Towards endoscopic ultrasound and 11C-5-HTP PET screening for pancreatic neuroendocrine tumors in Multiple Endocrine Neoplasia type 1 and Von Hippel Lindau disease

Published: 15-12-2008
Last updated: 06-05-2024

To determine the additiotinal value of EUS and 11C-5-HTP PET scan for detection of pancreatic NET.

Ethical review	Approved WMO
Status	Recruitment stopped
Health condition type	Endocrine and glandular disorders NEC
Study type	Observational invasive

Summary

ID

NL-OMON32173

Source
ToetsingOnline

Brief title
VHLMEN2008

Condition

- Endocrine and glandular disorders NEC

Synonym
Pancreas tumors

Research involving
Human

Sponsors and support

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

Intervention

Keyword: Endoscopic Ultrasound 11C-5-HTP PET, MEN1, Pancreas Neuroendocrine tumors, VHL

Outcome measures

Primary outcome

Primary endpoint

Group A)

The number of new (unknown) pancreatic NET lesions in MEN1 or VHL patients with proven pancreatic involvement (anatomical, with or without biochemical neuroendocrine activity) and in MEN1 or VHL patients with proven neuroendocrine activity (biochemical, without anatomical localization) detected by EUS ± FNA and 11C-HTP PET.

Group B)

The number of new (unknown) pancreatic NET lesions in patiens with MEN1 or VHL during routine follow-up detected by EUS ± FNA and 11C-HTP PET.

Secondary outcome

not applicable

Study description

Background summary

Multiple Endocrine Neoplasia type 1 (MEN1) and Von Hippel-Lindau disease (VHL) are rare autosomal dominantly inherited disorders characterized by the occurrence of various tumors. Therefore, mutation carriers undergo regular screening (yearly for VHL and three yearly for MEN1) to enable early treatment. With earlier detection of treatable tumors, e.g. renal cell carcinoma in VHL patients, survival is improving. This increases however the chance to develop other tumor types such as pancreatic neuroendocrine tumors (NET) to occur. Pancreatic NETs develop in MEN1 in 65% and in VHL in 10-20%, and is the second most frequent tumor manifestation in MEN1 patients. Pancreatic NETs are discovered in an advanced stage by serum markers (e.g. insulin, chromogranin A). Non-functioning pancreatic NETs are even more difficult to detect at early stage with currently available imaging modalities, while early detection would allow sparing curative surgery. Standard regular screening for pancreatic NETs consists of ultrasound, MRI, CT and somatostatin receptor scintigraphy (SRS). However, the sensitivity of these techniques is limited.
Two new imaging strategies have emerged. Endoscopic ultrasound (EUS) with fine needle aspiration (FNA) for cytology with an estimated sensitivity of 80% and positron emission tomography (PET) using the serotonin (5-HTP) precursor tracer 11C-5-HTP. EUS with FNA of pancreatic lesions is still a specialized technique performed in a few Dutch centers among which the UMCG. We recently showed that 11C-5-HTP PET imaging is superior to conventional imaging in the detection of pancreatic NETs. The UMCG is one of the three centers worldwide that have this technique available. Introduction of these two techniques will most likely improve early NET detection and allow sparing curative surgery in these high risk individuals for pancreatic NET.
Early detection allowing surgery with selective extirpation of pancreatic NET, which will most likely increase life expectancy and quality of life in these patients.

Study objective

To determine the additiotinal value of EUS and 11C-5-HTP PET scan for detection of pancreatic NET.

Study design

EUS*FNA and 11C-5-HTP PET will be performed in the UMCG

Study burden and risks

Radio activity

5-HTP-PET Scanning takes a visit of 2 * hours. Eating is not allowed 2 hours before the examination, but the planning at the end of the morning makes it possible to eat a light breakfast. An intravenous catheter will be placed for taking a blood sample and for application of the radio active labelled

compound. During the scan 1 hour of rest and laying down is necessary.

