Efficacy of Celecoxib for Early Postoperative Pain Management in Hip Arthroscopy: A Prospective Randomized Placebo-Controlled Study

Cynthia A. Kahlenberg, M.D., Ronak M. Patel, M.D., Michael Knesek, M.D., Vehniah K. Tjong, M.D., Kevin Sonn, M.D., and Michael A. Terry, M.D.

Purpose: To determine whether 400 mg of celecoxib administered 1 hour before hip arthroscopy surgery would reduce pain, provide reduction in overall narcotic consumption, and lead to more rapid discharge from recovery rooms. **Methods:** Ninety-eight patients were randomized to either the celecoxib group (n = 50) or the placebo group (n = 48). An a priori power analysis was done set to detect a difference of 0.50 on the visual analog scale (VAS), based on the senior author's preference. The number of patients planned for recruitment was rounded up to 100 to allow for flexibility in the study. Inclusion criteria were any patient at least 18 years old who underwent hip arthroscopy surgery performed by the senior author. All patients had less than Tönnis grade 2 arthritis. Exclusion criteria were allergy to sulfa-based drugs, prior adverse reaction to celecoxib, or patients who were on chronic narcotics for whom alternative pain management regimens were arranged before surgery. Randomization was performed on a 1:1 basis in blocks of 10 using sealed envelopes stating celecoxib or placebo. One hour before surgery, all patients received either 400 mg celecoxib or placebo. Patients were evaluated using a VAS preoperatively, immediately postoperatively, and at 1 and 2 hours postoperatively. Time from the operating room to "ready for discharge" and number of morphine equivalents of narcotic medication required in the postanesthesia care unit were recorded. **Results:** Age and preoperative VAS were similar between the celecoxib and placebo control group, with average ages of 34.2 ± 11.9 and 35.8 ± 11.6 ($P = .27$) and preoperative VAS of 2.1 ± 2.06 and 2.3 ± 1.98 ($P = .29$), respectively. The celecoxib group had 26 females and 24 males, whereas the placebo group had 29 females and 19 males ($P = .42$). The most common surgical procedures were labral repair (31 patients in the celecoxib group and 29 patients in the placebo group), and labral repair with acetabular osteoplasty (13 patients in the celecoxib group and 11 patients in the placebo group). There were no significant differences in procedures performed between the 2 groups ($P > .05$). At 1 hour postoperatively, patients who received celecoxib had a lower pain score that was statistically significant compared with the placebo group (4.6 vs 5.4, $P = .03$). There was a significant difference in discharge time between patients who received celecoxib and the control group (152.9 minutes vs 172.9 minutes, $P = .04$). There was no significant difference found in morphine equivalents consumed in the postanesthesia care unit between the 2 groups (15.3 vs 15.4, $P = .48$). **Conclusions:** A preoperative dose of 400 mg of celecoxib led to statistically significantly reduced patient-reported pain on the VAS in the acute postoperative period after hip arthroscopy surgery, though the difference is not likely clinically significant. There was a significantly shorter time to discharge in patients who received celecoxib versus placebo. **Level of Evidence:** Level I, randomized controlled trial.

Over the past decade, hip arthroscopy has become increasing prevalent for addressing hip pain in younger patients.[1,2] Although arthroscopic hip surgery has significantly less morbidity compared with open procedures to treat similar pathology,[3] postoperative pain continues to be an evolving domain with no strict guidelines. Prolonged hospital stays, delayed recovery, poor outcomes, and greater consumption of health care resources may be the result of inadequate perioperative pain management.[4,5]

Celecoxib has the distinct properties of rapid absorption, high oral bioavailability, and preferential distribution into inflamed tissue.[6] In addition, COX-2

From the Department of Orthopaedic Surgery, Northwestern University, Feinberg School of Medicine, Chicago, Illinois, U.S.A.

The authors report the following potential conflicts of interest or sources of funding: M.A.T. receives support from Smith & Nephew, Saunders/Mosby-Elsevier, and Arthrex.

Received June 1, 2016; accepted January 3, 2017.

