Optical Spectroscopy during surgery on the median nerve

Published: 10-01-2013
Last updated: 26-04-2024

This study is dedicated to obtain accurate broadband (400 - 1830nm) diffuse reflectance spectra of human nerve tissue in vivo (which knowledge creates possibilities to design useful imaging devices).

Ethical review	Approved WMO
Status	Recruitment stopped
Health condition type	Nervous system, skull and spine therapeutic procedures
Study type	Observational invasive

Summary

ID

NL-OMON36842

Source
ToetsingOnline

Brief title
Spectrometry Median Nerve

Condition

- Nervous system, skull and spine therapeutic procedures

Synonym
Diffuse optical reflection spectrum (color) of median nerve

Research involving
Human

Sponsors and support

Primary sponsor: TNO
Source(s) of monetary or material Support: TNO van 't Hoff Shared Research Program on Medical Photonics

Intervention

Keyword: Median Nerve, Optical, Spectrometry, Surgery

Outcome measures

Primary outcome

Accurate broadband (400 - 1830nm) diffuse reflectance spectra of human nerve

tissue in vivo

Secondary outcome

Optimal probe positioning and comparison with camera images of tissue

Study description

Background summary

Complications arising from collateral damage to nerve tissue need to be avoided. But within numerous procedures nerves are hard to visualize. If the visualization of essential structures and planes could be enhanced with information that so far remained invisible, than this could increase the safety and speed of working (image guided surgery).

The *Van *t Hoff Program* of TNO works on several issues. One of these pertains to special camera technologies to selectively enhance contrasts of specific tissue types, like e.g. nerves. The principle is based upon recognition of the optical spectral *fingerprint* (optical spectral analysis).
In order to recognize something, it is important to first learn about the specific features of it. To precisely record the spectral fingerprint of nerve tissue it is logical to choose a surgical procedure that requires the clear exposure of nerves anyhow. Hence the choice to start such measurements during surgical decompression of the median nerve to treat carpal tunnel syndrome (CTS).

Study objective

This study is dedicated to obtain accurate broadband (400 - 1830nm) diffuse reflectance spectra of human nerve tissue in vivo (which knowledge creates possibilities to design useful imaging devices).

Study design

The study design is observational.

Study burden and risks

Minimal burden of maximum 10 minutes extra duration of surgery to perform the spectral measurements.
No individual benefits involved.
Future benefit may be improved visualization of nerve tissue during surgery.

Contacts

Public
TNO

De Rondom 1
Eindhoven 5612 AP
NL
Scientific
TNO

De Rondom 1
Eindhoven 5612 AP
NL

Trial sites

Listed location countries

Netherlands

Eligibility criteria

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

Inclusion criteria

Surgical release of carpal tunnel syndrome

Exclusion criteria

Pre- or peroperative use of medication with phototoxic side effects:
- Amiodaron (also Cordarone)
- Chloorpromazine (also Largactil)
- Hydrochloorthiazide
- Nalidixinezuur (also Nevigramon, Neggram of Wintomylon)
- Tetracycline (also Tetralysal, Panmycin, Brodspec, Terramycine of Tetracap)
- Doxycycline (also Vibramycin)
- Naproxen (also Naproxenum, Naproxennatrium, Aleve, Anaprox, Naprosyne, Femex, Naprocoat, Naprovite, Nycopren, Naprelan, Teva of Topgen)
- Piroxicam
- Thioridazine (also Mellaril, Novoridazine, Thioril)
- Voriconazol (also VFEND)
- Phenothiazines
- Dacarbazine
- Ketoprofen
- Lomefloxacin (also maxaquin) or other fluoroquinolones

Study design

Design

Study type: Observational invasive

Masking:	Open (masking not used)
Control:	Uncontrolled
Primary purpose:	Other

Recruitment

NL

Recruitment status:	Recruitment stopped
Start date (anticipated):	22-05-2013
Enrollment:	5

Type:	Actual

Ethics review

Approved WMO Date:	10-01-2013
Application type:	First submission
Review commission:	CMO regio Arnhem-Nijmegen (Nijmegen)

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	NL42176.091.12