Neural reorganization in tinnitus: a high-field fMRI study

Gepubliceerd: 20-08-2014 Laatst bijgewerkt: 18-08-2022

Ethische beoordeling	Niet van toepassing
Status	Werving nog niet gestart
Type aandoening	-
Onderzoekstype	Observationeel onderzoek, zonder invasieve metingen

Samenvatting

ID

NL-OMON23745

Bron
NTR

Verkorte titel
Neural reorganization in tinnitus

Aandoening

tinnitus, phantom sound perception (NL: oorsuizen)

Ondersteuning

Primaire sponsor: Maastricht University
Overige ondersteuning: Scanning costs are covered by Brains Unlimited Pioneer Fund (Universiteitsfonds Limburg/SWOL Maastricht) and FPN/MBIC funds. Patient payment is covered by other funds (Veni to Lars Riecke granted by NWO).

Onderzoeksproduct en/of interventie

Uitkomstmaten

Primaire uitkomstmaten

The link between frequency tuning and tinnitus will be tested by comparing the size and response magnitude of the auditory cortex regions that show tuning to the patient’s specific tinnitus frequency vs. regions that show tuning to the other (non-tinnitus) frequencies. In this

way, patients can serve as their own controls, in addition to matching healthy controls.

Toelichting onderzoek

Achtergrond van het onderzoek

The general goal of our study is to unravel the anatomical and functional correlates of tinnitus in the human brain using structural and functional magnetic resonance imaging (MRI). We will use a high-field (7 T) MRI scanner and obtain a) detailed information about brain anatomy in the central auditory system and b) measure functional responses in the auditory cortex in order to assess the overall activation level and the tonotopic organization of auditory cortex.

Onderzoeksopzet

After the fMRI scan (2nd meeting), the study ends.

Onderzoeksproduct en/of interventie

In a first session, at the otorinolaryngologie department, a hearing test will be combined with matching of the tinnitus (subjective loudness and pitch). In the second session, at Scannexus, the patients will be asked to take place in the MRI scanner. Patients will be asked to lay as still as possible and to react (with a button press) when hearing specific sounds. The total scanning time is approximately 55 minutes.

Contactpersonen

Publiek

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Wetenschappelijk

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Deelname eisen

Belangrijkste voorwaarden om deel te mogen nemen (Inclusiecriteria)

The main inclusion criteria of the patient groups are:

• Male or female between 18 and 75 years

• Subjective tinnitus (i.e. not caused by an acoustic source inside the head, e.g., vascular abnormalities that cause pulsatile tinnitus)

• Stable tinnitus (i.e., present for at least 8 h per day since more than a year)

• Tinnitus that is dominant within one of three octaves (low: <750 Hz, middle: 750-3000 Hz, high: >3000 Hz; the exact frequency ranges will be determined empirically based on patient availability)

• Patient has not received medical care from an otolaryngologist and is able and willing to undergo the MRI measurements, as indicated by written informed consent.

The main inclusion criteria of the healthy subjects are:

• Male or female between 18 and 75 years

• No tinnitus

• Subject is able and willing to undergo the MRI measurements, as indicated by written informed consent.

Belangrijkste redenen om niet deel te kunnen nemen (Exclusiecriteria)

Exclusion criteria of the patient groups are:

• Fletcher Index > 50 dB HL for both ears (i.e., mean of hearing loss in decibels for 1k, 2k and 4k Hz)

• Hyperacusis (oversensitivity to sound), phonophobia (defined as a persistent, abnormal,

and unwarranted fear of sound), misophonia (dislike of certain sound),

• Neurological-, neurosurgical- and psychiatric history

• Use of dopaminergic drugs since this medication greatly influence the fMRI scans (Haslinger et al., 2001, Mattay et al., 2002)

• Morbid obesitas (BMI > 35) since it cannot be guaranteed that these subjects will fit in the scanner

• Current treatment of tinnitus and implanted devices or other metal objects that are not suitable for MRI.

Exclusion criteria of the healthy subjects are:

• Fletcher Index > 50 dB HL for both ears (i.e. mean of hearing loss in decibels for 1k, 2k and 4k Hz)

• Hyperacusis (oversensitivity to sound), phonophobia (defined as a persistent, abnormal, and unwarranted fear of sound), misophonia (dislike of certain sound),

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Onderzoeksopzet

Opzet

Type:	Observationeel onderzoek, zonder invasieve metingen
Onderzoeksmodel:	Anders
Blindering:	Open / niet geblindeerd
Controle:	N.v.t. / onbekend

Deelname

Nederland

Status:	Werving nog niet gestart
(Verwachte) startdatum:	01-09-2014
Aantal proefpersonen:	26
Type:	Verwachte startdatum

Ethische beoordeling

Niet van toepassing

Soort:	Niet van toepassing

Registraties

Opgevolgd door onderstaande (mogelijk meer actuele) registratie

Geen registraties gevonden.

Andere (mogelijk minder actuele) registraties in dit register

Geen registraties gevonden.

In overige registers

Register	ID
NTR-new	NL4593
NTR-old	NTR4752
Ander register	METC academisch ziekenhuis Maastricht/Universiteit Maastricht, METC azM/UM (Maastricht) : ABR concept 49812

Resultaten