



REVIEW ARTICLE

Preventive analgesia in hip or knee arthroplasty: A systematic review[☆]



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KEYWORDS

Knee arthroplasty;
Hip arthroplasty;
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Abstract

Objective: To analyze the efficacy and safety of preventive analgesia in patients undergoing hip or knee arthroplasty due to osteoarthritis.

Methods: A systematic literature review was performed, using a defined sensitive strategy on Medline, Embase and Cochrane Library up to May 2013. The inclusion criteria were: patients undergoing knee and/or hip arthroplasty, adults with moderate or severe pain (≥ 4 on a Visual Analog Scale). The intervention, the use (efficacy and safety) of pharmacological treatment (preventive) close to surgery was recorded. Oral, topical and skin patch drugs were included. Systematic reviews, meta-analysis, controlled trials and observational studies were selected.

Results: A total of 36 articles, of moderate quality, were selected. The patients included were representative of those undergoing knee and/or hip arthroplasty in Spain. They had a mean age >50 years, higher number of women, and reporting moderate to severe pain (≥ 4 on a Visual Analog Scale). Post-surgical pain was mainly evaluated with a Visual Analog Scale. A wide variation was found as regards the drugs used in the preventive protocols, including acetaminophen, classic NSAID, Cox-2, opioids, corticosteroids, antidepressants, analgesics for neuropathic pain, as well as others, such as magnesium, ketamine, nimodipine or clonidine. In general, all of them decreased post-surgical pain without severe adverse events.

Conclusions: The use of one or more pre-surgical analgesics decreases the use of post-surgical drugs, at least for short term pain.

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PALABRAS CLAVE

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Analgésia preventiva;
Revisión sistemática

Analgésia preventiva en artroplastia de cadera o rodilla: una revisión sistemática**Resumen**

Objetivo: Analizar la eficacia y la seguridad de la analgesia preventiva en pacientes que son sometidos a artroplastia de cadera o rodilla por artrosis.

Métodos: Se realizó una revisión sistemática: se definió una estrategia de búsqueda bibliográfica sensible en Medline, Embase y Cochrane Library hasta mayo de 2013; se definió la población con los siguientes criterios: pacientes con indicación de artroplastia de cadera y/o rodilla, adultos, dolor moderado a intenso (≥ 4 en la Escala Visual Analógica), la intervención, el uso (eficacia y seguridad) del tratamiento farmacológico (preventivo) próximo a la cirugía. Se incluyeron formulaciones orales, tópicas y parches. Se incluyeron revisiones sistemáticas, metaanálisis, ensayos clínicos y estudios observacionales.

Resultados: Se incluyeron 36 artículos de calidad moderada. Incluían pacientes representativos de aquellos a los que se les indica una artroplastia de cadera o rodilla en nuestro país, adultos, con una edad media superior a 50 años, ligera mayor proporción de mujeres y que presentan dolor de moderado a grave (≥ 4 en la Escala Visual Analógica). El dolor posquirúrgico se evaluó sobre todo con la Escala Visual Analógica. Existe mucha variabilidad en cuanto a los fármacos utilizados incluyendo paracetamol, AINE clásicos, AINE selectivos de la Cox-2, opioides, corticoides, antidepresivos, analgésicos para el tratamiento del dolor neuropático y otros como sulfato magnésico, ketamina, nimodipino o clonidina. Todos en general parecen mejorar el dolor posquirúrgico sin presentar acontecimientos adversos graves.

Conclusiones: El uso de uno o varios analgésicos en el preoperatorio disminuye el consumo de analgésicos y el dolor en el posoperatorio, al menos el dolor agudo.

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Introduction

Preventive analgesia is defined as a set of pharmacological and non-pharmacological strategies that are implemented before creating a surgical wound with the goal of preventing or minimizing the pain caused by damaging surgical stimuli.^{1,2} The main objectives are to reduce acute pain due to tissue damage, prevent pathological modulation associated to pain on the central nervous system and inhibit the persistence of postoperative pain and the development of chronic pain. Preventive analgesia can also reduce the intake of analgesic drugs in the postoperative period.

Several experimental studies^{3,4} have confirmed that, at least in animals, the administration of analgesic drugs before tissue aggression is more effective to control pain than their administration subsequent to the damage.

However, these results have not been reproduced in a conclusive manner in everyday clinical practice. Several systematic reviews including the analysis of over 80 controlled clinical trials have shown that the starting time of analgesia did not affect the control of postoperative pain, regardless of the type of preventive analgesia employed.⁵ This conclusion is not completely categorical, since most of the existing studies are based on short-term interventions on postoperative pain, so their influence on the development of central hypersensitivity to pain⁶⁻⁸ cannot be reliably assessed. Moreover, there may be differences depending on the type of surgery.

The objective of the present work is to systematically review the literature to analyze the effectiveness and safety of preventive perioperative treatment using

pharmacological measures in patients with an indication of hip or knee arthroplasty in relation to postoperative pain.

Materials and methods

A systematic literature review was conducted following the Cochrane Collaboration guide.⁹

Study selection criteria

The studies selected included adult patients with an indication of knee and/or hip arthroplasty who suffered moderate to intense preoperative pain (≥ 4 in the analog visual scale). These studies should assess the use (effectiveness and safety) of a specific pharmacological treatment (preventive) soon before the intervention (not necessarily the previous 24–48 h). The treatments included oral formulations (opioids, non-steroidal anti-inflammatory drugs [NSAIDs], analgesics, corticoids, anticonvulsants and antidepressants), topical (including capsaicin, topical lidocaine, topical NSAIDs and topical massage with vaseline), transdermal patches, etc. The studies should have compared the effect against active drugs, placebo or other procedures (exercise, etc.). The main indicator of the result (effectiveness) was postoperative pain, whilst secondary indicators of the result (effectiveness) included savings on opioids, days of hospital admission, quality of life, function, satisfaction, etc. Other variables analyzed included: digestive hemorrhage, constipation and cost.

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