

Analogic evaluation of pain during inguinal hernioplasty under local anaesthesia



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Introduction

Inguinal hernia is a very common disease. Each year in the United States about 700.000 inguinal hernia repairs are carried out and 30% of these are performed on patients over sixty years of age (8). The better understanding of the neurophysiology of the groin, the availability of safe and effective anaesthetics, the widespread use of prosthetic materials and the day surgery philosophy, have made local anaesthesia the method of choice for the treatment of inguinal hernias (5, 10, 11). Such innovations have allowed elderly patients, who were previously deemed not suitable for hernia repair for the high anaesthetic risk related to co-morbidities, to access surgery.

In our Institution inguinal hernias are routinely repaired under local anaesthetic and a study has been carried out to evaluate intraoperative pain.

Materials and Methods

A series of 114 patients undergoing inguinal hernia repair in the Operative Unit of General Surgery I of Catania University Polyclinic from January to September 2002, were included in the study. One hundred and nine patients were males and 5 were females with a mean age of 55.6 years (range 30-86). Patients were assessed

Riassunto

VALUTAZIONE ANALOGICA DEL DOLORE DURANTE INTERVENTO DI ERNIOPLASTICA INGUINALE IN ANESTESIA LOCALE

Obiettivo: *Gli autori valutano il dolore intraoperatorio nei pazienti sottoposti ad intervento di ernioplastica inguinale tension-free in anestesia locale.*

Materiali e Metodi: *Dal gennaio al settembre 2002 sono stati effettuati presso l'Unità Operativa di Chirurgia Generale I del Policlinico Universitario di Catania, 114 interventi per ernia inguinale primitiva. La mepivacaina cloridrato al 2% è stato l'anestetico locale di scelta. La percezione intraoperatoria del dolore è stata misurata mediante una scala analogica visuale.*

Risultati: *È stato ottenuto un risultato analogico medio di 1,9 (range 0-2,9). Complicanze intraoperatorie si sono verificate soltanto in 2 pazienti (1,7%). La mortalità è stata nulla. Tutti i pazienti hanno deambolato immediatamente, consumato un piccolo pasto dopo circa 2 ore e sono stati dimessi entro 24 ore dall'intervento.*

Conclusioni: *La riparazione dell'ernia inguinale in anestesia locale è assolutamente ben tollerata ed è associata con un basso rischio di complicanze.*

Parole chiave: Anestesia, locale, ernia inguinale, dolore.

Abstract

Objective: *The authors evaluate intraoperative pain in patients undergoing tension-free inguinal hernioplasty under local anaesthesia.*

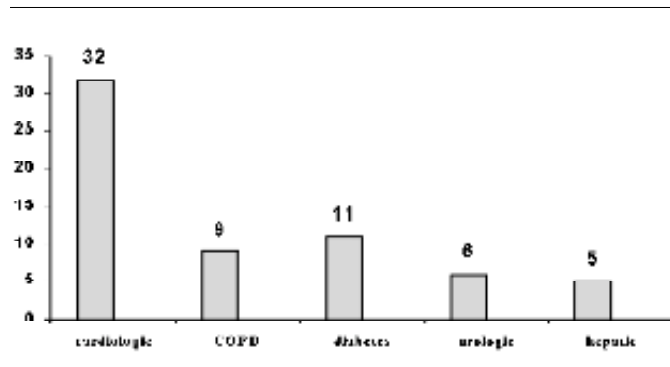
Material and Methods: *One hundred and fourteen primary inguinal hernia repairs were carried out at the Department of General Surgery I of Catania University Polyclinic from January to September 2002. 2% Mepivacaine chloride was the local anesthetic of choice. Intraoperative pain was measured by a visual analog scale.*

Results: *A mean analogic score of 1.9 (range 0-2.9) was obtained. Intraoperative complications were recorded only in 2 patients (1.7%). There was no operative mortality. All patients were up and about straightaway after surgery, had a light meal two hours later and were discharged within one day of operation.*

Conclusions: *Inguinal hernia repair under local anaesthesia is well tolerated and is associated with a low risk of complications.*

Key words: Local anaesthesia, inguinal hernia, pain.

Tab. I – ASSOCIATED MEDICAL CONDITIONS IN THE 114 PATIENTS UNDER STUDY



preoperatively with blood tests, chest X-ray and electrocardiogram. Forty patients (35%) had associated medical conditions and required preoperative treatment for cardiovascular, respiratory and metabolic disorders (Tab. I). Seventy-four patients were classified as ASA I, 30 patients ASA II e 10 ASA III. Neither age nor pre-existing clinical conditions were found to be a contraindication to surgery. Particular attention was paid to the psychological preparation of patients who were given exhaustive information about the pre, intra and postoperative period, also anticipating subjective feelings. Videos and photographs were showed for the better understanding of the procedure.

Surgical repair was carried out by using a personal tension-free technique that uses one or more plugs, according to the extent of the defect in the posterior wall of the inguinal canal, and a double layer polypropylene mesh of 10 x 4.5 cm (3). No premedication was routinely used. In the operating theatre an infusion of 0,9% saline was started and blood pressure and electrocardiogram were monitored. 2% mepivacaine cloridrate buffered with bicarbonate and diluted with saline solution was used. Mepivacaine has no antiarrhythmic activity, its onset is immediate and the duration of action 20% greater than lidocaine (4). Local anaesthesia of skin and subcutaneous tissue was achieved by infiltration of a solution made up of 2% carbocaine (10 ml) buffered with 8.4% sodium bicarbonate (2ml) and saline solution 0.9% (8ml). A less concentrated anaesthetic mixture (B) of 2% carbocaine (20 ml), buffered with 8.4% sodium bicarbonate (6 ml) and 60 ml of normal saline was used for progression of operation. Infiltration of anaesthetic beneath external oblique aponeurosis allows an initial block of the three nerves of the inguinal region (ileoinguinal, ileohypogastric and the genital branch of the genitofemoral nerve) that are subsequently individually identified, anaesthetised and protected. At times, infiltration of few ml of the anaesthetic mixture at the level of the pubic tubercle and around the neck of the hernial sac was needed to achieve complete anaesthesia. An accurate dissection of the sac allows introflexion into the abdominal cavity, avoiding

transection and consequent stimulation of the sensitive peritoneum which would make the operation particularly uncomfortable.

