Hinged-Knee Brace Use Effect on Range of Motion Following Tibial Plateau ORIF

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Purpose: The use of a postoperative hinged knee brace following tibia plateau fracture open reduction and internal fixation (ORIF) is based largely on surgeon preference and continues to be debated. The purpose of this study is to compare the knee range of motion (ROM) between patients who used hinged knee braces (HKB group) versus those who did not (No-HKB group) after tibial plateau ORIF.

Methods: A retrospective study was performed at a single Level I trauma center between 2013 and 2023. All patients who underwent ORIF of a tibial plateau fracture were included. This cohort included 154 lateral condyle factures, 23 medial condyle fractures, and 201 bicondylar fractures. ROM was collected at 3, 6, 9, 12, and >12 months. Mann-Whitney U tests were used to assess for significance.

Results: 368 patients met inclusion criteria: 234 patients in the HKB group and 134 patients in the No-HKB group. Patients in the No-HKB group achieved greater knee flexion at 3-month follow-up compared to the HKB group (100.5° ± 25.1 vs 95.2° ± 25.3; P = 0.054). However, by 9-month follow-up, patients in the HKB group achieved greater knee flexion (120.0° ± 18.3 vs 125.6°±18.2; P = 0.026) and total knee ROM (118.9° ± 18.8 vs 124.6° ± 19.5; P = 0.029) than the No-HKB group. Patients in the HKB group achieved greater extension (2.0° ± 4.1 vs 2.7° ± 5.2; P = 0.051) at 3-month follow up. No significant differences in ROM were found at 12 months or >12 months.

Conclusion: This study suggests that use of a hinged knee brace does not significantly affect 1-year knee ROM following tibial plateau fracture. However, differences were seen between both groups in the rate at which the ROM in their knee improved. This information can guide surgeons on whether they believe hinged knee brace use will benefit their tibial plateau patients.