

Local Anesthesia for Arthroscopy of the Knee in Day-surgery Patients

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Purpose. In this study we assess the effectiveness of local anesthesia in knee arthroscopies carried out in outpatients and the use of subsequent postoperative analgesia.

Materials and methods. From January to December 2003, within the framework of our Outpatient Program, 56 patients with different knee conditions underwent arthroscopy with local anesthesia and postoperative intraarticular infiltration with bupivacaine. The effectiveness of local anesthesia and postoperative analgesia were assessed by determining pain intensity using a visual analogical scale and by quantifying the use of postoperative analgesia after arthroscopy.

Results. Fifty of the 56 patients, had no pain during surgery, with the remaining 6 requiring supplementary analgesia. All patients were discharged from hospital during the 6 hours following surgery and no complications were seen.

Conclusions. Local intraarticular anesthesia is ideal for knee arthroscopy since it allows this surgical procedure to be performed as part of an outpatient program, it decreases the need for pain-killers and shows high rates of patient satisfaction. It allows early recovery, rehabilitation, and hospital discharge.

Key words: knee arthroscopy, local anesthesia, outpatient surgery, postoperative analgesia

Anestesia local para artroscopia de rodilla en pacientes ambulatorios

Objetivo. En este artículo valoramos la eficacia de la anestesia local para la cirugía artroscópica de la rodilla en pacientes ambulatorios y la analgesia postoperatoria.

Material y método. De enero a diciembre de 2003 y dentro del programa de cirugía ambulatoria fueron intervenidos 56 pacientes de diferentes patologías de la rodilla mediante cirugía artroscópica y bajo anestesia local, e infiltración intraarticular postoperatoria con bupivacaína.

Se ha valorado la eficacia de la anestesia local y la analgesia postoperatoria determinando la intensidad del dolor mediante la escala visual analógica y el consumo de analgésicos tras la cirugía artroscópica.

Resultados. De los 56 pacientes, 50 no tuvieron dolor durante la cirugía, en los otros 6 fue necesario suplementar la analgesia. Todos los pacientes fueron dados de alta hospitalaria en las primeras 6 horas tras la cirugía y no se detectó ninguna complicación.

Conclusiones. La anestesia local intraarticular es un método ideal para la artroscopia de la rodilla dentro del programa de cirugía ambulatoria, permitiendo la realización de esta técnica quirúrgica disminuyendo el consumo de analgésicos por proporcionar una adecuada analgesia y una alta satisfacción. Permite una recuperación, un alta hospitalaria y una rehabilitación precoces.

Palabras clave: artroscopia de rodilla, anestesia local, cirugía ambulatoria, analgesia postoperatoria.

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The development of scarcely invasive surgical techniques, such as arthroscopy, and the improvements in the control of postoperative analgesia by means of local or locoregional^{1,2} anesthetic techniques, has made it possible to reduce patients' hospital stay, and to launch ambulatory surgery and short-stay programs, all of which prevent unnecessary outlays.

From the moment when arthroscopy of the knee started being performed with local³ anesthesia, other anesthetic techniques were gradually left aside, since their control of

postoperative pain was not as good and they did not allow early rehabilitation^{3,4}.

We are aware that general anesthesia, be it the regional or the nerve-trunk variety, provides great ease at the moment of surgery, but it also causes a complete movement block that makes early rehabilitation unachievable; with general anesthesia there is no postoperative analgesia, which is essential for early rehabilitation.

The aim of this paper is to prove the efficacy of local anesthesia for knee arthroscopy, within the ambulatory surgery program.

MATERIALS AND METHODS

Between January and December 2003 we performed 56 knee arthroscopies in the treatment of various pathologies in 18 to 58-year-old patients (Table 1).

Once the patients were monitored and administered midazolam (0.03-0.05 mg/kg through intravenous route) the inferomedial and inferolateral entry portals were infiltrated with 10 ml of lidocaine without epinephrine at 0.5% and 20 ml of bupivacaine at 0.5% with epinephrine; also, an intra-articular administration of 20 ml of mepivacaine at 2% without epinephrine was made.

