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## Laparoscopic donor nephrectomy – postoperative pain treatment

doi:10.1017/S0265021508003773

### EDITOR:

Since the first reports of laparoscopic donor nephrectomy (LDN) two decades ago, it has become a routine surgical procedure. Most publications favour the laparoscopic procedure in terms of better pain control, faster recovery, less fatigue and better quality of life of the donor compared with mini-incision open donor nephrectomy (ODN). However, both procedures have equal safety and graft function.

When LDN was introduced in our hospital 3 yr ago, a literature search confirmed that LDN was less painful than ODN (i.e. postoperative morphine consumption decreased from  $123.6 \pm 88.0$  mg for ODN to  $24.4 \pm 14.8$  mg for LDN) [1]. Consequently, we abandoned epidural analgesia for all donor nephrectomies and used a standard multimodal approach for postoperative pain treatment: morphine patient-controlled analgesia (PCA) as a first-line analgesic, combined with paracetamol and non-steroidal anti-inflammatory drugs (NSAIDs) as second-line analgesics.

Two years later, we undertook a retrospective review involving 58 donors: 19 intraperitoneal laparoscopic, 38 open and one laparoscopic converted into open. This review has demonstrated that morphine requirements in both groups were similar. The median dose of administered PCA morphine was 68 mg in the LDN group and 69 mg in the mini-incision ODN group. The difference was not significant ( $t$ -test,  $P > 0.05$ ). The overall duration of use of morphine PCA was 42 h, and it was similar for both the groups (LDN vs. ODN, 47 vs. 40.5 h). The pain level was measured with a standard categorical scale (0–4), and the highest level of pain score at each day was recorded for the study. Of the

patients, 38% had the highest score 1, 37.9% had score 2 and 27.6% had score 3. There were no significant differences in the pain scores between patients who underwent LDN and ODN ( $\chi^2$ -test,  $P > 0.05$ ). Although NSAIDs had been prescribed to all patients, they were used in only 40% of patients, and paracetamol was used regularly. Our results were different from a recently published randomized controlled study from The Netherlands, where it was found that the morphine requirements of the patients in LDN group were less compared with the mini-incision ODN group [2]. The median morphine requirements in the LDN group were 16 mg (0–93) compared with 25 mg (1–107) in the ODN group, which was highly significant [2]. Other studies also reported less or no opioid requirement following LDN. A study from the USA showed that 290 LDN had good pain control with oral medication when they used preoperative bowel rest and ketorolac as a bolus every 6 h [3]. Their patients were discharged from hospital 24 h after surgery [3]. Another retrospective analysis from Switzerland on 203 live kidney donors has shown that 87% retroperitoneoscopic donor nephrectomies had subcutaneous analgesia, only 11.7% had morphine PCA and 1.3% (one patient) had epidural analgesia. For ODN, 55.7% had an epidural, only 29.1% had PCA and even 15.2% had subcutaneous analgesia [4].

Finally, a randomized controlled study from Norway had 63 LDN and 59 ODN. With the addition of pro-paracetamol 2 g four times and ketorolac 30 mg three times on the day of surgery and on the first 2 postoperative days, their patients' morphine consumption was 43.5 mg for LDN and 52.1 mg for ODN. Postoperative morphine consumption in this study was higher than in other studies, but still approximately 20 mg less than that in our study. There were differences between LDN and ODN, and pain scores were low: Pain score at rest was 1.0 for LDN and 1.1 for ODN [5].

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Accepted for publication 1 January 2008 EJA 4809  
First published online 21 February 2008

The cause of postoperative pain after laparoscopic procedures is multifactorial. It may be associated with the insertion of ports or due to the low abdominal incision for the extraction of the kidney. Pelvic organ nociception or diaphragmatic irritation from residual pneumoperitoneum (which could cause shoulder-tip discomfort) may cause pain, too. Ureteric colic and urinary catheter discomfort may also contribute to the development of postoperative pain in these patients.

Presented data highlighted several main conclusions. Firstly, although we already knew that pain perception is very complex and is influenced by many factors, reported studies had shown that postoperative pain following LDN is perceived differently amongst different populations. Secondly, NSAIDs, initially banned in this group of patients because of potential renal damage, have a significant role in decreased opioid consumption and early mobilization with minimal side-effects in well-hydrated laparoscopic kidney donors. Thirdly, surgical technique has implications on postoperative pain perception: our patients had intraperitoneal laparoscopic surgery, while low morphine consumption has been reported in retroperitoneal surgery. The future of postoperative pain treatment in laparoscopic LDN is in furthering the multimodal approach, including regional techniques like

paravertebral block, retroperitoneal surgical approach and bowel rest.

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## Alcohol spray vs. intradermal lidocaine before intravenous cannulation

doi:10.1017/S0265021508003712

### EDITOR:

Pain at the site of injection is a major complaint from patients undergoing intravenous (i.v.) cannulation [1]. Ethyl chloride spray [1], topical anaesthesia [1], dermal injection of local anaesthetic and iontophoresis of lidocaine [2] have been used to reduce the pain during venipuncture. The dermal injection of local anaesthetic is an efficient method to decrease pain; however, it involves an additional needle prick, which may arouse fear and may be perceived as stressful and unpleasant [1].

Of the needle-free methods for topical anaesthesia delivery during venipuncture, the topical application of EMLA<sup>®</sup> cream (AztraZeneca PLC, London, UK) requires a minimum application time of 60–90 min for effective analgesia, which limits its usefulness in the operating room [2,3]. The needle-free technique of analgesia delivery by the application of ethyl chloride spray was first used as a local anaesthetic for minor surgical procedures [4] and during venipuncture [5]. However, Armstrong and colleagues [5] have shown that intradermal lidocaine was more efficient than ethyl chloride spray in reducing pain during venipuncture.

Alcohol, similar to ethyl chloride, is a volatile liquid and if sprayed onto the skin it rapidly evaporates. During evaporation, alcohol cools the

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Accepted for publication 23 December 2007 EJA 4595  
First published online 21 February 2008