ILIOINGUINAL NERVE BLOCKADE FOR ANALGESIA AFTER CAESAREAN SECTION

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Lower segment Caesarean section performed through a Pfannenstiel incision is associated commonly with pain in the postoperative period [1]. Many Caesarean sections are performed using regional analgesia, one of the advantages of which is that some degree of residual analgesia persists into the postoperative period. However, general anaesthesia for Caesarean section is still widely used. Analgesia following this procedure is provided usually by i.m. injections of opioid analgesics. Although simple, this method has been shown to be one of the least efficacious [2], and may produce side effects such as nausea, vomiting, dizziness and respiratory depression.

Bilateral blockade of the ilioinguinal and iliohypogastric nerves at the level of the anterior superior iliac spine produces analgesia covering the dermatome supplied by the first lumbar nerve in its distal distribution [3]. The Pfannenstiel incision lies within this dermatome. It is possible, therefore, to provide analgesia of the anterior abdominal wall following this incision using the above technique. This does not abolish pain arising from visceral structures, as these have a different nerve supply.

METHODS AND RESULTS

The study was approved by the local Ethics Committee. Twenty-six patients undergoing elective Caesarean section who wished to have a general anaesthetic were approached and written informed consent obtained. Patients were allocated randomly to either a control group or the group (n = 13) receiving bilateral ilioinguinal nerve blockade. There were no significant differences in height, weight, parity or in postoperative measurements of arterial pressure, heart rate or rate of ventilation between the two groups.

A standard anaesthetic technique was used. Antacid prophylaxis was achieved with ranitidine 150 mg by mouth, two doses in the 12 h before surgery and 30 ml of sodium citrate 0.3 mol litre⁻¹ immediately before induction of anaesthesia. Following preoxygenation for 4 min, a rapid sequence induction with thiopentone 4 mg kg⁻¹ and suxamethonium 1.5 mg kg⁻¹ was administered. Cricoid pressure was applied and the trachea intubated with a tracheal tube of appropriate size. Neuromuscular blockade was maintained with vecuronium 0.1 mg kg⁻¹. Anaesthesia was maintained using nitrous oxide and enflurane in oxygen in appropriate concentrations. At delivery all patients received oxytocin 10 unit followed by fentanyl 100 µg.

Summary

Bilateral ilioinguinal nerve blockade was performed, using 0.5% plain bupivacaine 10 ml to each side, in 13 patients having elective Caesarean section under general anaesthesia. Pain scores and requirement for postoperative analgesia were compared with 13 patients in a control group. Pain scores were less in the block patients at all times during the first day after operation, with the exception of 12 h. There was an increased time from the patient's recovery from anaesthesia to the first injection of opioid in the block group. In the control group, patients required more analgesia in the first 24 h after surgery compared with patients having ilioinguinal nerve blockade. There were no observed adverse effects following nerve blocks.
Bilateral ilioinguinal nerve blockade was performed on patients allocated to the nerve block group at the end of surgery before antagonism of neuromuscular blockade. Using the technique described by Eriksson [4], a 21-s.w.g. needle was positioned, but a reduced volume (10 ml) of the more concentrated 0.5% plain bupivacaine was used. Residual neuromuscular blockade was antagonized with a mixture of atropine and neostigmine.

When patients were judged to have recovered from the anaesthetic sufficiently to co-operate with the study, measurements were made of heart rate, arterial pressure and rate of ventilation (0 h). Pain scores were recorded using a 10-cm linear analogue [5]. All observations were made by one of the authors who was unaware of the analgesic regimen. Further observations were made at 4, 8, 12 and 24 h after surgery. All patients were prescribed papaveretum 10 mg/m² body surface area and perphenazine 5 mg as an antiemetic.

Demographic data and cardiovascular data were analysed using Student's t test. All other data were subjected to the Wilcoxon rank sum test. $P \leq 0.05$ was considered statistically significant.

Pain scores were lower at all times during the study in the patients receiving ilioinguinal nerve blockade (Table I). The differences were highly significant ($P < 0.01$) at times 0, 4, 8 and 24 h. At 12 h the pain score was not significant.

In the first 30 min after surgery 10 patients in the control group received an initial dose of papaveretum. In the same period only one patient in the ilioinguinal nerve block group received papaveretum. At the end of the second hour after operation all patients in the control group had received the first dose of papaveretum, compared with five patients in the ilioinguinal nerve block group. At 24 h one patient in the control group had received two injections of papaveretum, seven patients four injections, three five injections and two six (a total of 57). In the study group three patients received no opioid, five patients one injection, two received two injections, two three injections, and one had four, this being the same patient as required the first dose within 30 min of recovery (a total number of 19 injections). The quantity of papaveretum administered per patient in 24 h was 51.5 mg m⁻² (range 27–76.9) in the control group and 16.75 mg m⁻² (range 0–47.05) in patients having ilioinguinal nerve blocks ($P < 0.01$).

**COMMENTARY**

The operation of Caesarean section involves dissection of deep tissues in the pelvis. It would be expected, therefore that, while providing analgesia of the skin and deeper layers of the anterior abdominal wall, ilioinguinal nerve blockade would not provide visceral analgesia. This appears to be the case, as all patients in the present study experienced some pain at all times during this study, including three patients who reported some pain but did not require additional analgesia.

Ilioinguinal nerve blockade is a simple regional technique which takes little time to perform. The method is safe provided the permitted maximum dose of local analgesic agent is not exceeded, and care is taken to ensure asepsis and avoidance of intravascular injection [6]. There were no complications which could be attributed to nerve blockade in this study. We have shown that the technique reduces pain during the first day after operation and decreases by a significant amount the requirement for additional postoperative analgesia.

In conclusion, we suggest that, when general
anaesthesia is indicated for lower segment Caesarean section using a Pfannenstiel incision, bilateral ilioinguinal nerve blocks improve the quality of postoperative analgesia.

REFERENCES