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A comparison of crushed ice and continuous flow cold therapy

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PMID: 11281337

Abstract

Crushed ice was compared to continuous flow cold therapy for control of postoperative pain after arthroscopic patellar tendon autograft anterior cruciate ligament (ACL) reconstruction. With all other variables held constant, cold was administered by either continuous flow (group 1) or crushed ice (group 2). The cold therapy was constant for 3 days, then as needed in days 4 through 7. Data were collected by investigator evaluations and patient diaries. Pain was assessed by visual analog scale (VAS) and categorical pain scale (Likert). Eighty-seven patients were included (52 continuous flow and 35 crushed ice). Continuous passive motion averaged 54 hours for group 1 and 43 hours for group 2 (P<.05). Knee motion at one week averaged more (5 degrees/88 degrees) for group 1 (flexion range: 48 degrees-155 degrees) than for group 2 (6 degrees/77 degrees) (flexion range: 25 degrees-125 degrees) (P=.03). Likert pain scores for group 2 patients were always statistically greater than group 1 patients from the first hour through postoperative day 6 (P<.01). The average VAS pain was always greater for group 2 and statistically greater for postoperative day 1 (P<.01). Hydrocodone bitartrate with acetaminophen use in group 2 was greater than in group 1 for postoperative days 1 (P<.001) and 2 (P=.035). The respective cold modality VAS measured performance was 9.1 for group 1 and 7.8 for group 2 (P<.01). During postoperative days 4 through 6, group 1 patients applied their cold modality for 47.9 hours but group 2 patients applied their cold modality for 29.5 hours (P<.01). Compared to crushed ice, continuous flow cold therapy lowered VAS and Likert pain scores more, reduced hydrocodone bitartrate with acetaminophen use, was used more often, increased continuous passive motion, increased 1-week knee flexion, and was given significantly higher performance ratings by patients. Continuous flow cold is superior to crushed ice for outpatient ACL reconstruction pain and should not be considered an equivalent modality.

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