Blink reflex in migraine patients and healthy controls

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1. To investigate the prevalence of an absent R1 component in migraine patients compared with healthy controls.2. Do headache characteristics differ between migraine patients with a R1 response and those without a R1 response (Fast progressing vs...

Ethical review	Approved WMO
Status	Recruiting
Health condition type	Headaches
Study type	Observational non invasive

Summary

ID

NL-OMON32342

Source
ToetsingOnline

Brief title
Blink reflex in migraine patients and healthy controls

Condition

- Headaches

Synonym
migraine

Research involving
Human

Sponsors and support

Primary sponsor: Haga ziekenhuis
Source(s) of monetary or material Support: Ministerie van OC&W

Intervention

Keyword: blink reflex, migraine

Outcome measures

Primary outcome

Blink reflex responses, R1 and R2 respons

Secondary outcome

Headache characteristics

Study description

Background summary

Migraine head pain arises within the trigeminal system and the processing of its nociceptive input plays an important role in the pathofysiology of acute migraine attacks. The pathofysiology of migraine headache as well the anti-nociceptive mechanisms of migraine drugs are still poorly understood. The trigeminal system can be measured with the blink reflex, what is essentially the electrical correlate of the clinically evoked corneal reflex. This is a trigeminofacial brain stem reflex leading to activation of the orbicularis oculi muscle after electrical or mechanical stimulation of the supraorbital region.

The blink reflex has three components, an early R1 and a late R2 and R3. The R1 response is usually present ipsilaterally to the stimulation side, whereas the R2 response is typically present bilaterally. The pathways of R1 and R2 are anatomically different, whereas the former is located in the pons and the latter in the medulla. The third component R3 is also located in the medulla.

In a small percentage of normal individuals the R1 response cannot be reliably elicited on either side. (Preston, 1998,Chapter 5).

MRI studies show that migraine patients are at increased risk for subclinical brain lesions. Infratentorial hyperintensities were identified in 13 of 295 (4.4%) migraineurs and in 1 of 140 (0.7%) controls (P=0.04). Twelve cases had hyperintensities, mostly bilaterally, in the dorsal basis pontis.

In patients with unilateral R1 pathology in 50% isolated acute brainstem

lesions are documented by diffusion-weighted MRI

Study objective

1. To investigate the prevalence of an absent R1 component in migraine patients compared with healthy controls.

2. Do headache characteristics differ between migraine patients with a R1 response and those without a R1 response (Fast progressing vs slow progressing headache, accompanying symptoms, allodynia, age of onset, predominant orbital pain, yawning)

3. To compare the individual sensory thresholds and pain thresholds as well as latencies of R1 and R2.

Study design

cross sectional
30 patients with migraine with aura (IHS classification) and 30 age and gender matched healthy subjects without personal or family history of migraine or cluster headache will be included. Both patients and controls will be included if they are 45-65 years old.
Patients will be excluded if they have a history of facial paralysis or other cranial neuropaties or a demyeliating disorder in history.
Headache characteristics will be recorded in al patients.

Blink reflex will be elicited using a surface stimulating electrode on the right and left forehead, 10 mm above the entry zone of the supra-orbital nerve. A block of 6 monopolar square pulses, duration 0.3 ms, interstimulus interval 15-17 seconds, stimulation intensity 1.5 times the individual pain threshold.

Migraine patients will be investigated inter-ictally and controls on a headache free moment.

Study burden and risks

none

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

migraine

Exclusion criteria

Multipele sclerosis, facial paresis, neuromuscular disorder, trigeminal neuralgia

Study design

Design

Study type:	Observational non invasive
Intervention model:	Other
Allocation:	Non-randomized controlled trial

Masking:	Open (masking not used)
Control:	Active
Primary purpose:	Basic science

Recruitment

NL

Recruitment status:	Recruiting
Start date (anticipated):	15-06-2008
Enrollment:	60
Type:	Actual

Ethics review

Approved WMO

Date:	22-05-2008
Application type:	First submission
Review commission:	METC Leiden-Den Haag-Delft (Leiden) metc-ldd@lumc.nl

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	NL22091.098.08