Impact of Posterior Tibial Slope Changes on Total Knee Arthroplasty Outcomes: A Minimum 5-Year Follow-Up Analysis of 793 Knees

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INTRODUCTION:
The influence of posterior tibial slope (PTS) on total knee arthroplasty (TKA) outcomes remains unclear, particularly in the context of posterior-stabilized (PS) prostheses. This study aimed to assess the impact of significant changes in tibial plateau PTS on functional results and complication rates. The hypothesis was that a change ≤ 10° would yield the best outcomes.
METHODS:
A retrospective, single-center comparative study was conducted, involving 793 knees with a minimum 5-year follow up. Clinical, radiological, and functional data were collected. The cohort was divided into two groups based on the change in PTS (Group 1: ≤ 10°, n=703; Group 2: >10°, n=90).
RESULTS:
The mean follow-up duration was 75.5 months ± 19.1. Group 1 had a mean postoperative PTS of 1.6 ± 1.67°, while Group 2 had 0.9 ± 1.8° ($p<0.001$). The change in PTS was 4.96° ± 3.24 in Group 1 and 12.7° ± 1.87 in Group 2. No significant differences were observed between the groups in terms of International Knee Society (IKS) scores, maximum flexion, or complication rates.
DISCUSSION AND CONCLUSION:
Although the relationship between tibial slope and maximum flexion after PS-TKA has been debated, no previous studies have evaluated the clinical consequences of significantly altering the native tibial slope. Contrary to the hypothesis, a change >10° in tibial slope with a PS prosthesis did not negatively affect medium-term outcomes.