Address correspondence to Cynthia A. Kahlenberg, M.D., Hospital for Special Surgery, 535 East 70th Street, New York, NY 10021, U.S.A. E-mail: cynthia.kahlenberg@gmail.com

© 2017 by the Arthroscopy Association of North America

0749-8063/16466/$36.00

http://dx.doi.org/10.1016/j.arthro.2017.01.016

inhibitors like celecoxib may also prevent heterotopic bone formation, which has been implicated as a sequelae of hip arthroscopy.[7] One recent study showed that 200 mg of celecoxib administered 1 hour preoperatively in patients with spinal anesthesia led to improved pain at 12 and 24 hours postoperatively and higher physical composite scores at the same time points.[8]

The purpose of this prospective randomized, double-blinded controlled study was to determine whether 400 mg of celecoxib administered 1 hour before hip arthroscopy surgery would reduce pain, provide reduction in overall narcotic consumption, and lead to more rapid discharge from recovery rooms. We hypothesized that patients who received preoperative celecoxib would experience less pain in the immediate postoperative period compared with patients who received placebo. We additionally hypothesized that patients who received preoperative celecoxib would require less narcotic pain medication in the immediate postoperative period, and would be ready for discharger from the postanesthesia care unit (PACU) earlier than patients who received placebo.

Methods

After ethics approval by the Institutional Review Board at our institution, 119 patients who underwent hip arthroscopy surgery for femoroacetabular impingement between February 2013 and June 2015 were approached on the day of surgery for this study. This study was registered with www.clinicaltrails.gov (registration number NCT02779166; registration date May 13, 2016). An a priori power analysis was done set to detect a difference of 0.50 on the visual analog scale (VAS), based on the senior author's (M.A.T.) preference. The number of patients planned for recruitment was rounded up to 100 to allow for flexibility in the study. This was an effectiveness trial based on routine clinical practice at our intuition.

The study design was a double-blinded randomized controlled trial where both the surgical team and the patient were blinded from the treatment they received. Inclusion criteria were any patient at least 18 years old who underwent hip arthroscopy surgery performed by the senior author. All patients had less than Tönnis grade 2 arthritis. Exclusion criteria were allergy to sulfa-based drugs, prior adverse reaction to celecoxib, or patients who were on chronic narcotics for whom alternative pain management regimens were arranged before surgery. Randomization was performed on a 1:1 basis in blocks of 10 using sealed envelopes stating celecoxib or placebo. Randomization was performed by a third party, assuring that all research personnel as well as the patients were blinded to the treatment group. All patients underwent general endotracheal intubation for surgery and no nerve blocks were used. All surgeries were performed supine on a hip distractor table. At 1 hour before hip arthroscopy surgery, all patients received 2 pills containing either a lactose-based placebo in both pills or 200 mg celecoxib in each pill, for a total dosage of 400 mg celecoxib. The dose of 400 mg of celecoxib was chosen because it was previously used for perioperative pain management in knee arthroscopy, as reported by Ekman et al.[9] All patients then underwent hip arthroscopy performed by the senior author and were subsequently taken to the recovery room and discharged from the surgery center on the day of surgery.

Patient demographics, including age, gender, and specific procedures performed during hip arthroscopy surgery, were collected from the medical record. Patients were evaluated preoperatively on the day of surgery using the VAS for pain. The pain scale was administered verbally, and patients were asked the questions, "Please rate your current pain level on a scale from 0 to 10 with 0 indicating no pain and 10 being the worst pain imaginable." Pain scores were measured immediately on leaving the operating room and at 1 hour and 2 hours postoperatively using the VAS. Pain medication was administered to all patients based on a normal protocol in the PACU, and included acetaminophen-hydrocodone tablets for mild or moderate pain and intravenous hydromorphone for severe pain. Time from leaving the operating room to the point that the patient met our institutional criteria for discharge (based on a 20-point nursing score) was also reported. Furthermore, total narcotic consumption in the postoperative care unit was calculated in morphine equivalents.

Statistical Analysis

Patient outcomes were analyzed using a 1-tailed Student's *t*-test. Significance was defined as $P < .05$. The 1-tailed *t*-test was used in this study because our interest was to determine whether patients who received celecoxib had superior scores than those who did not. Because only one side of the distribution was of concern, a 2-tailed test was not used.

Results

Twenty-one patients were excluded because of patient refusal (n = 9), reported allergy to sulfa drugs (n = 7), prior patient-reported adverse reaction to celecoxib (n = 2), and postoperative pain regimens that had been arranged preoperatively in consultation with pain management service (n = 3). Ninety-eight patients were available for randomization. Fifty were randomized to receive 400 mg of celecoxib and 48 were randomized to receive placebo (Fig 1). Table 1 states the surgical procedures performed in each group. There were no significant differences in procedures performed between the 2 groups ($P > .05$).

Download English Version:

https://daneshyari.com/en/article/5706265

Download Persian Version:

https://daneshyari.com/article/5706265

Daneshyari.com