Quantitative Chemical Shift Imaging of the lumbar spine in healthy volunteers

Published: 01-02-2012
Last updated: 27-04-2024

To determine the effect of ageing on bone marrow fat fraction as assessed by QCSI measurements

Ethical review	Approved WMO
Status	Recruiting
Health condition type	Inborn errors of metabolism
Study type	Observational invasive

Summary

ID

NL-OMON35769

Source
ToetsingOnline

Brief title
QCSI measurements in healthy volunteers

Condition

- Inborn errors of metabolism

Synonym
Gaucher disease

Research involving
Human

Sponsors and support

Primary sponsor: Academisch Medisch Centrum
Source(s) of monetary or material Support: Ministerie van OC&W

Intervention

Keyword: Bone marrow fat fraction, Gaucher disease, Quantitative Chemical Shift Imaging

Outcome measures

Primary outcome

The difference in bone marrow fat fraction, as assessed by QCSI, performed

approximately 15 years ago versus today.

Secondary outcome

NA

Study description

Background summary

Gaucher disease is one of the most common lysosomal storage disorders. The disease results from a deficiency of the lysosomal enzyme acid beta-glucocerebrosidase. The disorder is characterized by accumulation of macrophages filled with storage material in bone marrow, spleen and liver. Consequent signs and symptoms are organomegaly, cytopenia and bone complications.
The extent of bone marrow involvement in Gaucher disease can be measured by Dixon*s Quantitative Chemical Shift Imaging (QCSI). This technique enables us to separate the total MR signal into the contributions made by fat and water and measures the relative contribution of the fat signal to the total signal.
It has become a valuable tool in the follow up of Gaucher patients in the Academic Medical Centre of Amsterdam.
Bone marrow composition has been shown to be age-dependent, but the exact contribution of this factor to the bone marrow fat fraction as assessed by QCSI is yet unknown. A study by Ishijima et al suggests that bone marrow fat fraction increases in males between the ages of 5 and 34 and remains relatively stable thereafter. In women, bone marrow fat fraction is relatively stable between the afges of 5 and 44 and shows a rapid increase in women more than 45 years old. It is important to know the effect of age on QCSI results in order to enable a correct interpretation of the effect of treatment on bone marrow infiltration by Gaucher cells.

Study objective

To determine the effect of ageing on bone marrow fat fraction as assessed by QCSI measurements

Study design

This will be a follow up study to a previous reproducability study in healthy volunteers (MEC 96/028).

Study burden and risks

There are no significant risks associated with the intervention. The procedure will require approximately 30 minutes in the 1.5 Tesla MRI scanner. This is a non-invasive, non-ionizing imaging technique in which no contrast is used.

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

Participation in the study *Quantitative Chemical Shift Imaging van de lumbale wervels in gezonde vrijwilligers* (MEC-nr. 96/028)

Exclusion criteria

-Contra-indications for MRI scanning (using standard checklist, see appendix 4)
-A history of bone marrow pathology

Study design

Design

Study type: Observational invasive

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

Recruitment

NL

Recruitment status:	Recruiting
Start date (anticipated):	04-10-2011
Enrollment:	16
Type:	Actual

Ethics review

Approved WMO

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	NL35504.018.11