Comparison of Intra-articular Dexmedetomidine and Magnesium in Postoperative Pain

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Objectives: Arthroscopic meniscus surgeries are the most frequent day-case orthopedic procedures. However, these surgeries can lead to pain at various levels. This study's objective is to compare the efficacy of magnesium sulfate and dexmedetomidine in combination with local anesthetics to be given intraarticularly for postoperative pain management in patients undergoing arthroscopic meniscectomy under spinal anesthesia.

Design and Subjects: Fifty-two patients aged between 18 and 65 years with American Society of Anesthesiologists physical status I or II who were scheduled for elective arthroscopic meniscectomy (right or left) under spinal anesthesia were included in this prospective, randomized, double-blind study.

Methods: Patients were randomly assigned to group D (bupivacaine + dexmedetomidine) or group M (bupivacaine + magnesium sulphate). Following skin closure at the end of the procedure, 10 minutes before the tourniquet release, 10 mL of study solution was injected intraarticularly. Perioperative data, postoperative visual analogue scale (VAS) scores at the 2nd, 4th, 6th, 8th, 12th, and 18th hours, and total analgesic consumption were recorded.

Statistical Analysis: For continuous variables, the Kolmogorov-Smirnov test was used for the normality of data distribution and followed by the Mann-Whitney U test when a significant difference was found ($p<0.05$). For intergroup comparisons of categorical data, Pearson's Chi-square test or Fisher's exact test was applied. Wilcoxon's signed-ranks test was used for intragroup comparisons of VAS scores. All data are presented as means (SD), median (min max) or numbers as appropriate. $P < 0.05$ was considered to be statistically significant.

Ethical Consideration: This study protocol was approved by the research ethics committee of Kocaeli University (Institutional Review Board, KIA 2018/92, Approval Date: February 20th, 2018), written informed consent was obtained from all subjects participating in the trial and all procedures followed were in accordance with the ethical standards of the responsible committee on human experimentation and with the Helsinki Declaration of the World Medical Association.