

Pharmacological modulation of heterosynaptic Long-Term Potentiation in humans by Ondansetron and Dextromethorphan

Submission date 03/11/2006	Recruitment status No longer recruiting	☐ Prospectively registered ☐ Protocol
Registration date 04/01/2007	Overall study status Completed	☐ Statistical analysis plan ☐ Results
Last Edited 04/01/2007	Condition category Signs and Symptoms	☐ Individual participant data ☐ Record updated in last year

Plain English summary of protocol
Not provided at time of registration

Contact information

Type(s)
Scientific

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Additional identifiers

Protocol serial number
Tr 236/16-2/LTP-Ondan-Dex

Study information

Scientific Title

Acronym

LOTEPODEON (LONg-Term POTentiation DExtromethorphan ONdansetron)

Study objectives

Long-Term Potentiation (LTP) within the nociceptive system is one of the mechanisms underlying central sensitisation, which accounts for some hyperalgesic pain states in chronic pain patients. In the study we will use a human surrogate model of nociceptive LTP to study the involvement of NMDA-receptors and 5-HT₃-receptors in the induction of hyperalgesia following high-frequency electrical stimulation of nociceptive afferents in the skin.

We will study the contribution of NMDA- and 5-HT₃ receptors in plastic changes within the nociceptive system, which occur typically after a tissue injury, but in contrast to a real lesion we mimic an injury by high-frequency electrical stimulation of nociceptive afferents in the skin. This conditioning stimulation will lead to pain to light tactile stimuli (dynamic mechanical allodynia) and to an increase of pain to punctuate mechanical pain stimuli (static mechanical hyperalgesia). Both phenomena can typically be found in a subset of neuropathic pain patients.

Ethics approval required

Old ethics approval format

Ethics approval(s)

The study was approved by the local ethics committee (Ethikkommission der Landesärztekammer Rheinland-Pfalz; 15th March, 2003, reference number: 837.002.03(3664)) and was conducted in accordance with the declaration of Helsinki, the German Medicines Act (AMG), and the guidelines of the International Conference on Harmonisation (ICH) for Good Clinical Practice (GCP).

Primary study design

Interventional

Study design

The trial was designed as a double blind, randomised and placebo-controlled three-way cross-over study (Placebo-Dextromethorphan-Ondansetron).

Study type(s)

Treatment

Health condition(s) or problem(s) studied

Hyperalgesic pain states in chronic pain patients

Interventions

The effect of 150 mg dextromethorphan and 16 mg ondansetron orally (p.o.) will be compared to placebo in a three-way cross-over design. Sensory changes will be determined by Quantitative Sensory Testing (QST) using non-nociceptive and low-intensity painful mechanical and electrical stimuli.

Intervention Type

Drug

Phase

Not Specified

Drug/device/biological/vaccine name(s)

Dextromethorphan and Ondansetron

Primary outcome(s)

1. Spread of the area of dynamic allodynia and static hyperalgesia
2. Combined analgesic and anti-hyperalgesic effect to mechanical and electrical stimuli on the site of conditioning stimulation

Key secondary outcome(s)

1. Anti-hyperalgesic effect to electrical and mechanical test stimuli
2. Analgesic effect to electrical and mechanical test stimuli
3. Anti-wind up

Completion date

31/12/2006

Eligibility**Key inclusion criteria**

1. Healthy volunteers of full age
2. Subject familiarised with the experimental procedure prior to experimentation and had given written informed consent
3. At least a 50% increase of pain to pinprick stimuli and a 25% increase of pain to electrical stimuli following high-frequency electrical stimulation in a screening visit

Participant type(s)

Healthy volunteer

Healthy volunteers allowed

No

Age group

Adult

Sex

Not Specified

Key exclusion criteria

1. Skin lesions at the test and/or control site
2. Use of any medication within one day prior to study onset except contraceptives
3. Known hypersensitivity to histamine or to dextromethorphan and ondansetron and their derivatives
4. Any history of allergy or drug hypersensitivity
5. Chronic use of analgesics or Central Nervous System (CNS) active drugs
6. Pregnancy or nursing
7. Any acute or chronic disease

Date of first enrolment

01/07/2005

Date of final enrolment

31/12/2006

Locations

Countries of recruitment

Germany

Study participating centre

Institute of Physiology and Pathophysiology

Mainz

Germany

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Sponsor information

Organisation

Individual Sponsor (Germany)

Funder(s)

Funder type

Research organisation

Funder Name

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Results and Publications

Individual participant data (IPD) sharing plan**IPD sharing plan summary**

Not provided at time of registration