

Evaluation and management of post-shock wave lithotripsy pain with third-generation lithotriptors using rofecoxib

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Introduction: Newer generation lithotriptors have been modified to induce less pain. We evaluated factors contributing to post-shock wave lithotripsy (SWL) pain and assessed potential benefits of preemptive analgesia using Rofecoxib, a COX-II inhibitor, and potential effects on stone passage rates.

Materials and Methods: Sixty-nine patients were evaluated. Thirty-eight percent were women and 62% men, with a mean age of 53. Seventy-four patients treated using Dornier lithotripter-50 were enrolled in a prospective, double-blind, randomized study. The study group received 50 mg of rofecoxib 1 hour before extracorporeal shockwave lithotripsy (ESWL) and 24 hours later. The control group received no pretreatment medications. All patients were discharged with narcotic medications and contacted on postoperative days (POD) 1, 3, and 7. Questionnaires were administered to assess pain control using a numeric pain scale.

Results: Seventy-two percent had renal stones, and 28% ureteral, with a mean size of 10 mm. The mean pain score was 4.2 immediately after SWL, 3.4 on POD 1, 1.9 on POD 3, and 0.6 on POD 7. Multivariate analysis revealed a significant decrease in pain with time ($p < 0.0001$). Patients with severe pain before SWL had more pain after treatment ($p = 0.003$). Older patients had less pain post-SWL ($p = 0.045$). Pretreatment with Rofecoxib significantly reduced post-SWL pain from 5.04 to 4.03 ($p < 0.0001$). Other variables had no effect on posttreatment pain.

Conclusions: Pain after SWL is moderate to severe using third-generation lithotriptors and is significantly reduced by POD 3. Younger patients and those with significant pretreatment pain had more pain after treatment. Preemptive Rofecoxib reduced post-SWL pain, but had no impact on stone passage.

Editorial Comment

Rofecoxib was administered for only 24 hours. There may have been some utility in extending its' use for one week after SWL, both for pain relief and to promote stone passage. The authors note that the study was terminated early with the removal of Rofecoxib from the market for cardiac concerns, yet they do not report their sample size calculations, or what percentage of target accrual they reached. As such, it is difficult to determine the probability of a type 2 error due to underpowering of the study.

Over 30% of patients in the study underwent ureteral stenting - it would be interesting to evaluate the utility of Rofecoxib in this subset of patients - does it alleviate stent discomfort?

This article contributes greatly to our understanding of pain with SWL. First, it quantifies the natural progression of pain after SWL - moderate-severe (5 or 10) for the first 2 days, subsiding almost completely by Day 7. Secondly, it identifies patients with a higher risk of significant pain post-operative - younger patients, and those with pre-SWL pain. These subsets would warrant further investigation in the future to identify effective adjuvant analgesic approaches.

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