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Controlled-release oxycodone improves pain management after uterine artery embolisation for symptomatic fibroids

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AIM: To evaluate if pre- and post-procedure administration of controlled-release oxycodone (CRO) in combination with standard analgesia improves pain control and decreases the amount of required post-procedure opioids in uterine fibroid embolisation (UFE).

MATERIALS AND METHODS: Between January 2009 and March 2010, 60 consecutive women were prospectively randomised in two groups for UFE: the control group, in which 30 patients underwent the standard anaesthetic procedure and the CRO group, in which 30 patients underwent the standard anaesthetic procedure with the addition of CRO. Age, pain, nausea/vomiting, fibroid volume, length of hospital stay, and use and dose of morphine received via the patient-controlled analgesia (PCA) device in both groups were evaluated to compare the two methods of pain control. Fibroid volume as measured at magnetic resonance imaging (MRI) was evaluated for correlation with post-embolisation pelvic pain over a period of 24 hours.

RESULTS: A significant difference was seen in the pain scores at 24 hours (p=0.029), with less pain in the CRO group. More patients from the control group required morphine (p=0.017), and at higher levels (p=0.130). Pruritus was lower in patients of the CRO group, probably because they received less morphine (p=0.029). No correlation was seen between leiomyoma volume and pain levels over 24 hours (Spearman's ρ=0.02; p=0.881). Length of hospital stay was not different between the two groups.

CONCLUSION: The addition of CRO to standard analgesia for UFE provides more effective analgesia, with a reduction in pain scores in 24 hours, less morphine use, and decreased side effects, mainly pruritus.

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Introduction

Since first described in 1995, uterine fibroid embolisation (UFE), a minimally invasive treatment for uterine fibroids, has become a well-established alternative to surgery.[1,2] This procedure, however, is associated with considerable post-procedure abdominal pain, which is a major obstacle to same-day discharge. Post-embolisation pain is so significant that in the EMMY trial 30% of patients had pain scores >5 (numeric rating scale), and in another study >30% of patients reported pain levels similar or more intense than labour pain[3,4]; however, so far, few studies have been published regarding post-UFE pain management.[5]

Controlled-release oxycodone (CRO) is an easily administered opioid with analgesia effects lasting up to 12 hours. Because CRO maintains opioid concentrations and analgesia effects for longer periods, it was deemed suitable to provide sustained pain relief for UFE patients.

The purpose of this paper was to evaluate whether pre- and post-procedure administration of CRO in combination with standard anaesthesia — morphine intrathecal (MIT) plus intravenous analgesia — improved pain control and decreased the amount of post-procedure opioids required.

Materials and methods

Between January 2009 and March 2010, 60 consecutive women were referred to the Interventional Radiology Department and underwent elective UFE. They were prospectively randomised in two groups: the control group, in which 30 patients underwent the standard anaesthetic procedure, and the CRO group, in which 30 patients underwent the standard anaesthetic procedure plus CRO.

To participate in the study, the patients must have been at least 18-years old, with no reproductive desire, and had symptomatic (pelvic pain or menorrhagia) uterine fibroids diagnosed and measured by magnetic resonance imaging (MRI). Patients with reproductive desire were included only if they had contraindication to myomectomy.

Exclusion criteria were pelvic neoplasms, pelvic inflammatory disease, vasculitis, coagulopathy, previous pelvic radiotherapy, chronic renal failure, contrast media allergy, current use of narcotic drugs, contraindication to non-steroidal anti-inflammatory drugs (NSAIDs), metamizole (dipyrone), or oxycodone and contraindication to neuroaxial block.

The study was approved by the Institutional Ethics Committee no. 08/926 (CAAE 0167.0.028000–08). Patients signed a consent form of their own free will.

Standard anaesthetic procedure

In the operating room, standard monitoring (electrocardiography, pulse oximetry, non-invasive arterial blood pressure) was applied and an intravenous catheter was placed. All patients underwent spinal anaesthesia with 15 mg bupivacaine and 200 μg morphine intrathecal injection using a 27 G spinal needle in the L3–L4 space. After spinal anaesthesia, patients received intravenous propofol using a target-controlled infusion system titrated to moderate sedation. In addition, standard analgesia consisting of 100 mg intravenous ketoprofen every 12 hours and 2 g metamizole every 6 hours was administered. To avoid adverse effects, patients were medicated with 5 mg dexamethasone and 8 mg ondansetron every 8 hours for nausea and vomiting, and 50 mg diphenhydramine every 6 hours if they had pruritus. This was the standard anaesthetic procedure at Hospital Israelita Albert Einstein, performed in all patients by an experienced anaesthesiologist, and no patients underwent conscious sedation.

CRO group

The CRO group underwent the standard anaesthetic procedure and also received 20 mg oral CRO 1 hour before the UFE procedure, and every 12 hours until the second postoperative day (total of four doses of oxycodone).

Postoperative anaesthetic management

After the UFE procedure, the patient was transported back to the recovery room and was monitored before returning to the ward. Patients could self-administer intravenous morphine (2 mg/demand) through the patient-controlled analgesia (PCA) device, with a 5-minute lockout period, for a maximum of 20 mg per 4 hours and no basal rate. In the post-anaesthesia care unit, all patients were assessed every 15 minutes utilising the Visual Analogue Scale (VAS) to evaluate pelvic pain. The VAS is a well-established scale for pain measurement, ranging from 0 to 1. A score of 0 was defined as the absence of symptoms and 10 as the worst imaginable pain.

Nausea, vomiting, pruritus, and vital signs were also assessed by standard monitoring every 15 minutes. When sufficiently stable according to pain and other symptoms, the patient returned to the ward with the PCA pump.

Pain, nausea, vomiting, and pruritus continued to be assessed at 2, 6, 12, and 24 hours after the procedure and postoperative intravenous morphine consumption was recorded.

Patients were discharged, if their recovery was uneventful, 24 hours after the UFE procedure with oral medication for symptomatic relief.

UFE procedure

Two experienced interventional radiologists performed all procedures. UFE was performed through unilateral femoral access. Contralateral internal iliac artery angiography and selective study of the anterior division were performed using a 5 F cobra-shaped catheter (Cobra; Terumo, Tokyo, Japan) to localise the origin of the contralateral uterine artery. Superselective catheterisation of the uterine artery was then performed with a microcatheter (Progreat; Terumo, Tokyo, Japan), followed by embolisation with microspheres (Beadblock; Biocompatibles, Farnham, UK or Embosphere; Merit, South Jordan, UT, USA) 500–700 μm and 700–900 μm. The catheter was then conformed in a Waltman loop. Selective study of the ipsilateral anterior

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