

ORIGINAL ARTICLE

The use of an intraarticular catheter on fast-track primary knee arthroplasty, is it a step forward?☆



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KEYWORDS

Arthroplasty;
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Abstract

Objective: This study compares the efficacy in post-operative pain control of the intraarticular catheter compared to the epidural catheter after primary total knee arthroplasty.

Material and method: Randomised clinical trial consisting of two groups of patients. A control group with intradural anaesthesia and an intraoperative epidural catheter (ropivacaine) and an intervention group using the same anaesthetic technique and an intraarticular catheter with an elastomeric pump (ropivacaine + dexketoprofen). Data such as demographic, anaesthetic and surgical variables, pain intensity according to Verbal Rating Scale, opioid use and complications, joint balance, onset of walking and hospital stay were recorded.

Results: A lower incidence and severity on Verbal Rating Scale and a better control of postoperative pain ($p < .0014$) were observed in the intervention group. Joint balance also presented significant results in flexion and 74% of these patients started walking before the first 36 h and the control group had not yet done so. Regarding patient satisfaction, 54.1% of the patients were “very satisfied” with the use of the catheter ($p > .001$). Finally, the hospital stay decreased significantly, with 33.3% of intervention group patients discharged within the first 48 h compared to none of the control group.

Discussion and conclusions: The use of the intraarticular catheter as postoperative analgesia is a useful and safe alternative. It reduces the possibility of side effects. It helps in early improvement of joint balance, onset of walking and control of pain. All of which increase patient satisfaction and result in a shorter period of hospitalisation.

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PALABRAS CLAVE

Artroplastia;
Rodilla;
Dolor postoperatorio;
Catéter intraarticular

Uso de catéter intraarticular en fast track de artroplastia primaria de rodilla. ¿Supone un avance?

Resumen

Objetivo: Comparar la eficacia en el control del dolor postoperatorio de pacientes sometidos a artroplastia total de rodilla primaria comparando catéter intraarticular versus epidural.

Material y método: Ensayo clínico aleatorizado formado por dos grupos de pacientes: un grupo control con anestesia intradural y un catéter epidural (ropivacaína) y un grupo de intervención con la misma técnica anestésica, a la que se añadió un catéter intraarticular con bomba elastomérica (ropivacaína + dexketoprofeno). Se registraron variables demográficas, anestésicas y quirúrgicas, intensidad del dolor según Escala Verbal Numérica, consumo de opiáceos y complicaciones, balance articular, inicio de la deambulacion y estancia hospitalaria.

Resultados: Se observó menor incidencia y severidad en la Escala Verbal Numérica en el grupo de intervención y mejor control del dolor postoperatorio ($p < 0,0014$). El balance articular presentó resultados significativos en la flexión y el 74% de estos pacientes deambularon antes de las 36 h cuando el grupo control aún no lo había hecho. El 54,1% de pacientes se mostraron «muy satisfechos» a favor del uso del catéter ($p > 0,001$). Por último, la estancia hospitalaria disminuyó, siendo el 33,3% de los pacientes del grupo de intervención dados de alta a las 48 h de la intervención, hecho que no sucedió en ninguno de los casos del grupo control.

Discusión y conclusiones: El uso del catéter intraarticular como analgesia postoperatoria es una alternativa válida y segura. Disminuye la aparición de efectos secundarios y mejora el balance articular, el inicio de la deambulacion y el control del dolor y contribuye a una mayor satisfacción del paciente y a un alta más precoz.

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Introduction

Total primary knee arthroplasty (TKA) is one of the orthopaedic operations with the highest success rate, and leads to great satisfaction for both patient and surgeon. However, TKA is associated with considerable postoperative pain which is difficult to manage.¹ The literature reports that 60% of patients have intense pain and 30% moderate pain after TKA. This pain is accentuated on moving the knee² and as a result, patients tend to prefer to stay in hospital. This prolonged hospital stay increases medical costs and the risk of medical complications such as deep vein thrombosis or pulmonary embolism.^{3,4}

Advances in pain management after TKA have been made to improve postoperative pain relief, with early mobilisation of the knee,⁵ and, in some cases, even the reduction in hospital stay.⁶ During the last decade, multimodal analgesia techniques have become an alternative to opioid painkillers alone for pain management after TKA.^{7,8}

Numerous methods of adjuvant treatment for postoperative pain have been described. These include standard oral analgesics, periarticular infiltrations (with local analgesics and anaesthetics), regional anaesthesia with neuroaxial block (spinal or epidural), peripheral nerve blocks (femoral, sciatic or psoas) or a combination of various.⁹⁻¹¹

The aim of this study is to compare two modalities in postoperative pain management as part of a multimodal pain protocol after TKA. It also assesses its impact on hospital stay, onset of walking and joint balance. To do this the use of the intraarticular catheter with elastomeric infusion (0.35% ropivacaine + 5 ml/h dexketoprofen) was compared with the epidural catheter (continuous perfusion of 0.2% ropivacaine at 8 ml/h).

Material and method

A randomised non-blinded clinical trial was performed in patients who had undergone unilateral primary TKA who were divided into two groups: one intervention group (IG) with an intraarticular catheter and another control group (CG) with an epidural catheter. The study was approved by the Bioethics Committee and the Hospital Quality Commission and with the signed informed consent of the patients. The patients included in the study were those who had been diagnosed with tricompartmental gonarthrosis of the knee and referred for TKA. 108 patients were randomly selected from the two groups: CG and IG. The patients selected for the IG were those who had undergone surgery on even days and those of the CG on odd days. The exclusion criteria were as follows: patients allergic to NSAIDs or local anaesthetics, those who refused or had contraindications to intradural regional anaesthesia and those patients with mental, psychiatric or neuromuscular degenerative diseases.

Of the 108 patients, in the CG, two had to abandon the study due to the technical impossibility of administering intradural anaesthesia. In the IG another five patients abandoned the study: three of them due to the failure of implanting the catheter in the operating theatre and two due to possible allergy to NSAIDs. This meant that the elastomeric pump could not be used in the anaesthesia recovery room. One catheter fell to the floor in the operating theatre and was no longer sterile, another was burned with an electric scalpel and in a third patient, a trocar was incorrectly removed and consequently rejected (Fig. 1).

The patients were operated on by the same group of orthopaedic surgeons and during the same period of time, which was between January and March 2016. Two knee

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