

# Chronic Pain Management

229. Percutaneous lumbar plexus stimulation in the treatment of intractable pain

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**Background and Aims:** Peripheral Neuro-Stimulation (PNS) has gained wider popularity for the treatment of single neuropathies and mixed pain syndromes since the introduction of the percutaneous approach (1). A recent report suggests that nerve plexus neuro-stimulation with low frequency could provide a superior pain control compared to spinal cord stimulation (2).

**Methods:** Four patients with intractable neuropathic pain following either amputation or direct trauma to the lower limb received various treatment modalities including spinal cord stimulation with minimal or no benefit and complained of persistent, severe pains. The initial trial with a slow frequency 2 Hz stimulation to the ipsilateral lumbar plexus in distribution of the painful limb resulted in over 80% pain relief in all patients. Subsequently, the permanent leads (Octrode x 2, Renew, ANS, and Quad x 2, Synergy, Medtronic) were introduced using the classic lumbar paravertebral approach at L4 level under fluoroscopic control and continuous stimulation.

**Results:** Three patients experienced a consistent pain relief greater than 80% in the first year. The fourth patient had good pain relief during the trial with 2Hz, but not with the permanent implant at 10Hz (possible inadequacy of current equipment, RF, system). Infrequent, short stimulation provided excellent pain control without interference with motor function.

**Conclusion:** We report the first case series of permanent lumbar plexus implantation for the treatment of intractable pain in the lower limb. Preliminary results indicate that low frequency stimulation directly at the plexus may be an alternative to spinal cord stimulation in selective cases.

## References

- Goroszeniuk T, Kothari S, Hamann W (2006) Subcutaneous Neuromodulating Implant Targeted at the site of Pain. *Regional Anaesthesia and Pain Medicine*, 31;2:168-171.
- Goroszeniuk T, Kothari S, Hamann W (2007) Percutaneous implantation of a brachial plexus electrode for management of pain syndrome caused by a traction injury. *Neuromodulation*, 10(2),148-155.

408. Pharmacokinetic of ropivacaine administered in transversus abdominis plane block (TAPB) in children

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**Aim:** The TAPB has been recently introduced at our institution for paediatric inguinal surgery. We designed a study to evaluate the pharmacokinetic of a single shot of Ropivacaine administered in this novel approach for blocking the abdominal wall neural afferents via the lumbar triangle of Petit.

**Methods:** After approval from an Ethics committee and informed consent of both parents and children, ten ASA 1 healthy boys scheduled for elective ambulatory unilateral inguinal hernia repair were enrolled. Under general anaesthesia (Sevorane, O<sub>2</sub>, N<sub>2</sub>O, facial mask), TAPB was performed according to Mc Donnell's description (*Anesthesia Analgesia* 2007, 104), with a bolus of 0.5ml/kg Ropivacaine 0.375% via a short bevelled needle (Plexifix B. Braun). Plasma samples were collected at different time intervals up to hours after the injection.

**Results:** The mean age and weight of boys were 4.5 yrs (range 2-8) and 17.4 kg (10-31) respectively. Anaesthesia and postoperative analgesia were completely satisfying in all children. None required analgesic rescue and all discharged in evening of surgery at home. No signs of toxicity were observed. Pharmacokinetic data are recorded in the Figure (C<sub>max</sub>=485±115ng/ml, T<sub>max</sub>=50±15min).

**Conclusion:** Plasma concentration stayed below threshold the toxicity levels. T<sub>max</sub> is identical between TAPB and ilioinguinal/iliohypogastric block (*Dalens Paediatric Anaesthesia* 2001, 11). TAPB is safe and efficace in paediatrics.