All the arthroscopies were performed without ischemia, and occasional bleeding was controlled by increasing the perfusion pressure of the irrigation serum. On finishing the arthroscopic surgery, another intra-articular 10 ml of bupivacaine at 0.5% was administered, with epinephrine, and the anesthetic was allowed to act for 15 minutes before the Redon type suction drainage was opened.

We have assessed the presence or absence of pain during surgery and the intensity of postoperative pain at 2, 5, 12 and 24 hours by means of the analog visual scale (AVS), in which 0 stands for the absence of pain and 10 corresponds to the worst pain imaginable; we have also assessed the time lapsed before the start of the administration of the first analgesic (2g intravenous methymazol), as well as the total amount of analgesics taken during the first 24 hours (oral methymazol). We have also evaluated and classified the patients' degree of satisfaction into "bad", "fair", "good" or "very good".

RESULTS

None of the 56 patients involved in the experiment had to undergo treatment with other types of anesthesia and in only 6 cases was it necessary to intensify analgesia due to the presence of pain at the points of entry or during forced knee varus or valgus maneuvers. The intensity of postoperative pain assessed by AVS was averaged at 1.3 at 2 hours; 2.7 at 5 hours; 3.5 at 12 hours and 3.1 at 24 hours.

Table 1. Lesions treated with arthroscopic surgery

Patellar chondromalacia	16
Internal meniscal rupture	14
External meniscal rupture	12
Free bodies	5
Osteoarthritis	5
Diagnostic arthroscopy	4

The time lapsed from the end of the arthroscopic surgery up to the first administration of analgesics fluctuated between 3 and 6 hours, and the corresponding values on the AVS were between 3 and 5. The highest level of consumption of analgesics did not surpass 4 capsules of methymazol with an average of 2.6 during the first 24 hours. All patients were discharged from hospital within 6 hours of surgery and there were no intra or postoperative complications.

The degree of satisfaction of the patients was "good" or "very good", and on being asked the question: If you were to be operated on again, would you choose the same anesthetic technique?, they all answered affirmatively.

DISCUSSION

Ambulatory surgery programs have been developed with the aim of reducing the cost of surgical procedures. They involve the control of postoperative pain in patients, no matter the kind of surgery they have undergone, and the recovery of the autonomy needed for their ambulatory treatment.

Hence, intra-articular local anesthesia for knee arthroscopy is an ideal technique to be performed within an ambulatory surgery program, due to the fact that it is simple and does not require special equipment, whereas treatment with general, regional or nerve-trunk anesthetic does^{5,6}.

Many studies on the use of different drugs—such as morphine, lidocaine, bupivacaine, ropivacaine, clonidine and non-steroidal anti-inflammatories⁷⁻¹²—for local anesthesia in knee arthroscopy have been published, and in most of them it is concluded that the most efficacious way of controlling postoperative pain, and of obtaining a longer lasting postoperative analgesia, is the use of bupivacaine with epinephrine, this being so because of the effect of the local anesthetic.

In our work we have associated bupivacaine with epinephrine to another local anesthetic: mepivacaine. Because of its quicker inceptive effect, it allows the beginning of the arthroscopic surgery to take place earlier than with bupivacaine alone, which took at least 30 minutes longer to act. We have obtained results that are compatible with those of other authors, but it is difficult to compare them because of the great diversity of designs^{13,14}.

Thus, by means of controlling postoperative pain we can launch an early rehabilitation program, which is essential for the functional recovery of the knee, and which makes possible the patient's earlier discharge from hospital and a lower consumption of analgesics.

However, there are situations in which it is preferable to use general or regional anesthesia, as in the case of children, of patients with psychic disorders, of non-collaborative or apprehensive patients, or also in the case of knees needing more aggressive surgery or of surgeons that are inexperienced.

In conclusion, local intra-articular knee anesthesia is an ideal technique for knee arthroscopy within the ambulatory surgery program because it permits the performance of this type of surgery, it is simple and bears low levels of morbidity, it diminishes the consumption of analgesics because it reduces the intensity of postoperative pain, it allows early rehabilitation, a shorter hospital stay and the reduction of costs.

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