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Relationship of chronic / recurrent acute tonsillitis and the family medical history in children: A cross-sectional study

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Abstract

In this study, we aimed to investigate whether recurrent acute tonsillitis has a family predisposition and to reveal the relative contribution of familial and environmental factors in the development of this disease. A child presenting with chronic tonsillitis may have an impact on the family's quality of life. In addition to the increased discomfort of the child, there may potentially be a social, financial and emotional impact on the family members. We have followed up 133 patients with chronic/recurrent acute tonsillitis (C/RAT) in chronic/recurrent acute tonsillitis (C/RAT) in our ear-nose-throat outpatient clinic between July 2000 and July 2015. We have selected 143 healthy children who were not diagnosed with C/RAT from paediatric outpatient clinic as a control group. It was determined that there was not a significant statistical difference between the presence of C/RAT in the mother and the father and the presence of C/RAT in the child ($p > 0.05$). A statistically significant difference was noted between the presence of C/RAT in the child and the presence of C/RAT in the mother or father ($p < 0.05$). Chronic tonsillitis is an important health problem affecting the social life of a family.

Keywords: Childhood, chronic tonsillitis, recurrent acute tonsillitis

Introduction

Tonsillitis is a common childhood infectious disease affecting the parenchyma of the palatine tonsils [1]. Chronic tonsillitis (CT) is defined as more than five attacks of the symptoms in one year associated with typical throat infection accompanied by tonsil hypertrophy due to bacterial pathogens whereas recurrent acute tonsillitis (RAT) is defined as four to seven episodes of acute tonsillitis per year, ten episodes in two years, or three episodes in a year in three consecutive years. Although it is known that the long-term effects of tonsillitis are low, RAT is a common and significant factor associated with morbidity and loss of time from work or time to fall back in school [1]. There may be an impact on all family members in a family with a child with C/RAT. In addition to the child's discomfort, there is the potential for social, emotional and economic impact on family members. In addition, bleeding after treatment of tonsillectomy is quite dangerous for the patient and fear for the anesthesiologist [2].

The spontaneous resolution of RAT has not yet been proven. Recent limited data do not provide any evidence for a difference between medical and surgical treatments for RAT [1]. Recurring tonsillitis was observed as a polymicrobial flora containing both aerobic and anaerobic bacteria in core tonsillar cultures in cases with recurrent pharyngitis, and as many infections, children with recurrent tonsillitis have different populations of bacteria compared to children who have not had [3]. Research focuses primarily on the family tendency of tonsillectomy. The purpose of this research is to study the family predisposition to C/RAT, if there is a relationship between social, economic and living conditions on the epidemiology of C/RAT in a family.

Material and Methods

Between July 2000 and July 2015, healthy children who were diagnosed with C/RAT followed up in our outpatient clinic were evaluated in our cross-sectional study.

Children in the study and control group were residing in Istanbul. The age, gender and date of birth for the children and control groups were tend to be close to each other and had an equally correlated distribution. Children that we could not reach her parents and

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that with chronic and progressive disease were excluded from the study.

We conducted a retrospective study on patients with C/RAT who were referred to the otorhinolaryngology clinic and with a control group that healthy child including children without recurrent tonsillitis or chronic who referred to the pediatric clinic. Patients and their families were contacted by phone to inquire whether their parents had C/RAT.

A retrospective survey was conducted with a phone call. The parents of the children included in the study were asked whether they had been diagnosed with C/RAT until the age of 17 years. Our study was based on recurrent tonsillitis criteria reported by Paradise et al. in 1984. The study included patients who had at least 7 episodes in the last 1 year, at least 5 episodes in the last 2 years and at least 3 episodes in the last 3 years [4,5]. There were persistent sore throat, bad breath, the tendency to acute infection, dirty yellow magma formed by food and bacteria residues among the crypts of tonsils and persistent lymphadenopathies in chronic tonsillitis [6].

Data analysis was carried out using IBM SPSS statistical software (Version 23). Number, percentage, mean and standard deviation values will be given as descriptive statistics. Statistical analyses were carried out using the chi-square test. $p < 0.05$ was considered statistically significant.

Results

The total number of patients in the sample group was 133, the number of women was 54 (41%) and the number of males was 79 (59%). The youngest case was at the age of 5, the oldest was 16 and the average age was 10.71. The total number of cases in the control group was 143, the number of females was 57 (40%) and the number of males was 86 (60%). The smallest age of the cases was 5 years, the largest was 16 years old and the mean age was 8.45.

A total of 552 mothers and fathers participated in the study, 27 of whom were diagnosed with C/RAT. Eighteen of 266 parents participated in the study group were diagnosed with C/RAT. 286 parents were included in the control group and 9 of them were diagnosed with C/RAT (Table 1). A total of 276 mothers participated in the study and 11 of them were diagnosed as C/RAT. 133 patients' mothers participated in the patient group and 8 of them were diagnosed with C/RAT. 143 controls' mothers participated in the control group and 3 of them were diagnosed as C/RAT.

