

CONFERENCE ARTICLE

**ASSOCIATION OF THE EDN1 LYS198ASN POLYMORPHISM WITH THE DEVELOPMENT OF
CHRONIC TONSILLITIS**

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ABSTRACT

Chronic tonsillitis is one of the most common inflammatory diseases of the lymphoid ring of the pharynx in both children and adults. In recent years, along with local infectious factors, increasing attention has been paid to hereditary predisposition and molecular genetic mechanisms involved in the development of this disease. The present study aimed to assess the significance of the biallelic Lys198Asn polymorphism of the EDN1 gene in the development of chronic tonsillitis and its clinical forms. The study included 94 patients aged 3 to 55 years diagnosed with chronic tonsillitis and 90 apparently healthy individuals without otorhinolaryngological diseases who served as the control group. Patients were classified into simple, toxic-allergic form I, and toxic-allergic form II. Molecular genetic analysis was performed using DNA isolated from peripheral blood lymphocytes, followed by real-time polymerase chain reaction for detection of the EDN1 (Lys198Asn) polymorphism.

Keywords: chronic tonsillitis; EDN1 gene; Lys198Asn polymorphism; endothelin-1; genetic susceptibility.

INTRODUCTION

Background. Chronic tonsillitis is among the most common chronic inflammatory diseases of the pharyngeal lymphoid ring in children and adults. Along with persistent local infection, inherited susceptibility and molecular genetic mechanisms may contribute to disease development and clinical heterogeneity. The endothelin-1 gene (EDN1), particularly the Lys198Asn polymorphism, is of interest because endothelin-1 participates in endothelial regulation, vasomotor balance, and inflammation-related tissue responses.

Materials and methods

A case-control study was carried out in 2021-2025 and included 94 patients aged 3 to 55 years with chronic tonsillitis and 90 clinically healthy individuals without ENT pathology. The patient group was subdivided into simple chronic tonsillitis, toxic-allergic form I, and toxic-allergic form II. Genomic DNA was isolated from peripheral blood lymphocytes. Genotyping of the EDN1 Lys198Asn polymorphism was performed by real-time polymerase chain reaction. Statistical analysis included the chi-square test, odds ratio, 95% confidence interval, and Hardy-Weinberg equilibrium assessment.

Results

The minor Asn allele, as well as the Lys/Asn and Asn/Asn genotypes of the EDN1 gene, were detected more frequently in patients with chronic tonsillitis than in controls. Carriage of the Asn allele was associated with a 1.7-fold increase in the risk of chronic tonsillitis at the threshold of statistical significance ($p=0.05$). In patients with the simple form of chronic tonsillitis and toxic-allergic form I, the Asn allele showed an unfavorable effect, whereas the Lys allele and the Lys/Lys genotype demonstrated a relative protective tendency. No statistically significant association was found between the EDN1 Lys198Asn

polymorphism and toxic-allergic form II.

Conclusion

The Lys198Asn polymorphism of the EDN1 gene may be considered a genetic marker associated with susceptibility to chronic tonsillitis, particularly its simple and toxic-allergic form I variants. The obtained data expand current knowledge of the molecular genetic basis of chronic tonsillitis and may contribute to the identification of risk groups and the development of personalized preventive and therapeutic strategies.

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