Characterizing the Tumor Immune Microenvironment of Head and Neck Squamous Cell Carcinoma

Published: 12-07-2024
Last updated: 27-12-2024

Characterize the tumor immune microenvironment (TiME) in head and neck squamous cell carcinoma (HNSCC). Specifically we want to understand which molecular and/or immunological mechanisms are different between different genetic subgroups of HNSCC (i....

Ethical review	Approved WMO
Status	Pending
Health condition type	Miscellaneous and site unspecified neoplasms malignant and unspecified
Study type	Observational invasive

Summary

ID

NL-OMON56910

Source
ToetsingOnline

Brief title
HNcol 2.0

Condition

- Miscellaneous and site unspecified neoplasms malignant and unspecified

Synonym
head and neck cancer, head and neck squamous cell carcinoma

Research involving
Human

Sponsors and support

Primary sponsor: Amsterdam UMC
Source(s) of monetary or material Support: Ministerie van OC&W,KWF

Intervention

Keyword: biopsy, head and neck cancer, immune profiling, molecular profiling

Outcome measures

Primary outcome

The primary objective of this study is to define the TiME in the various anatomical and molecular HNSCC subclasses (HPV-related, non-HPV related CNA-other and non-HPV related CNA-quiet) and to comprehend which molecular and/or immune mechanisms relate with prognosis and response to therapies. Differences in the TiME will be assessed by flow cytometry, multiplexed immunohistochemistry, DNA/RNA sequencing, spatial transcriptomics, primary tumor cultures and functional immune assays.

Secondary outcome

Secondary endpoints in our study will be TiME characteristics which are related to:

1. Immunotherapy response

2. Clinical outcome / overall survival

3. New immune suppressive mechanisms in HNSCC

Study description

Background summary

Head and neck squamous cell carcinoma (HNSCC) arises in the mucosal linings of the upper aerodigestive tract. Common risk factors are alcohol and tobacco use, genetic predisposition and human papillomavirus (HPV) infection. Patients generally have a poor prognosis and the survival rate has improved minimally during the past years. Recently, immunotherapy has been approved for the treatment of patients with recurrent or metastatic HNSCC and caused the first

breakthrough in HNSCC treatment in decades. In addition, application as neoadjuvant treatment prior to or as substitute of surgery are underway. However, current immunotherapy is only effective in about 20% of patients and the reason why the majority of patients do not respond to immunotherapy is unclear. Extensive immunological and molecular characterization of the tumor immune microenvironment (TiME) in HNSCC is warranted to elucidate suppressive mechanisms that may hamper the effectiveness of immunotherapy.
Over the past decades it has been appreciated that HPV-related HNSCC have a better prognosis and respond better to standard-of-care treatment. Also immunotherapy seems to work better in a subset of these patients. More recently, we and others, have identified that among the non-HPV-related tumors, there are tumors that show many chromosomal aberrations (CNA-other), whereas a smaller subgroup (<10%) has no or only few chromosomal aberrations (CNA-quiet). While we have shown in a retrospective cohort that the latter group has a better prognosis, the mechanisms behind this are not understood. With the current project we aim to identify these mechanisms, and whether they are molecular, or immunological and whether they are related to response to treatment.

Study objective

Characterize the tumor immune microenvironment (TiME) in head and neck squamous cell carcinoma (HNSCC). Specifically we want to understand which molecular and/or immunological mechanisms are different between different genetic subgroups of HNSCC (i.e. HPV-related, non-HPV related with many chromosomal abberations, and non-HPV related with few to no chromosomal abberations) and between HNSCC that develop at different anatomical sites within the head and neck area. We want to know how this is related to response to treatment.

Study design

A longitudinal study in which tumor and blood of a consecutive patient cohort and the clinical information regarding this material will be collected.

Study burden and risks

We anticipate limited burden and risks associated with participation. Tissue biopsies will be obtained during the diagnostic surgery under full anesthesia. The participants may experience some pain at the site of the biopsy. For the additional blood draw for research, a vene puncture will be performed. This may give mild irritation or bruising at the injection site.

The participants themselves will not benefit from participating in this study. We anticipate that the results from this study will help us identify novel immune suppressive pathways in head and neck cancer that could lead to development of novel treatment modalities. Also, the study may reveal

informative biomarkers that may help in selecting those patients who are like to benefit from (immuno)therapy strategies and/or those who are unlikely to respond.

Contacts

Public
Amsterdam UMC

De Boelelaan 1118
Amsterdam 1081 HV
NL
Scientific
Amsterdam UMC

De Boelelaan 1118
Amsterdam 1081 HV
NL

Trial sites

Listed location countries

Netherlands

Eligibility criteria

Age
Adults (18-64 years)
Elderly (65 years and older)

Inclusion criteria

1. Patients are scheduled for panendoscopy or surgery for squamous cell carcinoma of the oral cavity, oropharynx, hypopharynx, larynx or cervical part of oesophagus.
2. Patients must have sufficient knowledge of the Dutch language to understand the meaning of the study as described in the patient information.
3. Patients must have the mental capacity to understand the meaning of the study as described in the patient information.

4. Patients must give written informed consent.
5. Age of the patients should be >18. An upper limit of age will not be applied. Elderly patients who are fit enough to undergo surgery in the head and neck area are not likely to encounter negative effects of the extra procedures that will be applied as part of the study.

Exclusion criteria

Too limited size of the carcinoma according to the treating physician.

Study design

Design

Study type: Observational invasive

Masking:	Open (masking not used)
Control:	Uncontrolled
Primary purpose:	Treatment

Recruitment

NL

Recruitment status:	Pending
Start date (anticipated):	01-01-2025
Enrollment:	1600
Type:	Anticipated

Ethics review

Approved WMO

Date:	12-07-2024
Application type:	First submission
Review commission:	METC Amsterdam UMC

Study registrations

Followed up by the following (possibly more current) registration

No registrations found.

Other (possibly less up-to-date) registrations in this register

No registrations found.

In other registers

Register	ID
CCMO	NL86264.018.24