Side effect, other risks and discomforts. Advantages and disadvantages of the HTP-PET:

- no side effects can be expected from the PET scan for the applicated dosage is very low
- 2 hours without eating can be uncomfortable
- pricking can hurt and result in a temporally local blue discolouring of the skin
- 50 ml blood will be taken for blood count and kidney function control
- the results of the PET scan can result in another diagnostic procedure, this is not known before

PET uses radio active labelled compounds. This study is about 11C-5-HTP. Within 11C-5-HTP. there is a C-atom radio active marked. There are no side effects of the injection with 11C-5-HTP. The radio activity will be rapidly removed: after 20 minutes the half of the radio activity has been disappeared. The amount of radiation is comparable with the amount of natural radiation the Netherlands (1,7 mSv/year). The guidelines for radio active exposure has been defined in *Besluit Stralingsbescherming* (BS 2000), article 60, Staatsblad 2001, 397*,referring to international guidelines of the International Commission on Radiological Protection (ICRP 62). The amount of radiation of only-once 11C-5-HTP PET scan is a categorie IIB (small to middle risk level) 1-10 mSv).
Because of the radiation, pregnant women are not allowed to take part on this study.

For this ultrasound patients,- planned after the PET scan- they are not allowed to eat, drink or smoke. Medicines can be taken with a little water. Patients can choose a light sedation but this is not obliged. The procedure is about 30 minutes. The doctor can consider to do an fine needle aspiration from a pancreas tumor, this punction is hardly felt. There is a minimum risk that this punction can result in an inflammation of the pancreas. After the research there will be an observation for minimum 1 and maximum 2 hours, so the patient can wake up. Because of the anaesthetics the patient isn*t allowed to drive. After the research the patient can have a sore throat.

Side effect, other risks and discomforts. Advantages and disadvantages of the endo-ultrasound:
- Before the endo-ultrasound you have to have an empty stomach, this can be uncomfortable.
- If there is a tumor found in the pancreas, a fine needle aspiration will be done, this is not painfull but there is a risk of an inflammation of the pancreas.
- Sedation will be offered, so you do not feel the procedure, but you have to

stay for 1 or 2 hours after the EUS until the sedation has worked out and you can*t drive.
- You can have a sore throat after the research.

Contacts

Public
Universitair Medisch Centrum Groningen

Hanzeplein 1
9713 GZ Groningen
NL
Scientific
Universitair Medisch Centrum Groningen

Hanzeplein 1
9713 GZ Groningen
NL

Trial sites

Listed location countries

Netherlands

Eligibility criteria

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

Inclusion criteria

Group A (40 patients)
- Genetically proven MEN 1 or VHL, or clinically proven MEN1 or VHL also in first grade family members.
- Signs of a pancreatic tumor biochemically and/or on conventional imaging.
- The time period between the available conventional imaging data, biochemical markers and the investigational imaging procedures does not exceed 4 months.
- Over 24 years of age

- In case of recent surgery at least a 3 months interval between surgery and EUS and 11C-HTP PET scanning.
- Written informed consent;Group B (50 patients)
- Genetically proven MEN 1 or VHL, or clinically proven MEN1 or VHL also in first grade family members.
- No signs of a pancreatic tumor biochemically and/or on conventional imaging
- The time period between the available conventional imaging data, biochemical markers and the investigational imaging procedures does not exceed 4 months.
- Over 24 years of age.
- In case of recent surgery at least a 3 months interval between surgery and EUS and 11C-HTP PET scanning.
- Written informed consent.

Exclusion criteria

- Excluded are patients with any signs of neurological or psychiatric disorders that will preclude him/her from expressing her/his own free will.
- Pregnancy.
- Patients not eligible for surgical intervention.
- Patients with alcohol abusus.
- Patients with chronic pancreatitis.
- VHL type 2C

Study design

Design

Study type: Observational invasive

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

Recruitment

NL

Recruitment status:	Recruitment stopped
Start date (anticipated):	12-02-2009
Enrollment:	90
Type:	Actual

Ethics review

Approved WMO
Application type: First submission

Review commission: METC Universitair Medisch Centrum Groningen (Groningen)

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	NL23797.042.08