Feasibility of ultra high field 7.0 Tesla MR Spectroscopy for monitoring neo-adjuvant therapy efficacy

No registrations found.

Ethical review	Positive opinion
Status	Recruiting
Health condition type	-
Study type	Observational non invasive

Summary

ID

NL-OMON25351

Source
NTR

Brief title
Spectro

Health condition

breast cancer; neoadjuvant therapy;
borstkanker; neo-adjuvante therapy

Sponsors and support

Primary sponsor: UMC Utrecht
Source(s) of monetary or material Support: Dutch scientific organisation (NWO), VENI, dr. Klomp

Intervention

Outcome measures

Primary outcome

a) What changes in phospomonoester / phosphodiester ratio can be detected with 7T MRS

during neo-adjuvant therapy in breast cancer?

b) What is the correlation of these changes to the treatment efficacy as determined by pathology?

Secondary outcome

c) How accurate can phospho-esters be determined with in vivo 7T MRS compared to ex vivo analysis?

d) How well do these values relate to the values obtained in preclinical studies?

Study description

Study objective

Metabolic changes are thought to precede morphological or changes in tumor size. MR spectroscopy can monitor metabolic changes

Study design

Patients get a MRS scan prior to-, half way-, and after chemotherapy.

Intervention

none

Contacts

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Eligibility criteria

Inclusion criteria

- 18 year or older

- Female

- Neoadjuvant therapy for breast cancer

Exclusion criteria

- Prior surgery for malignancy to ipsilateral breast

- Karnofsky score =< 70

- Pregnant or lactating

- Other contraindications for MR

Study design

Design

Study type:	Observational non invasive
Intervention model:	Other
Allocation:	Non controlled trial
Masking:	Open (masking not used)
Control:	N/A , unknown

Recruitment

NL
Recruitment status: Recruiting

Start date (anticipated):	27-02-2012
Enrollment:	15
Type:	Anticipated

Ethics review

Positive opinion
Date: 19-06-2014

Application type: First submission

Study registrations

Followed up by the following (possibly more current) registration

ID: 38209
Bron: ToetsingOnline
Titel:

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

No registrations found.

In other registers

Register	ID
NTR-new	NL4410
NTR-old	NTR4652
CCMO	NL36429.041.11
OMON	NL-OMON38209

Study results

Summary results
1. Korteweg MA, Veldhuis WB, Visser F, Luijten PR, Mali WP, van Diest PJ, van den Bosch MA, Klomp DWJ. Feasibility of 7 Tesla Breast Magnetic Resonance Imaging Determination of Intrinsic Sensitivity and High-Resolution Magnetic Resonance Imaging, Diffusion-Weighted Imaging, and 1H-Magnetic Resonance Spectroscopy of Breast Cancer Patients Receiving

Neoadjuvant Therapy. Invest Radiol. 2011 Jun;46(6):370-6.
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3. . Boer VO, Vd Bank BL, van Vliet G, Luijten PR, Klomp DW. Direct B(0) field monitoring and real-time B(0) field updating in the human breast at 7 tesla. Magn Reson Med. 2011 Dec 12. doi: 10.1002/mrm.23272. [Epub ahead of print]
4. van der Kemp WJ, Boer VO, Luijten PR, Wijnen JP, Klomp DW. Increase in SNR for (31) P MR spectroscopy by combining polarization transfer with a direct detection sequence. Magn Reson Med. 2011 Dec 12. doi: 10.1002/mrm.23260. [Epub ahead of print]
5. Wijnen JP, van der Kemp WJ, Luttje MP, Korteweg MA, Luijten PR, Klomp DW. Quantitative (31) P magnetic resonance spectroscopy of the human breast at 7 T. Magn Reson Med. 2011 Dec 28. doi: 10.1002/mrm.23249. [Epub ahead of print]
6. van de Bank BL, Voogt IJ, Italiaander M, Stehouwer BL, Boer VO, Luijten PR, Klomp DW. Ultra high spatial and temporal resolution breast imaging at 7T. NMR Biomed. 2012 Oct 18. doi: 10.1002/nbm.2868. [Epub ahead of print]
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9. Klomp DW, Dula AN, Arlinghaus LR, Italiaander M, Dortch RD, Zu Z, Williams JM, Gochberg DF, Luijten PR, Gore JC, Yankeelov TE, Smith SA. Amide proton transfer imaging of the human breast at 7T: development and reproducibility. NMR Biomed. 2013 Apr 4. doi: 10.1002/nbm.2947. [Epub ahead of print]
10.Stehouwer BL, Klomp DW, van den Bosch MA, Korteweg MA, Gilhuijs KG, Witkamp AJ, van Diest PJ, Houwert KA, van der Kemp WJ, Luijten PR, Mali WP, Veldhuis WB. Dynamic contrast-enhanced and ultra-high-resolution breast MRI at 7.0 Tesla. Eur Radiol. 2013 Nov;23(11):2961-8. doi: 10.1007/s00330-013-2985-9. Epub 2013 Aug 28.
11. de Leeuw H, Stehouwer BL, Bakker CJ, Klomp DW, van Diest PJ, Luijten PR, Seevinck PR, van den Bosch MA, Viergever MA, Veldhuis WB. Detecting breast microcalcifications with high-field MRI. NMR Biomed. 2014 Feb 17. doi: 10.1002/nbm.3089
12. 31P magnetic resonance spectroscopy of the breast and the influence of the menstrual cycle. Stehouwer BL, van der Kemp WJ, Luijten PR, van den Bosch MA, Veldhuis WB, Wijnen JP, Klomp DW.Breast Cancer Res Treat. 2014 Feb 26.
13. Boer VO, Luttje MP, Luijten PR, Klomp DW. Requirements for static and dynamic higher order B0 shimming of the human breast at 7 T. NMR Biomed. 2014 Feb 25. doi: 10.1002/nbm.3096
14. Korteweg MA, Veldhuis WB, Mali WP, Diepstraten SC, Luijten PR, van den Bosch MA, Eijkemans RM, van Diest PJ, Klomp DW. Investigation of lipid composition of dissected sentinel lymph nodes of breast cancer patients by 7T proton MR spectroscopy. J Magn Reson Imaging. 2011 Oct 3. doi: 10.1002/jmri.22820. [Epub ahead of print]
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