Neural plasticity, hearing loss and tinnitus: changes in tonotopic maps of the auditory cortex

Gepubliceerd: 24-09-2014 Laatst bijgewerkt: 15-05-2024

Ethische beoordeling	Positief advies
Status	Werving nog niet gestart
Type aandoening	-
Onderzoekstype	Observationeel onderzoek, zonder invasieve metingen

Samenvatting

ID

NL-OMON27684

Bron
Nationaal Trial Register

Aandoening

hearing loss
tinnitus
tonotopy
auditory cortex

Ondersteuning

Primaire sponsor: University Medical Center Groningen
Overige ondersteuning: University Medical Center Groningen. American Tinnitus Association

Onderzoeksproduct en/of interventie

Uitkomstmaten

Primaire uitkomstmaten

Measures of tonotopic map reorganisation.

Toelichting onderzoek

Achtergrond van het onderzoek

With an increased life expectancy and an ageing population, age-related dysfunctions are becoming more prevalent. The most widespread of all sensory impairments in an ageing population is hearing loss, which is characterized by a loss of sensitivity of the peripheral hearing organ, the inner ear. This peripheral hearing loss is associated with less sensory input available to the brain. Animal research has shown that peripheral hearing loss may cause widespread plastic changes in the brain. Peripheral hearing loss is often associated with tinnitus: about 30% of the people with hearing loss also develop tinnitus. It has been suggested previously that tinnitus and tonotopic reorganisation are causally related. Such cortical reorganisation presumably contributes to the impaired communication skills experienced by humans with hearing loss. With an increasing demand for active participation of the elderly in society, it is crucially important to understand the neurobiological consequences of hearing loss and tinnitus.

The current study employs functional magnetic resonance imaging (fMRI) to investigate the relation between peripheral hearing loss, tinnitus and cortical reorganization. In particular, it aims to map the topographic representation of sound frequency, referred to as tonotopic maps, and how these change as a consequence of tinnitus and hearing loss. It also aims to investigate whether the type of hearing loss is related to the degree of reorganisation.

Onderzoeksopzet

No longitudinal design; just one time-point

Onderzoeksproduct en/of interventie

fMRI measurements while listing to sound fragments.

Contactpersonen

Publiek

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Wetenschappelijk

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Deelname eisen

Belangrijkste voorwaarden om deel te mogen nemen (Inclusiecriteria)

- No hearing loss or reported tinnitus (controls, n=40)

- Hearing loss (Hearing loss group, n=40)

- Tinnitus (Hearing loss and tinnitus group, n=40)

- < 30 dB difference between both ears for all the standard audiometric frequencies

- Adults (18 - 75 yrs.)

- No contraindications for MRI

Belangrijkste redenen om niet deel te kunnen nemen (Exclusiecriteria)

Non-compliance with inclusion criteria

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:	01-01-2015
Aantal proefpersonen:	120
Type:	Verwachte startdatum

Ethische beoordeling

Positief advies

Datum:	24-09-2014
Soort:	Eerste indiening

Registraties

Opgevolgd door onderstaande (mogelijk meer actuele) registratie

ID: 40455
Bron: ToetsingOnline
Titel:

Andere (mogelijk minder actuele) registraties in dit register

Geen registraties gevonden.

In overige registers

Register	ID
NTR-new	NL4642
NTR-old	NTR4811
CCMO	NL44470.042.13
OMON	NL-OMON40455

Resultaten