Precision Radiotherapy using MR-linac for Pancreatic Neuroendocrine Tumours in MEN1 patients

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This project aims to explore the efficacy and safety of radiotherapy for asymptomatic pNET using delivery of radiotherapy by MR-linac in Multiple Endocrine Neoplasia 1 (MEN1) patients.

Ethical review	Approved WMO
Status	Recruitment started
Health condition type	Endocrine and glandular disorders NEC
Study type	Interventional research previously applied in human subjects

Summary

ID

NL-OMON52098

Source
ToetsingOnline

Brief title
PRIME study

Condition

- Endocrine and glandular disorders NEC
- Malignant and unspecified neoplasms gastrointestinal NEC
- Endocrine neoplasms malignant and unspecified

Synonym
Neuroendocrine tumor of the pancreas; endocrine neoplasm of the pancreas

Research involving
Human

Sponsors and support

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

Intervention

- Other intervention

Keyword: MEN1, MR guided radiotherapy, Neuroendorcine tumours, Pancreas

Explanation

N.a.

Outcome measures

Primary outcome

Primary endpoint is the change in tumour size at control MRI at 12 months
 follow-up.

Secondary outcome

Key secondary outcomes include indication for pancreatic resection, safety
 (toxicity), radiological tumour characteristics, quality of life, and endocrine
 and exocrine pancreas function, metastases free survival, overall survival and
 tumour characteristics on follow-up MRI.

Study description

Background summary

Clinical decision making in pancreatic neuroendocrine tumours (pNET) is a major challenge. The standard of care for pNET with curative intent is surgical resection. Surgery for pNET is considered in tumours with a diameter of more than 2 cm or rapid growth, however, associated short- and long-term morbidity of pancreatic surgery is significant. Because of the relative unfavourable risk-benefit ratio, there is a need for new treatment modalities for smaller pNETs. Neuroendocrine tumours have shown to be radiosensitive. Using the recently developed and implemented MR-linac system, high dose radiotherapy can be delivered to the pancreas whilst sparing surrounding tissues.

Study objective

This project aims to explore the efficacy and safety of radiotherapy for asymptomatic pNET using delivery of radiotherapy by MR-linac in Multiple Endocrine Neoplasia 1 (MEN1) patients.

Study design

Prospective cohort study. Patients will be recruited from the Dutch MEN1 Study Group (DMSG) cohort.

Intervention

High dose radiotherapy using MR-linac, with a dose on the tumour bed of a minimum of 40 Gy in 5 fraction delivered in 2 weeks.

Study burden and risks

Adverse events related to the experimental intervention relate to toxicity of radiotherapy to healthy pancreatic tissue and radiosensitive tissues near the pancreatic area. A second risk associated with radiotherapy is development of radiotherapy-induced tumours. Using MR-linac we can administer the dose highly accurately, and keep strict dose limits for surrounding tissues. Nevertheless, toxicity might occur. Neighbouring tissue and organs to the pancreas include: Spine, Liver, Small bowel, Stomach, Duodenum, Kidney, Spleen. Patients undergoing radiotherapy will actively be monitored for potential radiotoxicity during the study and thereafter through the MEN1 follow-up program. We consider the current study justifiable because MRgRT is expected to result in a lower risk for progression, eventually resulting in a lower need for pancreatic surgery.

Contacts

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Trial sites

Trial sites in the Netherlands

Universitair Medisch Centrum Utrecht
Target size: 20

Listed location countries

Netherlands

Eligibility criteria

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

Inclusion criteria

MEN1 patients diagnosed with pNET meeting the following criteria:
- lesions measuring between 2cm and 3cm.
- pNET lesions with a size between 1.0 and 2.0 cm and moderate growth of the lesion (2-4 mm/ year) on sequential follow-up scans.
- pNET lesions with a size between 1.0 and 2.0 cm and minimal growth of the lesion (1 mm/ year) reconfirmed on 3 or more sequential follow-up scans.
- Patients with in situ remaining 1.0 - 2.0 cm lesions after previous resection of a larger lesion.

Exclusion criteria

- Suspected malignant pNET as per the tumour board assessment, including the criteria:
- pNET lesions of more than 3 cm in size
- rapid growth of pNET lesions with more than 4mm per year
- Symptomatic pNET because of hormone production, with the exception of gastrinomas which are located in the submucosa of the duodenum
- concurrent treatment with a somatostatin analog
- concurrent treatment with chemotherapy
- peptide receptor radionuclide therapy in the past 12 months
- history of radiotherapy in the upper abdominal region
- MRI contraindications as per usual clinical care, such as claustrophobia and

metal or electronic implants not compatible with MRI.
- Pregnancy
- (Other) metastatic disease
- WHO performance score 3-4

Study design

Design

Study phase:	N/A
Study type:	Interventional research previously applied in human subjects
Intervention model:	Single
Allocation:	Non controlled trial
Masking:	Open (masking not used)
Control:	Uncontrolled
Primary purpose:	Other

Recruitment

NL

Recruitment status:	Recruitment started
Start date (anticipated):	27-06-2022
Enrollment:	20
Duration:	12 months (per patient)
Type:	Actual

Medical products/devices used

Product type:	N.a.

IPD sharing statement

Plan to share IPD: Undecided

Plan description
N.a.

Ethics review

Approved WMO Date:	15-02-2022
Application type:	First submission
Review commission:	METC NedMec
Approved WMO Date:	28-03-2025
Application type:	Amendment
Review commission:	METC NedMec

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
ClinicalTrials.gov	NCT05037461
CCMO	NL77809.041.21
Research portal	NL-007589