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A Prospective Study of the Effect on the Proximal Tibial Cut Using an Intramedullary Versus Extramedullary Tibial Alignment Guide in Total Knee Replacement

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ABSTRACT

Objective: To determine whether the final alignment of the lower limb after total knee replacement could be affected by the choice of tibial alignment guide.

Patients and Methods: Forty eight patients undergoing 68 total knee replacements with posterior stabilising type implants were analysed. The patients were randomised into 2 groups, for which either intramedullary or extramedullary tibial alignment guides were used for the proximal tibial cut.

Results: For patients in the extramedullary group, the preoperative mechanical angle of the lower limb measured 188.98º ± 16.16º. The postoperative mechanical angle was 183.30º ± 3.12º. For patients in the intramedullary group, the preoperative mechanical angle was 193.14º ± 11.20º and the postoperative mechanical angle was 182.93º ± 2.55º. Both groups showed a statistically significant difference in terms of preoperative and postoperative mechanical angles (p < 0.05). The tibial component angles were measured on the postoperative radiographs. In the extramedullary group, the tibial component angles was 89.08º ± 2.66º. The tibial component angles in the intramedullary group were 88.75º ± 2.58º. These 2 values did not show any statistically significant difference. Twenty nine knees (72.5%) showed an ideal tibial component angle in the extramedullary group compared with 20 knees (71.4%) in the intramedullary group. Again, there was no statistically significant difference.

Conclusion: The use of either intramedullary or extramedullary alignment guides for the proximal tibial are acceptable for total knee replacement.

Key Words: Extramedullary, Intramedullary, Mechanical angle