

## **SUMMARY**

Tonsillar cancer (TC) presents an important part of head and neck cancers and its incidence is rising in the Czech Republic. Cigarette smoking and alcohol abuse are risk factors responsible for approximately two thirds of all head and neck cancers. Furthermore, a role of human papillomavirus (HPV) as an independent risk factor has been demonstrated recently.

The aims of the present study were to find demographical differences between the group of HPV-positive and negative patients, to determine the prevalence of HPV in TC of Czech patients and also to find out whether the virus in HPV DNA positive tumors is transcriptionally active. Another aim was to test different markers of HPV infection for a precise selection of patients with HPV associated disease and to determine the prognostic role of these markers.

A set of 109 patients with primary TC was examined for HPV DNA presence in tumor tissue and for the presence of HPV specific antibodies in serum. Data regarding risk factors were obtained by questionnaires. Forty-five samples were available for E6 and E2 mRNA analysis and for immunohistochemical analysis of p16 and p53 expression.

The overall prevalence of HPV DNA in TC was 65%. In 93% of HPV16 DNA positive samples the virus was transcriptionally active. The E2 expression status has shown that in 64% of positive samples the virus is integrated in cellular genom. P16 expression and the presence of HPV16 E6/E7 specific antibodies correlated well with HPV DNA and RNA positivity. Disease specific survival of patients with HPV positive tumors was significantly better than that of patients with negative tumors.

In addition to providing further evidence of the involvement of HPV infection in the etiopathogenesis of a proportion of TC cases, our study demonstrates the prognostic advantage of patients with HPV associated tumors. The results of our study clearly show that recent findings concerning HPV infection of oropharyngeal region may be involved in clinical practice.

**Key words:** human papillomavirus, tonsillar cancer, antibodies, prognosis