At the end of the operation patients were invited to draw a line across a 10 cm vertical line, the proximal end being absence of pain and the distal end the worst imaginable pain.

Results

The mean operation time was 64 minutes (45 - 90). The mean dose of the anaesthetic used was 65 cc of anaesthetic solution equivalent to 400 mg of mepivacaine cloridrate. Two vagal fits (1.7%) were recorded intraoperatively and these were treated successfully by administration of 0.5 mg of atropine. Analogue evaluation of pain gave a mean score of 1.9 (0 - 2.9) (Fig. 1).

All patients operated on under local anaesthesia were up and about straightaway after surgery, had a light meal two hours later and were discharged within one day of operation. Postoperative pain was mild and required administration of 30 mg of ketoralac trometamol only in 76 patients (66.6%). Similarly back at home analgesia was required in 43 patients (37.7%) and did not exceed 60 mg of ketoralac. There was no mortality. All patients were pleased with the operation stating they would choose local anaesthesia again if needed.

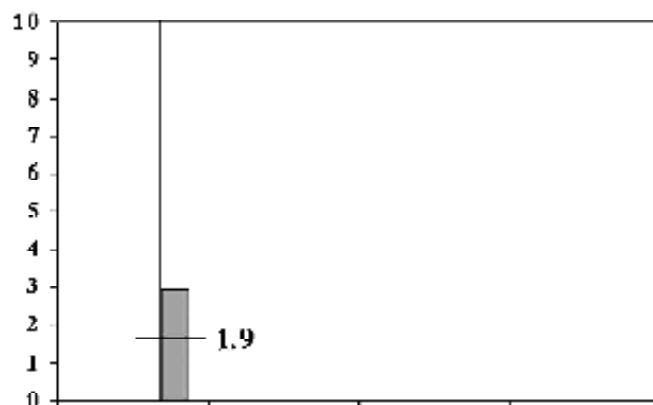


Fig. 1: Visual analog scale. Mean score of intraoperative pain (range 0-2,9) in the group under study.

Discussion

Local anaesthesia has many advantages over the other types of anaesthesia (general, epidural and spinal). There is no mortality under elective conditions even in the largest studies reported in the literature (3, 4, 5, 10, 11). Berliner and Abdu use routinely local anaesthesia also in obstructed and strangulated hernias (1, 2). Postoperative complications affecting the respiratory system (atelectasis,

infections) are far less than following other kind of anaesthesia. Postoperative side effects related to general anaesthesia (malaise, nausea, vomiting, pharyngeal pain) are completely absent (4, 9). Similarly retention of urine occurring in 23% of patients undergoing spinal anaesthesia is not observed (6). Vital parameters (pulse, frequency, saturation) need continuous monitoring during local anaesthesia and the presence of an anaesthetist is deemed pivotal since intraoperative complications (arrhythmias, bradycardia, hyper/hypotension), though rarely, may occur (7). Prosthetic techniques allow a sound repair of the hernial defect without need of approximating tissues under tension. This reduces intraoperative as well as postoperative pain.

Local anaesthesia requires a precise and methodical application of the technique. Excessive traction of the peritoneal elements as well as division of the sac, which however becomes necessary when it is irreducible, must be absolutely avoided. Thorough information of patients about every aspect of the surgical procedure, reduces anxiety and produces a confidential atmosphere for a smoother performance of surgery.

In conclusion, local anaesthesia is the method of choice for inguinal hernia repair. It is extremely well accepted by patients being related to minimal or even absent intraoperative pain. Besides, the use of tension-free and suture-less techniques reduces postoperative pain with immediate rehabilitation, early discharge from hospital and quick return to unrestricted activity.

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Commento

Commentary

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Gli Autori trattano un argomento di grande attualità nella moderna ottica della day surgery. L'anestesia locale ha infatti consentito un nuovo approccio al trattamento chirurgico di diverse patologie, in particolare dell'ernia inguinale per la quale essa viene generalmente considerata la metodica anestesiológica di scelta. Il lavoro descrive in maniera dettagliata la tecnica anestesiológica la cui scrupolosa esecuzione permette un ottimo controllo del dolore intraoperatorio. Ciò è dimostrato dai risultati dello studio effettuato dagli Autori, adottando una scala analogica visuale che consente una oggettivazione attendibile delle sensazioni soggettive. Inoltre viene giustamente sottolineato come l'anestesia locale richieda una precisa e puntuale applicazione della tecnica chirurgica, specie riguardo al trattamento del sacco erniario, la cui trazione o apertura è spesso causa di dolore scarsamente tollerato e di difficile controllo.

The authors deal with an issue of topical interest in the current practice of day surgery. Local anaesthesia has allowed a new approach to the treatment of different diseases, in particular of inguinal hernia for which it is generally considered the method of choice. This paper provides a detailed description of local anaesthesia t] scrupulous performance of which gives an optimal control of intraoperative pain. This is showed by the results of the study carried out by the authors employing visual analog scale that gives a reliable objectivation of subjective feelings. Moreover, it is also emphasised that local anaesthesia requires an accurate application of the surgical technique, especially regarding the treatment of the hernial sac the traction or opening of which is often the cause of a pain which is poorly tolerated and difficult to control.

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