The study included a total of 276 fathers and 16 patients were diagnosed with C/RAT. A total of 133 patients' fathers were enrolled in the patient group and 10 of them were diagnosed with C/RAT. In the control group, 143 fathers joined and 6 of them were diagnosed as C/RAT (Table 1). There was no statistically significant difference between the presence of C/RAT of the children and the presence of C/RAT of the mother ($p > 0.05$) (0.10). There was no statistically significant difference between the presence of C/RAT of the children and the presence of C/RAT of the father ($p > 0.05$)

(0.24). It was determined that there was a significant statistical difference between the presence of C/RAT in the mother or the father and the presence of C/RAT in the children ($p < 0.05$) (0.04) (Table 1).

Table 1. Disease occurrence in parents in both patient and control groups

The probability of disease occurrence	Patient Parents		Control Parents		p value
Age	Total, N	C/RAT, n (%)	Total, N	C/RAT, n (%)	
Mother	133	8 (6.02)	143	3 (2.10)	0.10
Father	133	10 (7.52)	143	6 (4.20)	0.24
Mother or Father	266	18 (13.54)	286	9 (6.30)	0.04*

* The chi-square test used to derive the p-value

Discussion

Our results showed that a few patients with recurrent tonsillitis or chronic tonsillitis have the same disease in their mother or father. A statistical significance may be related to intrafamily transmission, access to clean water, and lack of average home temperature between children with C/RAT and their parents with C/RAT.

Studies on the reasons for causing the same disease among children and their parents are available in the literature. Today's children are tomorrows citizens. In Article Six of The United Nations Convention on the Rights of the Child, it is stated that "Every child has the right to life. Governments must do all they can to ensure that children survive and develop to their full potential. Malnutrition in this age group has direct serious consequences in terms of their physical, psychological, academic and social life [7]. These changes are most evident among school-age children, as they are easily attracted to so-called junk food, that pushes them at an early stage of life to be morbid and unhealthy and become future victims of several non-communicable diseases such as cardiovascular diseases, diabetes, and cancers [8]. Socio-economical status determines the number of family members, type of housing, place of residence (rural, non-slum urban, slum), availability of safe drinking water, adequate food and personal and environmental hygiene, all of which are invariably linked to the incidence of malnutrition [9,10].

In clinical practice, we take great care that C/RAT patients have the same disease in their mother or father. Numbers and severity of tonsillitis or sore throat attacks have been reported in the literature; the need for antibiotics and analgesics; time off work or school; behavior, school goals, and general well-being; surgical mortality and morbidity; and the negative effects of medication [11]. Family clustering was shown in chronic tonsillitis ($p < 0.05$) in a study to evaluate the prevalence, major causes and social factors of (CT). Besides the environmental factors that cause C/RAT, an important indicator is the presence of family clustering in C/RAT. There has been a significant difference in a mother's or father's C/RAT history

with respect to C/RAT history ($p < 0.05$) [12]. Several factors have been reported in the literature, including primary smoking, maternal health, and tonsil anatomy, affecting the frequency of tonsillitis episodes in children [13,14]. Harlap and Davies [15] have shown that smokers tend to have more infections in their children's respiratory tract. The relationship between parental smoking and respiratory symptoms in children was demonstrated by Colley and Cameron et al. [16]. In contrast, Lebowitz and Burrows [17] and Shy et al. [18] found no relationship between parental smoking and respiratory symptoms in children.

Most of the risk factors outlined in this study could logically be related to maternal obesity, age and parity, and social stressors. There is a discussion of possible mechanisms. Living and housing conditions were only modestly related to rates of diagnosed asthma [12]. Future large-scale comprehensive studies to investigate socioeconomic status which is directly associated with the number of family members, type of housing, place of residence, access to safe and adequate drinking water and food, and the availability of personal and environmental hygiene, are needed. Kvestad E et al. stated in their study that genetic and environmental factors are effective in the etiology of tonsillitis [1].

They also reported that genetic factors significantly contributed to the co-morbidity between recurrent otitis media and recurrent tonsillitis [19]. The prospective cohort study to be performed may provide more detailed information on the family cluster of C/RAT. Based on the chronic tonsillitis family cluster in our study, we believe that the genetic dimension of C/RAT may give the opportunity to obtain more specific data. However, a comparative analysis of data obtained from at least 3 generations is required to determine the effects of genetic predispositions on the disease [20]. These studies can be planned based on improvements in genetic technology and easy access to tests.

Conclusions

Chronic tonsillitis is a major health issue affecting a family's social life. It causes a decrease in the efficiency of family members in their work and daily life. Studies on the control of environmental factors in the family are particularly needed. It is also necessary to educate the family and raise the awareness of family members on this disease. Therefore, the family, health services and education services should adopt common communication measures.

Conflict of interest

The authors declare no conflict of interest.

Financial Disclosure

The authors declare that this study received no financial support.

Ethical approval

Protocol of this study was approved by ethics issue. The data were analyzed in accordance with the guidelines of Clinical Trials, Institutional Ethics Committee of Istanbul Training and Research Hospital (Approval No. 12.18.2015/745).

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