Influence of spinal deafferentation on pain threshold and offset analgesia (OA) in surgical male and female patients: the SPINAL study

Published: 14-02-2023 Last updated: 07-04-2024

To measure offset analgesia in surgical patients before and after they received

Ethical review	Approved WMO	
Status	Will not start	
Health condition type	Other condition	
Study type	Interventional	

Summary

ID

NL-OMON53706

Source ToetsingOnline

Brief title SPINAL study

Condition

• Other condition

Synonym Not applicable

Health condition

we onderzoeken geen aandoening specifiek.

Research involving

Human

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Sponsors and support

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

Intervention

Keyword: endogenous pain modulation, offset analgesia, pain, pain perception

Outcome measures

Primary outcome

Pain scores on an 11-point rating scale ranging from 0 (no pain) to 10 (most

severe pain)

Secondary outcome

Study description

Background summary

Deafferentation or the traumatic or anesthetic disruption of afferent input from the peripheral to the central nervous system results in cortical, subcortical or brainstem reorganization and alters neuronal connectivity. In general, deafferentation causes adaptive plasticity, such as cortical expansion of brain areas adjacent to deafferentated areas, due to a rebalancing of excitatory and inhibitory neuronal modulators involved in plasticity. Deafferentation may be associated with behavioral changes. While some studies show improved acuity of motor or sensory function related to cortical plasticity, it is well known that deafferentation may additionally have negative behavioral effects related to maladaptive plasticity, as may occur in traumatic deafferentation, including phantom limb pain or pain after spinal cord injury. Spinal and epidural anesthesia are forms of short-term deafferentation. There is evidence that both types of neuraxial blockade are associated with sensory distortions or pain. In patients that require a subarachnoid or epidural block for surgery, illusionary limb position, pain in the deafferented limbs, or paradoxical heat perception upon application of a cold stimulus on the transition from normal to deafferentated skin are often observed. Additionally, in healthy volunteers, we showed that spinal deafferentation is associated with hyperalgesic responses above the level of

deafferentation coupled to

a reduction in offset analgesia. Offset analgesia (OA) is a manifestation of endogenous pain modulation. OA is characterized by profound analgesia after a slight decrease in noxious stimulation and is considered an expression of temporal filtering of nociception related to post-stimulus inhibition. See Figure 1. In Figure 2, we give the results of our prior study in volunteers.

Study objective

To measure offset analgesia in surgical patients before and after they received

Study design

Open intervention study (intervention is application of a noxiousstimulus)

Intervention

Application of a noxious stimulus to the arm

Study burden and risks

Risc and burden are nill to very light.

Contacts

Public

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Trial sites

Listed location countries

Netherlands

Eligibility criteria

Age Adults (18-64 years) Elderly (65 years and older)

Inclusion criteria

All patients that will undergo an elective surgical procedure in our center

Exclusion criteria

In case the arms of the patient do noyt allow testing on the arms.

Study design

Design

Study type:	Interventional
Intervention model:	Other
Allocation:	Non-randomized controlled trial
Masking:	Open (masking not used)
Control:	Active
Primary purpose:	Other

Recruitment

NL	
Recruitment status:	Will not start
Enrollment:	200
Туре:	Anticipated

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Ethics review

Approved WMO Date: Application type: Review commission:

14-02-2023 First submission 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 CCMO ID NL82861.058.22