ABSTRACTS-SIMPAP 2011

001

A narrative review on assessment of pain in dementia patients

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Background and aims: Many studies underline that patients with dementia are administered less analgesic medication than their cognitively intact peers (Pickering et al., 2006). It is unclear if this under-treatment is only due to a reduced capacity to report pain or to a neuropathological feature of this disease; indeed recent evidence reports that a subtype of dementia can affect lateral and medial pain systems in different ways (Scherder et al., 2003). Therefore, a systematic evaluation of pain in dementia represents a crucial step in appropriate management and treatment (De Andrade et al., 2011). The aim of the present work is to review current knowledge regarding pain assessment in patients with dementia.

Methods: This review identifies approximately one hundred of relevant English language publications of pain assessment scales for people with dementia, from 1990 to 2011. Literature searches were undertaken using major electronic databases such as Pubmed. Article bibliographies were cross-checked for references not identified by search engines. Key words included chronic pain, dementia, pain assessment, cognitive impairment, neuropathology, behavioural observation.

Results: In literature we found three available forms of pain assessment: self-report tools, direct observation scales and caregiver reports. Despite self-report being the gold standard for pain assessment, recent evidence highlights that these tools target only the discriminative-sensory component of pain (lateral system) and they can be affected by poor communication skills of patients with dementia. To bypass this problem in clinical practice observation scales are used, which provide information about the motivational-affective aspects of pain (medial system) such as facial expressions, verbalization, body movements and changes of interpersonal interaction. However, they show moderate psychometrics qualities and are still in the early stages of development (Herr et al., 2006). Another indicator is represented by caregivers reports based only on the subjective impressions of informants.

Conclusions: Since pain-related systems (medial and lateral) appear altered in different ways in specific subtypes of dementia, at the present the best assessment approach seems the combination of all three forms of testing; future studies should take account of neuropathologic researches in order to develop *ad hoc* pain assessment tools for all types of dementia.

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doi:10.1016/j.eujps.2011.08.024

002

Additional analgesia after ambulatory unilateral laparoscopic inguinal hernia repair with transversus abdominis plane (TAP) block: A randomized double-blind controlled trial

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Background and aims: The transversus abdominis plane (TAP) block is a peripheral block that allows sensory blockade of the lower abdominal wall by introducing local anaesthetic into the neuro-fascial plane between the internal oblique and transversus abdominis muscles (Rafi, 2001; McDonnell et al., 2007). The present study evaluated the additional analgesic effect of TAP block as component of multimodal analgesia in patients undergoing unilateral laparoscopic hernia repair in an ambulatory setting.

Methods: One hundred adult patients were randomized to receive standard care (S-group), including paracetamol and non-steroidal anti-inflammatory drugs ($n = 50$) or to undergo unilateral TAP block in addition to standard care (TAP-group) ($n = 50$). All patients received a general anaesthesia, with in the TAP-group unilateral TAP block using 20 ml of levobupivacaine 0.25% was associated. The visual analogue pain score (VAS) of each patient was regularly assessed from arrival in the post-anaesthesia care unit until discharge, as well as 24 h postoperatively. Other outcomes assessed were analgesic consumption and patient satisfaction.

Results: The TAP-group showed no significant difference in VAS during the first 7 h postoperatively compared with the S-group. Supplemental opioid consumption was also similar in both groups (3.6 ± 2.27 vs. 3.98 ± 2.56). Postoperatively analgesic consumption before discharge was significantly lower in the TAP-group (9 vs. 2 patients, $p = 0.025$). After 24 h, we noted lower VAS scores in the TAP-group (14.58 ± 12.66 vs. 18.9 ± 14.5) but this was not statistically significant.

Conclusions: The TAP block significantly reduced the need of postoperative analgesic consumption before discharge. It holds considerable promise as a part of a multimodal analgesia strategy after an elective laparoscopic unilateral hernia repair.

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doi:10.1016/j.eujps.2011.08.025

003

Effectiveness and safety of perioperative ketamine on postoperative pain after elective total hip arthroplasty under spinal anesthesia: Preliminary results

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Background and aims: Aim of this study is evaluate the effectiveness and safety of perioperative intravenous infusion of ketamine in patients scheduled for elective unilateral Total Hip Arthroplasty (THA) under spinal anesthesia.

Methods: Midazolam 0.02 mg/kg was administered to all patients as premedication.

Patients were randomly allocated in one of the following groups: Ketamine group and Control group. All patients received spinal anesthesia.

