The microenvironment of HPV-associated and HPV-negative oropharyngeal tumors

Ruth Tachezy

Patients with HPV-associated oropharyngeal tumors have a survival advantage. They have better treatment response and less frequently develop recurrence. This recognition led to the inclusion of the indirect marker of an active viral infection –an expression of p16 protein -to the scoring system for oropharyngeal tumors and allowed for better risk stratification of patients. The substantially better prognosis of patients with HPV-associated oropharyngeal tumors stimulated the discussion about modification of the therapy with the aim to decrease the side effects of the treatment by lowering the dose of chemotherapy or radiation. Unfortunately, the clinical trial of de-intensification of treatment resulted in the inferior survival of patients. Therefore, new approaches/markers that will help to improve the risk stratification of HNC patients for alternative treatment regimens are needed.
It has been shown that the immune system plays a vital role in the survival of patients with different types of cancer. A variety of immune markers were explored, and several have been shown useful in clinical settings. Additionally, alternative immunotherapeutic treatments are now available for a variety of malignancies, including HNC and immune markers that will improve the risk stratification of patients for such types of treatments are needed. The number and phenotype of immune cells infiltrating the tumor microenvironment (TME) were identified as clinically applicable markers. Even though there are already numerous publications dealing with the analyses of TME in HNC, they are burdened by the lack of the unification of methodological approaches.
New complex methods for the analyses of tumor immune environments are now available. With the standardization of the techniques and with the help of new complex methods, it might be possible to better describe the complex host-tumor interactions and eventually be able to modify the immune system of the patients to effectively control the growth of the tumor.

Funding: The project National Institute of Virology and Bacteriology (Programme EXCELES, ID Project No. LX22NPO5103) - Funded by the European Union - Next Generation EU.