

**Intramedullary Nailing for the Treatment of Distal Tibial Fractures:
A Matched Comparison Between Suprapatellar and Infrapatellar Approaches***Joon-Woo Kim, MD, PhD, FIOTA; Chang-Wug Oh, MD, PhD; Seung-Ho Chung, MD*

Purpose: This study aimed to analyze and compare the clinical and functional outcomes of distal tibial fractures treated with intramedullary nailing (IMN) using the suprapatellar (SP) and infrapatellar (IP) surgical approaches.

Methods: A comparative study of 56 patients with a distal tibial fracture who underwent IMN with either an SP or IP approach was performed. Each group consisted of 28 patients. The SP group comprised 15 men and 13 women, with a mean age of 66 years. These included 7 type A, 14 type B, and 7 type C fractures. The IP group comprised 20 men and 8 women, with a mean age of 59 years. These included 7 type A, 14 type B, and 7 type C fractures. Surgical time, healing rate and time, and functional assessment using Lysholm knee score were analyzed and compared between the 2 groups. The anterior distal tibial angle and the lateral distal tibial angle were measured to analyze the alignment. The rotational alignment was evaluated using a CT scan. A difference of $>5^\circ$ in the coronal and sagittal plane and $>8^\circ$ in rotational alignment was defined as a malalignment.

Results: A bony union was achieved in all cases of the SP group by a mean of 16.4 weeks postoperatively. In the IP group, 27 of 28 cases healed by a mean of 17.4 weeks. There was no statistically significant difference in surgical time ($P = 0.216$), union rate ($P = 1.0$), and union time ($P = 0.362$) between the 2 groups. The Lysholm knee score of the SP group was 90, and that of the IP group was 89.9, which showed no difference ($P = 0.275$). In the SP group, there were 2 cases of coronal malalignment and 0 cases of sagittal malalignment, whereas there were 7 cases and 11 cases of coronal and sagittal malalignment in the IP group, which showed significant difference ($P = 0.024$ and <0.001 , respectively). Although there were 2 cases of rotational malalignment in the SP group and 6 cases in the IP group, it was not significantly different ($P = 0.252$).

Conclusion: IMN for the treatment of the distal tibial fracture using both SP and IP approaches showed excellent radiological and functional outcomes. The result showed a lower rate of malalignment with the SP approach than with the IP approach.