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EFFECTS OF TRANSCUTANEOUS ELECTRICAL NERVE STIMULATION (TENS) ON MUSCLE BLOOD FLOW IN THE TRAPEZIUS MUSCLE AND OVERLYING SKIN

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Background and Aims: Laser Doppler flowmetry (LDF) and venous occlusion plethysmography are techniques frequently used in TENS studies to measure blood flow changes in skin and volume changes in a limb segment, respectively. However, the effect of TENS on blood flow locally in human muscle has not previously been investigated. The primary aim of the present study was to investigate effects of TENS on blood flow in the trapezius muscle by using a new application of photoplethysmography (PPG), i.e. a non-invasive technique.
Methods: Skin and muscle blood flow were monitored non-invasively for 30 min during and following 15 min of low (2 Hz) and high (80 Hz) frequency TENS of high intensity and sub-liminal (0.5 mA) TENS (used as control) in 30 healthy females.
Results: The blood flow in the trapezius muscle increased significantly with low frequency TENS, whereas no increase existed with high frequency or sub-liminal TENS. Blood flow increase with Lo TENS was significantly more increased than Sub TENS until 3 min post-stimulation. Skin blood flow did not increase significantly during any of the TENS interventions.
Conclusions: Low frequency TENS of high intensity resulting in visible muscle contractions induced an instant and significant blood flow increase in the trapezius muscle. However, the stimulation might have been too strong to cause an increase in skin blood flow. The new application of PPG is a simple and pain-free technique for non-invasive and simultaneous measurements of muscle and skin blood flow changes.

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CAN RECHARGEABLE NEUROSTIMULATORS PLAY A ROLE IN SPINAL CORD STIMULATION THERAPY IN PATIENTS WITH REFRACTORY ANGINA PECTORIS?

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Background and Aims: Spinal cord stimulation (SCS) has proved to be effective in refractory angina pectoris, documented by a decrease of angina attacks and nitroglycerin- and/or opioid-consumption. Cost-effectiveness could be verified even if the equipment is expensive. In acquisition even more expensive rechargeable devices are now available. The question is, if they can be cost-effective when treating refractory angina pectoris.
Methods: Case report.
Results: The case documents the cost-effectiveness of a rechargeable neurostimulator in refractory angina pectoris under certain conditions. The decision to replace an intern pulse generator (IPG) with a rechargeable device is based on a calculation demonstrating a possible prevention of IPG replacement procedures, resulting in cost-effectiveness after less than three years.
Conclusions: Treatment of refractory angina pectoris with SCS normally requires only simple program-settings. However, some patients have high demands to their IPG-capacity and need frequent replacement. Rechargeable neurostimulators are generally designed for simultaneous administration of different complex stimulation settings, making them more expensive than simple non-rechargeable IPGs. However, rechargeable devices do not require repeated replacement.
Based on the calculation in the present case we conclude that patients, where it is necessary to replace the IPG once a year, are candidates for implantation of a rechargeable device even if only simple program-settings are demanded. This would not only be cost-effective after a period of 2–3 years, but also spare the patients for infection risk and physical pain. Therefore rechargeable neurostimulators will be integrated in our treatment algorithm of refractory angina pectoris.

E30 OTHER

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POSTOPERATIVE ANALGESIC EFFECT OF LORNOXICAM AFTER MYOMECTOMY OPERATIONS

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Background and Aims: In this prospective and randomized study, we aimed to evaluate the analgesic effect of lornoxicam after myomectomy operations.
Methods: Fourty patients ASA I-II scheduled for myomectomy operation were enrolled to the study. Epidural block was performed to all patients with 7.5% Ropivacaine for operation. Postoperatively patients were randomized into two groups: Group I: Patient controlled epidural analgesia (PCEA) using morphine (2 mg. loading dose, 1 mg. bolus, 20 minutes lock-out interval). Group II: 8 mg iv lornoxicam in the recovery room followed by PCEA using morphine with same protocol.
Pain was assessed by using Visual Analog Scale (VAS) at the 1st, 2nd, 4th, 6th, 8th, 12th and 24th postoperative hours. Side efffects; nausea, vomiting, itching, urinary retantion, sedation, respiratory depression, hypotension, bradycardia, gastrointestinal irritation or bleeding were also assessed.
Chi-square and student's t tests were used for statistical analysis. ($p < 0.05$ significant).
Results: There were no statistically significant difference between the groups comparing demographic data. VAS scores in group II at the 2nd, 4th, and 6th hours were significantly lower than group I. There was significant difference between the groups comparing total morphine consumptions. Total morphine consumptions were 10.45 ± 4.03 in group I and 4.25 ± 1.74 in group II ($p < 0.05$). No significant difference was observed between the groups comparing side effects ($p > 0.05$).
Conclusions: Single dose iv Lornoxicam is a safe and effective treatment option for post myomectomy pain as it produces effective analgesia, reduces morphine compsumption and doesn't increase the side effects.

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BIOSTIMULATION LASER IN THE TREATMENT OF PAIN

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Background and Aims: The soft laser by its biostimulation effect regenerates damaged tissue and, secondary, it also relieves pain. The aim of the work is utilization of the analgesic effect of the soft laser on all levels of nociception process and pain transmission.
Methods: The authors have been using helium-neon and semiconductor biostimulation laser for treatment of various pain conditions, mainly for treatment of vertebrogenic pains, arthralgies, as well as for treatment of postherpetic neuralgia. They present their five-year experiences (2001–2005) of usage of the biostimulation helium-neon laser and the semiconductor laser in the complex treatment of pain in case of 664 patients (sex: 238 men, 426 women, age: between 12 and 92 years). The authors have been using frequency mode of laser beam with wave length of 632.8 nm in case of the helium-neon laser and 830 nm in case of the semiconductor laser with the frequency of various values. The effect of the treatment was evaluated on the basis of pain intensity relief and was performed through questionnaires.
Results: An optimal analgesic dose of the emission was determined on the basis of each patient's response during the first three applications. The average number does not exceed six, maximum ten applications. The total dose per patient, with good analgesic effect, is less than 12 J/sq cm, that represents dose lower than what is stated in majority of reference works.
Conclusions: Determination of the optimal dose for any given patient may be viewed as "know-how" of each individual therapist.