÇETİNKAYA[5]

[1]Department of Dermatology, Maltepe University School of Medicine, Istanbul, Turkey
[2]Department of Pediatrics, Kanuni Sultan Suleyman Education and Research Hospital, Istanbul, Turkey
[3]Department of Pediatrics, Maltepe University School of Medicine, Istanbul, Turkey
[4]Department of Child and Adolescent Mental Health, Maltepe University School of Medicine, Istanbul, Turkey
[5]Department of Pediatrics, Acıbadem International Hospital, Istanbul, Turkey

Corresponding Author: Feyzullah ÇETİNKAYA ✉ feyzulkaya@mynet.com

ABSTRACT

Objective: Allergic diseases and autism spectrum disorders (ASD) affect millions of children worldwide and the frequencies of these diseases are increasing. Although some genetic and environmental factors have been implicated, the exact reasons of this increase have not been determined yet. In this study, we aimed to investigate the frequencies of allergic diseases among children with ASD.

Materials and Methods: A questionnaire containing 23 questions related to asthma, allergic rhinitis, atopic dermatitis and food allergy adapted from the International Study of Asthma and Allergies in Childhood (ISAAC) was used and the questionnaires were filled out by the parents of children with ASD and controls.

Results: The study and control groups comprised 59 and 50 children respectively. Allergic rhinitis was diagnosed in 12%, atopic dermatitis in 10.1%, food allergy in 8.4% and asthma in 6.8% of the children with ASD; and 16%, 6%, 8% and 10.0% respectively in the control group.

Conclusion: These results suggest that frequency of allergic diseases among children with ASD are not different than controls.

Key words: Autism spectrum disorders, asthma, allergic rhinitis, food allergy, atopic dermatitis

INTRODUCTION

Allergic diseases (i.e. asthma, allergic rhinitis, atopic dermatitis and food allergy) are very common among children (20-30%) and are still increasing worldwide (1). On the other hand, autism spectrum disorders (ASD) are also on the rise and affect almost 1 in 68 children (2). Perinatal and environmental factors seem to play a significant role in increasing the risk for ASD as in allergic diseases (3,4). Previous studies have found a temporal concordance in the increased prevalence of atopic diseases and ASD. However, it is still not clear whether atopy in early childhood is a risk factor for ASD or not (5). The relationship between these disease groups is unclear and should be evaluated with many more studies. We sought to investigate the prevalence of allergic diseases among children with ASD.

MATERIALS and METHODS

A questionnaire containing 23 questions related to asthma, allergic rhinitis, atopic dermatitis and food allergy adapted from the International Study of Asthma and Allergies in Childhood (ISAAC) phase one (6) was distributed to the parents of children with ASD who were being educated in a special school. As a control group, children who presented to child and adolescent mental health outpatient departments of various

hospitals in Istanbul with diagnoses other than ASD were included. The diagnoses of the control group were school achievement problems, hyperactivity, family problems and enuresis nocturna. This study was approved by the Ethics Committee of the Maltepe University School of Medicine.

Statistical Analysis

Statistical analysis was performed using the SPSS statistical software (SPSS Inc., Chicago, IL, USA). To compare differences between the groups, the independent samples t-test was used. A P value less than 0.05 was considered statistically significant.

RESULTS

The study comprised 59 children with ASD (13 girls, mean age 7.44 years) and 50 children in the control group (20 girls, mean age 9.8 years). Allergic rhinitis was diagnosed in 12%, atopic dermatitis in 10.1%, food allergy in 8.4% and asthma in 6.8% of the children with ASD, and 16.0%, 6.0%, 8.0% and 8.0% respectively in the control group (P values >0.05, for each) (Table I).

DISCUSSION

Allergic diseases (e.g., asthma, allergic rhinitis, atopic dermatitis and food allergy) are prevalent in the general population and are increasing worldwide (1). In addition to the general population, several researchers have investigated the prevalence of these diseases among some risk groups or people with other chronic diseases (7,8). In the last decades, not only allergic diseases and asthma but other health problems such as obesity, diabetes mellitus, multiple sclerosis and autism spectrum disorders are also on the rise (9). Due to a parallel increase in the prevalence of these diseases, a possible relationship among the etiologies of these health problems may be proposed.

Table I. Some characteristics of children with Autism Spectrum Disorders (ASD).

	ASD	Controls	
Characteristic	**Number (%)**	**Number (%)**	**P**
Total number	59	50	
Female	13 (22%)	20(40)	<0.05
Male	46 (78%)	30(60)	
Mean age (year)	7.44	9.8	>0.05
Parental allergy	17 (29.0%)	13 (26.0%)	>0.05
Allergic rhinitis	7 (12.0 %)	8 (16%)	>0.05
Atopic dermatitis	6 (10.1%)	3 (6.0%)	<0.05
Food allergy	5 (8.4%)	4 (8.0%)	>0.05
Asthma	4 (6.8%)	4 (8.0%)	>0.05

Autism spectrum disorders are characterized by deficits in social communication and language and the presence of repetitive behaviors (10) and affect as many as 14.7 in 1000 (1 in 68) children according to the US Centers for Disease Control and Prevention (CDC) (2). Although the etiology of ASD is not well known, a small group of these children have genetic mutations (11). It seems that perinatal stress and environmental factors play a significant role in increasing the prevalence of ASD (3).

Many medical comorbidities in children with ASD have attracted the attention of scientists. The children with ASD may also have sleep disorders, epilepsy, food intolerance, and gastrointestinal dysfunction (12). Recently, an association between allergic diseases and ASD has been suggested (13,14). Is there a real link between these two groups of diseases? To answer this question, many studies have been conducted. However, most of the published data presented conflicting results. A comprehensive study showed that parents of children with ASD had reported more respiratory, food, and skin allergies than those of children without ASD (15). In another study, Magalhães et al. (16) reported a higher frequency of atopic dermatitis, asthma, rhinitis, and elevated serum IgE levels in children with Asperger syndrome compared to age-matched controls (87% vs. 7%). Chen et al.(5) alleged that the presence of any atopic disease in early childhood increased the risk of developing ASD in later life. They also claimed that increased numbers of atopic comorbidities were significantly related to a greater risk of developing ASD (5). On the contrary, Jyonouchi et al. (17) did not find any difference in atopic dermatitis, allergic rhinitis, asthma, and food allergy rates between ASD cases and controls. Similarly, Bakkaloglu et al. (18) did not find a difference in serum IgE levels between cases and controls. Zerbo et al.(19) found that children with ASD have elevated prevalence of food allergies and rhinitis, but not asthma.

In our study, we did not find any difference in the prevalence of allergic diseases between children with ASD and the control group. The results of our study are also compatible with other results from the normal population of our community (20). This may be due to the fewer number of cases in our study and control groups as well as differences in genetic and environmental factors compared to other studied populations.

CONCLUSION

Allergic diseases are multifactorial and genetic predisposition and environmental factors are the main determining factors in the pathogenesis of these problems. Although some studies have found increased prevalence, we did not find any association between ASD and allergic diseases in this study. We therefore need more comprehensive studies with more cases.

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