Feasibility of holmium-166 microspheres for selective intra-tumoural treatment in head and neck cancer: biodistribution and safety in patients with malignancy of the oral cavity (the HIT study)

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

Summary

ID

NL-OMON45143

Source
ToetsingOnline

Brief title
HIT study

Condition

- Miscellaneous and site unspecified neoplasms malignant and unspecified
- Head and neck therapeutic procedures

Synonym
squamous cell carcinoma of the oral cavity

Research involving

Human

Sponsors and support

Primary sponsor: Universitair Medisch Centrum Utrecht
Source(s) of monetary or material Support: KWF subsidie

Intervention

Keyword: holmium microspheres, intra-tumoural, oral cavity cancer

Outcome measures

Primary outcome

The primary endpoint is the total amount of activity in the tumor (in percentage). We consider a leakage of * of the injected activity from the tumor the maximum acceptable leakage. Therefore we consider this treatment feasible, if the detected activity in the tumor is more than two third of the injected activity.

Secondary outcome

Secondary endpoints include adverse events occurring between the time of administration until resolution of the adverse events, and determination of radioactivity and holmium content in a blood and urine sample after administration. Furthermore, the biodistribution of 166Ho-microspheres after intra-tumoural injection will be studied ex-vivo with micro CT and histology.

Study description

Background summary

Patients with an early stage (T1-2) oral squamous cell carcinoma (OSCC) < 4 cm receive local surgery. Morbidity and functional loss may be significant. Local treatment by intra-tumoural injection of radioactive 166Ho-microspheres may

result in effective treatment for downscaling of the tumour. Subsequently limited surgical resection associated with less morbidity could be a possibility. The feasibility, biodistribution, safety and efficacy of this approach will be tested in this clinical study.

Study objective

The main objective is to establish the feasibility of 166Ho-microspheres for intra-tumoural injections in OSCC by defining the total amount of leakage. The secondary objectives are to assess the safety profile by recording the adverse events, and radioactivity and holmium content in a blood and a urine sample after administration. In addition, the biodistribution of 166Ho -microspheres in the tumour after intra-tumoural injection will be studied ex-vivo with micro CT and histology.

Study design

Observational with invasive measurements, first-in-man, non-randomized, open label, non-comparative, proof of concept study.

Intervention

166Ho-microspheres will be injected in the tumour under ultrasound guidance using a needle and syringe with microsphere suspension. This intervention will be performed under local anaesthesia one week before the planned surgery in a *treat-and-resect* protocol.

Study burden and risks

The burden and risk associated with participation in this study is expected to be moderate due to;
* The injected activity will be a factor >200 less compared to the HEPAR study on hepatic radioembolization (30 MBq versus approximately 6000 MBq).
* The risk of radionecrosis to healthy neighbouring tissue is minimal because 90% of the dose will be absorbed within 3.2 mm.
* No severe adverse events were observed in >40 animal patients with more challenging anatomy, treated with much higher activities (factor 10).
* Incorrect administration will be avoided in clearly visible and palpable tumours of the oral cavity.
* Even after complete leakage in the gastrointestinal system or in the case of IV injection no theoretical risk exists on serious adverse events.
During an outpatient visit, the patients will receive a radioactive 166Ho-microspheres suspension, injected in the tumour under local anaesthesia. Furthermore, MR and SPECT/CT imaging will be performed after administration, and a blood and urine sample will be collected before discharge.

Contacts

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Trial sites

Listed location countries

Netherlands

Eligibility criteria

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

Inclusion criteria

1. Patients must have given written informed consent.
2. Aged 18 years and over.
3. Confirmed histological diagnosis of squamous cell carcinoma of the oral cavity.
4. TNM-stage T1-2 Nx M0.
5. Eigible for local surgery with curative intent.
6. World Health Organization (WHO) Performance status 0-2.

Exclusion criteria

1. Previous oncologic surgery and/or external beam radiation therapy on the tongue and oral floor.

2. Major surgery (oral cavity) within the past 4 weeks or incompletely healed surgical incisions before starting study therapy.
3. Any unresolved toxicity greater than National Cancer Institute (NCI), Common Terminology Criteria for Adverse Events (CTCAE version 4.03) grade 2 from previous anti-cancer therapy.
4. Pregnancy or nursing (women of child-bearing potential).
5. Patients suffering from psychic disorders that make a comprehensive judgment impossible, such as psychosis, hallucinations and/or depression.
6. Previous enrolment in the present study.

Study design

Design

Study type: Observational invasive

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

Recruitment

NL

Recruitment status:	Recruitment stopped
Start date (anticipated):	31-08-2016
Enrollment:	10
Type:	Actual

Medical products/devices used

Generic name:	QuiremSpheres
Registration:	Yes - CE outside intended use

Ethics review

Approved WMO

Date:	17-11-2015
Application type:	First submission
Review commission:	METC Universitair Medisch Centrum Utrecht (Utrecht)

Approved WMO

Date:	15-03-2017
Application type:	Amendment
Review commission:	METC Universitair Medisch Centrum Utrecht (Utrecht)

Approved WMO

Date:	18-10-2017
Application type:	Amendment
Review commission:	METC Universitair Medisch Centrum Utrecht (Utrecht)

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	NL54535.041.15