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## Spinal anaesthesia for laparoscopic cholecystectomy

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### PATIENTS AND METHODS

A descriptive prospective study was carried out between June and September 2008 in the Caribe teaching hospital in the city of Cartagena in Colombia, South America. Once the Caribe teaching hospital's medical ethics' committee's approval had been sought and given, patients were included in the study who had biliary lithiasis accompanied by a clinical picture of chronic cholecystitis as well as those having a clinical picture of subacute cholecystitis diagnosed during preoperative exam.

Patients who had been previously diagnosed as having complicated biliary lithiasis (acute cholecystitis, choledocolithiasis, acute cholangitis, acute biliary pancreatitis, etc.) were excluded. Other exclusion criteria were as follows:

- Patients aged less than 18 and older than 75;
- Patients having greater than 30 Kg/m<sup>-2</sup> body mass index (BMI);
- Sick patients having contraindication for laparoscopic surgery;
- Patients having contraindication for spinal anaesthesia;
- Patients who preferred general anaesthesia; and
- An inability for carrying out postoperative follow-up.

Inclusion criteria consisted of ASA I – II patients aged 18 to 75. All the patients complied with a minimum 8 hours fast; antibiotic prophylaxis was

administered 15 minutes before the procedure (1 g intravenous cephalosporin)

## ANAESTHETIC TECHNIQUE

A peripheral vein in the forearm was cannulated with an 18-gauge catheter. Endovenous liquid drip was begun (10 to 15 cc/kg of 0.9% SSN in bolus), as were non-invasive blood pressure monitoring (sphygmomanometer on left arm), electrocardiography (electrodes on the thorax - 5 derivatives), oximetry (finger pulse oximeter on the right arm) and capnography for measuring CO<sub>2</sub> in respiratory gases by nasal route. 4 mg dexamethasone was only applied for postoperative anti-nausea and vomiting therapy. Spinal anaesthesia was produced by placing the patient in a left lateral prone position; a midline puncture was performed at L2-L3 level with a 27-gauge Quincke needle, in aseptic technique. A 22.5 mg dose of bupivacaine levogira (7.5 mg/ml) was injected following the egress of clear cephalorachidian liquid. The patient was then placed in the Trendelenburg position with strict control of dermatome sensitivity. When a sensory level between T3-T4 was confirmed with cold swab, the patient was placed in a horizontal position. Oxygen was begun immediately by nasal cannula at 3.5 l/min. Heart-beat, blood pressure and arterial oxygen saturation were monitored every 2 minutes. 50mg/kg dipyrone + hyoscine bromide, 0.15 mg/kg metoclopramide, 5 mg/kg ranitidine were administered at 15-minute intervals. Atropine (0.01 mg/kg) was applied if bradycardia was detected (heart-beat lower than or equal to 50 beats/min). 2 mg ethylephrine was administered if blood pressure became reduced by 30% of base value. Midazolam (0.05 mg/kg) and phentanyl (0.5 mg/kg) were used for sedation.

The patient's definitive position was inverted Trendelenburg (30-45 degrees), involving left lateral prone position. Maximum intra-abdominal pressure level was fixed at 12 mmHg with 2 L/min CO<sub>2</sub> flow. Anaesthetic conversion was applied (i.e. applying general anaesthesia) if there were the presence of undesirable signs and symptoms which could not easily be managed with intravenous medication. Sensory and motor recovery, degree of pain (0 to 10 visual analogue scale), degree of satisfaction 3 hours later (excellent, good, regular, poor), a need for analgesia and the presence of undesirable events such as nausea, vomiting, restlessness, abdominal pain, pain in the shoulder (omalgia) were taken into account in the post-anaesthetic recovery room. If such symptoms were presented, they were classified (slight, moderate, severe). Patients were discharged once motor recovery, spontaneous diuresis and

tolerance to oral route had been produced and the anaesthesiologist had verified the absence of any type of complication. All patients were prescribed ibuprofen as analgesia to be taken at home (400 mgr each 8 hours for 3 days). Telephonic follow-up was carried out by a surgical team after 24 hours and followed-up by external consultation after 7 and 30 days. A person who was not part of the surgical team made a phone call on the third day to ask about the degree of satisfaction regarding the procedure (being classified as excellent, good, regular and/or poor) and to enquire whether the same anaesthetic technique would be desired if further surgery were required. Other factors which were analysed are given below:

Endogenous: age, gender, habits, weight, height and personal pathological background. Exogenous: anaesthetics used (type, dose, frequency), surgical time, anaesthetic time, cardio-respiratory monitoring, type of surgeon, required additional anaesthetic techniques, degree of pain, degree of satisfaction, surgical complications, anaesthetic complications, presentation of undesirable clinical events, conversion to general anaesthesia, required additional postoperative analgesia, length of hospital stay, time spent on daily and work activities, the value of the anaesthetic and analgesic products consumed.

Data analysis: EPI info 4.0 and Excel were used for analysing the data.

## RESULTS

Forty-four patients suffering from vesicular lithiasis were surgically treated during the study period; 16 of them were submitted to emergency surgery as they had acute clinical pictures. Two patients were excluded as they were older 75 and 1 for being aged less than 18. Four patients preferred general anaesthesia. The remaining 21 patients on whom laparoscopic cholecystectomy was carried out under spinal anaesthesia formed the study population (Table 1.)

85.7% of the patients were female. Average overall age was 40.4 years (19-67). Average body mass index (BMI) was 19 Kg/m<sup>2</sup> (16-23).

90.5% of the patients were classified as being ASA I and just 2 patients were ASA II. Inguinal herniorrhaphy was performed on one patient following laparoscopic cholecystectomy. 20% of the surgeries were performed in their entirety by residents from general surgery being trained in laparoscopic surgery; they were being instructed by a laparoscopic surgeon. A vesicular cravat was diagnosed during

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