Both groups received systemic i.v. analgesia with morphine 0.15 mg/kg plus ketoprofene 300 mg by elastomeric infusion pump at the rate of 2 ml/h for 24 h. The planned rescue analgesia was i.v. boluses of 2 mg of Morphine in order to obtain a VAS score ≤ 3 . All patients received paracetamol every 6 h and, after systemic morphine discontinuation, oxycodone 5 mg SR 1 tablet every 12 h.

In the Ketamine group a bolus of 0.15 mg/kg of ketamine was given to the patients before the start of operation then an infusion of 0.2 mg/kg/h was maintained until the end of the operation. In all patients the level of sedation and any appearance of unpleasant psychotomimetic manifestations were recorded using Ramsay Sedation Scale during the surgical procedure. Postoperative pain score was evaluated using VAS scale at rest and during mobilization at 2–4–8–12–24–48–72 h after surgery. Rescue morphine requirement as well as incidences of adverse events were recorded at the same postoperative intervals.

The length of hospital stay (LOS) and patient satisfaction were investigated in both groups.

Results: Seventeen eligible patients completed the study protocol from April to June 2011.

A significant reduction in post-operative pain score at rest and during patient mobilization, was observed in Ketamine group ($P < 0.05$), especially after 72 h ($P < 0.01$).

No patients experienced psychotomimetic adverse effects (Ramsay Sedation Scale 2).

Opioid requirement was significantly lower in the ketamine group than in the control group ($P < 0.05$). LOS was significantly shorter in Ketamine group ($P < 0.01$).

Conclusions: Preliminary results showed that, in the multimodal analgesic regime, the perioperative administration of i.v. sub-anes-

thetic doses of ketamine provides opioid-sparing effects, improves the quality of postoperative analgesia and accelerates patient recovery after THA surgery.

doi:10.1016/j.eujps.2011.08.026

004

Continuous femoral nerve blocks: Relative effects of local anesthetic dose, concentration and volume

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Disclosure: Research funding provided by PharMEDium Services and Summit Medical.

Background: Continuous femoral nerve blocks (cFNB) provide analgesia following knee surgery but can also cause quadriceps femoris weakness, itself associated with significant functional disability and an increased risk of falls. Therefore, minimizing cFNB-induced weakness – while maintaining effective analgesia – is desirable. Unfortunately, simply decreasing local anesthetic dose may result in a concurrent decrease in analgesia; and, optimizing infusion characteristics is challenging because it remains unclear whether femoral nerve block characteristics are primarily determined by local anesthetic concentration, volume, or dose (mass). We therefore tested the hypothesis that varying ropivacaine concentration and rate (0.1% at 12 mL/h vs. 0.4% at 3 mL/h) – but with equivalent basal (12 mg/h) and patient-controlled bolus doses (4 mg) – has minimal effects on quadriceps strength.

Methods: Preoperatively, bilateral femoral stimulating perineural catheters (Stimucath, Teleflex Medical, Research Triangle Park, NC) were inserted in patients undergoing bilateral total knee arthroplasty. Postoperatively, the right-sided catheter was randomly assigned to receive a ropivacaine infusion of either 0.1% (basal 12 mL/h, bolus 4 mL) or 0.4% (basal 3 mL/h, bolus 1 mL) through the afternoon of postoperative day (POD) 2, with the left catheter receiving the alternative concentration/rate/bolus volume in a double-masked fashion. Ropivacaine consumption was recorded using a portable, electronic infusion pump (ambIT, Summit Medical, West Jordan, UT). The primary end point was the maximum voluntary isometric contraction (MVIC) of each quadriceps femoris muscle the morning of POD 2. Secondary end points included quadriceps MVIC at other times, active knee extension, passive knee flexion, tolerance to cutaneous electrical current applied 2 cm medial to the distal quadriceps tendon, dynamic pain scores, opioid consumption, and ropivacaine consumption.

Results: Quadriceps femoris MVIC for limbs receiving 0.1% ropivacaine ($n = 36$) was a median (interquartile) of 10.6 (8.4–11.5) N-m, vs. 11.0 (8.5–14.2) N-m for limbs receiving 0.4% ($n = 36$; $p = 0.43$). There were also no statistically significant differences in any secondary outcomes.

Conclusions: Local anesthetic concentration and volume do not influence cFNB characteristics, suggesting that the primary determinant of perineural infusion effects is simply total dose (mass). Only reducing the total dose – with the potential for lessening analgesia – is thus likely to reduce quadriceps femoris weakness.

doi:10.1016/j.eujps.2011.08.027