Comparison of Adjunctive Use of Rofecoxib versus Ibuprofen in the Management of Postoperative Pain after Uterine Artery Embolization

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PURPOSE: The primary purpose of the present study was to compare the antiinflammatory effectiveness of rofecoxib with that of ibuprofen in the first 5 days after uterine artery embolization (UAE). The secondary aim was to compare pain levels and narcotic use among patients treated with different embolic agents.

MATERIALS AND METHODS: From July 2003 to June 2004, 68 UAE procedures were performed by one of the authors (D.M.H.). Of this group, 50 women agreed to participate in this study. Exclusion criteria were limited to contraindication to either drug or current steroid or nonsteroidal antiinflammatory drug use. In a randomized, double-blinded fashion, patients received a numbered pill box that contained one of the two agents and its placebo counterpart. Four times per day for 5 days, patients recorded their level of pain on a visual analog scale and the amount of narcotic analgesic drug needed at that time. Score sheets were returned by mail after completion. During the course of the study, three embolic agents (Gold Embospheres, Contour SE particles, and Embospheres) were used in succession, with similar numbers of patients in each group.

RESULTS: Four patients were excluded from analysis: two who were readmitted to the hospital for treatment of pain (one treated with each antiinflammatory medication) and two who failed to complete their score sheets. Subject demographics were very similar with respect to antiinflammatory drug treatment and embolic agent, except that the average age of patients in the Embosphere group was 6 years older than in the Embosphere Gold and Contour SE groups ($P = .02$). There was no difference in the pain level and narcotic drug intake between the two drug arms, but among embolic agents, the Embosphere Gold group tended to have a higher overall average pain score ($P = .12$), and the two patients readmitted were in this group. Patients in the Contour SE group tended to use a lower amount of narcotic drug than those in the other two embolic agent groups ($P = .09$).

CONCLUSIONS: There was no difference between rofecoxib and ibuprofen with respect to postprocedural pain or narcotic use after UAE. Embolic agent appeared to have a greater impact, with patients in the Embosphere Gold group reporting higher pain scores and those in the Contour SE group requiring a lower amount of narcotic drug than those in the Embosphere Gold or Embosphere groups.

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Abbreviations: COX-2 = cyclooxygenase-2, NSAID = nonsteroidal antiinflammatory drug, UAE = uterine artery embolization

FOR many of the estimated 5.5 million women in the United States with symptomatic uterine leiomyomas, uterine artery embolization (UAE) is beneficial in the treatment of menstrual disturbance and pelvic mass effect and is associated with a very low risk of complications (1). The procedure is usually quick and well tolerated, but the immediate postprocedural recovery period can be accompanied by cramps and pain that can linger for several days (2).

Convalescence after many surgical procedures usually relies on narcotic analgesic drugs, and their effectiveness can be enhanced with the adjunctive use of nonsteroidal antiinflamma-

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Table 1
Patient Data Based on Analgesic Treatment ($N = 50$)

Measure	Ibuprofen	Rofecoxib	*P* Value
Mean Age (y)	46	44	.32
Race			.39
Black	9 (41)	13 (54)	
White	13 (55)	11 (46)	
Indian	1 (5)	0	
Embolic Agent			.55
Gold Embospheres	7 (32)	6 (25)	
Contour SE particles	8 (36)	7 (29)	
Embospheres	7 (32)	11 (46)	
Body mass index	30.5	28.6	.50

Note.—Values in parentheses are percentages. There was no statistically significant difference between groups in terms of any characteristic.

tory drugs (NSAIDs) (3). NSAIDs and opioid narcotics have different mechanisms of action, and the synergy of the combination of the two improves analgesia without increasing the likelihood of side effects (4).

Most interventional radiologists who perform UAE have also come to realize the benefit of such combined analgesic therapy. The NSAID most commonly used for this purpose is ibuprofen, which is available without a prescription and is very inexpensive. Two potential drawbacks to ibuprofen use are the frequency with which it must be administered and the common sequela of stomach upset. These can potentially affect patient compliance.

With the advent of the subclass of NSAIDs that are selective inhibitors of cyclooxygenase-2 (COX-2), the potential for single daily dosing (specifically with rofecoxib; Vioxx; Merck, West Point, PA) and the possibility of fewer adverse effects offered a distinct advantage in comparison with existing agents. However, the whole class of COX-2 inhibitor medications has come under extreme scrutiny because of safety issues with long-term high-dose use, and rofecoxib and valdecoxib (Bextra; Merck) have been withdrawn from the market, perhaps indefinitely. This study was undertaken and completed before this turn of events. Because one of the indications approved by the U.S. Food and Drug Administration for the use of rofecoxib was short-term treatment of postoperative pain, it may be that some COX-2 inhibitors may be made available for this indication.

The present study attempted to compare rofecoxib with ibuprofen in the 5-day recovery period after UAE. Our primary goal was to compare the effectiveness of the two medications in a randomized, double-blinded, placebo-controlled trial. Our secondary purpose was to evaluate the reported pain scores and narcotic use in relation to the use of three commonly used embolic agents: Gold Embospheres (Biosphere Medical, Rockland, MA), Contour SE particles (Boston Scientific, Natick, MA), and Embospheres (Biosphere Medical).

MATERIALS AND METHODS

From July 2003 to June 2004, 68 UAE procedures were performed at a single institution by one of the authors (D.M.H.). The study was performed with the approval of the institutional review board. All procedures were performed in a similar fashion, including the use of microcatheters, routine use of vasodilators, and a standardized endpoint of near-stasis. There were no anatomic variations that created technical difficulties necessitating deviation from the usual bilateral UAE from a point in the transverse or ascending portion of the uterine arteries or the need for embolization of ovarian artery contributions.

From this group of consecutive patients, 50 women agreed to participate in the study. The median (and median) age was 44.9 years (range, 29–74 y), and the racial distribution was 25 white patients, 24 black patients, and one patient of Indian descent. During the course of the study, three embolic agents—Gold Embospheres, Contour SE particles, and Embospheres—were used in succession, with similar numbers of patients in each group.

Exclusion criteria consisted of contraindication to either drug or ongoing steroid or NSAID use. Of the 18 women who declined to participate, four did so because of a history of intolerance of one or both drugs. Four women were excluded from data analysis, two because they were readmitted within 3 days of the procedure because of severe pelvic pain (both black; one each in the rofecoxib and ibuprofen groups; both in the Gold Embosphere group) and two because they failed to complete their score sheets (one white, one black; both in the ibuprofen group; one in the Gold Embosphere group and one in the Contour SE group). The demographic data of the 46 patients who were included in the data analysis are detailed in **Tables 1, 2**.

In a randomized, double-blinded fashion, each patient received a numbered pill box that contained one of the two agents and its placebo counterpart. Patients began taking them the morning after the UAE as they underwent conversion from intravenous to oral drug therapy. Four times per day for the first 5 days, at each dosing interval, patients were asked to record their level of pain on a visual analog scale and the amount of narcotic analgesic drug needed at each interval. For this purpose, they received a score sheet that included three sections: a 4 $\times$ 5 grid to keep track of their daily entries and corresponding grids for the pain scores and narcotic drug use. They also made note of whether extra narcotic drug was taken at additional times beyond the four scheduled intervals, and this information was also analyzed.

Patients were provided a contact number to call if they had questions. They were also instructed to leave blank any boxes for missed intervals and not to be worried about making mistakes, so information about possible compliance issues could also be gathered. Score sheets were returned by mail after completion in self-addressed, stamped envelopes that were attached. A clinical coordinator contacted patients the day after anticipated completion as a reminder and to