

ABSTRACT

Head and neck squamous cell carcinomas (HNSCC) remain a significant cause of morbidity worldwide, with approximately 550,000 new cases diagnosed each year. The main etiological factors include smoking and alcohol consumption. The incidence of non-oropharyngeal HNSCC is gradually decreasing while the incidence of squamous cell oropharyngeal carcinoma (OPSCC) is still on the rise. This increasing incidence can be most likely attributed to an increasing prevalence of human papillomavirus (HPV) infection. From the clinical point of view the most significant fact is that patients with HPV positive OPSCC have better prognosis.

HNSCC is linked to an alteration in the immune system. Only a limited number of studies have correlated both the immunological parameters and HPV status with patient prognosis.

Therefore, we focused on the research of the immunological profile of patients with HNSCC of viral and non-viral etiology.

In our study, 110 patients with HNSCC were enrolled. They were divided into HPV-positive and HPV-negative groups based on the expression of HPV 16 E6 mRNA detected in the tumor tissue. Basic lymphocyte subpopulations (CD3+, CD4+ CD25+ Treg, CD4+ CD25+ FoxP3 Treg, CD4+, CD8+, CD19, and CD3- CD16+ CD56+ cells) were determined by flow cytometry in the peripheral blood (PB).

We observed significantly better survival in patients with HPV-associated HNSCC. Moreover, survival was affected by the levels of CD4+ CD25+ Treg and a lower CD8+/CD4+ CD25+ Treg ratio in the PB. Group of patients with HPV-associated carcinomas and higher level of Treg showed significantly better survival by comparison to the group of HPV-negative patients with lower levels of CD4+ CD25+ Treg. Furthermore, we observed significantly higher counts of CD3- CD56+ CD16+ NK cells, CD8+ T lymphocytes and CD4+ CD8+ sum in patients with HPV-associated carcinomas.

The immune system of HPV-associated HNSCC is modified. The combination of virological and immunological parameters might help to obtain precise prognostic information and eventually lead to modification of the therapeutic modalities.