

Abstract

Malignant diseases are after cardiovascular diseases the second most common cause of death in the developed countries. The number of patients newly diagnosed with cancer is constantly rising, on average by 2.5% yearly. This trend also applies to squamous cell carcinoma of the head and neck, which is the sixth most common oncological disease. Its occurrence is most influenced by two external risk factors: smoking and abuse of alcohol; latest research indicates that for the emergence of neoplasia is crucial not only the amount of and duration of the use of a harmful substance but also the time of day when a harmful substance is used as well as psychological dependence on the substance. But recently, we are witnessing growth of the frequency of occurrence of the squamous cell carcinoma of the pharynx with non-smokers and younger age groups in connection with presence of the HPV infection in tumor.

The forms of so far most commonly used anticancer therapy (surgery, radiotherapy, chemotherapy) have, despite progressions over the last decades, lead to significant improvement only with some types of cancer but in the case of squamous cell carcinoma of the head and neck is the total probability of five-year survival still low, approximately 40%. Therefore we are turning our attention to the new forms of therapy, for example to the targeted therapy with the use of monoclonal antibody or polymeric carriers of cytostatic agents. Another current trend in this field of research is the possibility to utilize the immune system to fight tumor diseases.

This submitted work describes the current state of knowledge of individual types of anti-cancer treatment as well as a discussion of the possibilities of using modern therapeutic approaches which could have a significantly positive affect on the clinical course of cancer.

Key words: head and neck squamous cell carcinoma, smoking, T regulatory cells, anticancer immunity, regulation of immune system, cancer microenvironment, targeted therapy, immunotherapy, synthetic drug carriers