

Manipulation under Anesthesia in Cruciate-Retaining versus Posterior-Stabilized Primary Total Knee Arthroplasty - Is There a Difference?

Sarag Abhari¹, Brett Royster, Kyle Marten Altman, Langan S Smith², Madhusudhan Reddy Yakkanti³, Arthur L Malkani¹
¹University of Louisville, ²UofL Health, ³Louisville Orthopaedic Clinic

INTRODUCTION:

Stiffness leading to manipulation under anesthesia (MUA) is not uncommon following total knee arthroplasty (TKA). The etiology of stiffness necessitating MUA is multifactorial. The purpose of this study was to determine if implant design plays a role in postoperative contracture following TKA by comparing MUA incidence in cruciate-retaining (CR) versus posterior-stabilized (PS) TKA.

METHODS:

A total of 1,829 consecutive primary TKAs were reviewed and 140 (7.6%) patients who underwent MUA were identified. In total, 1,025 patients (56%) underwent CR TKA while 804 patients (44%) underwent PS TKA using the same implant design, surgical protocols, and technique. Indications for MUA included failure to achieve 105 degrees of flexion at 6 weeks postoperatively. Preoperative range of motion (ROM), gender, age, and body mass index (BMI) were analyzed between the CR and PS groups along with a control group who did not undergo MUA to identify risk factors for stiffness.

RESULTS:

A higher percentage of patients in the CR group required MUA vs. the PS group, 8.4% vs. 6.7%, but this did not reach statistical significance, $p=0.18$. CR group had greater mean preoperative flexion compared to the PS group, 114 degrees vs. 104 degrees, $p=.001$. More females underwent MUA than males in both groups: 79% vs. 21% in CR group, $p=.036$; and 63% vs. 37% in the PS group, $p=.029$. Mean age of MUA patients in the CR group vs. control group that did not require MUA was 62 vs. 66 years, $p<.0001$; and in the PS vs control group was 60 vs. 64 years, $p<.0001$. Mean BMI was also lower in both MUA groups vs. control: 30 vs. 33 kg/m^2 in CR group, $p=.0004$; 31 vs. 34 kg/m^2 in PS group, $p=.004$.

DISCUSSION AND CONCLUSION:

Despite greater preoperative ROM, a higher percentage of patients in the CR group underwent MUA at 6 weeks compared to PS group. Risk factors for MUA in this study included younger age, female gender, and lower BMI in both CR and PS groups.