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Relationship between the knee and hindfoot axes among patients with advanced gonarthrosis

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ABSTRACT

Introduction: The relationship between knee and hindfoot alignment is intuitive, but the number of studies on associated deformities remains limited. The objective of this study is to assess the correlation between the femorotibial joint axis and the hindfoot axis in patients with advanced gonarthrosis.

Methods: The knee and hindfoot axes were assessed in 72 patients with indications for total knee replacement. Knee radiographs and long axial view radiographs of the hindfoot were acquired from all patients. The hindfoot/ankle function of the patients was assessed using the American Orthopedic Foot and Ankle Society (AOFAS) scale. Statistical analysis was performed at a maximum significance level of 5%.

Results: The sample included 24 (33.3%) men and 48 (66.7%) women with a mean age of 58.7 years. The results showed that 79.2% subjects had genu varum (mean: $15°±7.69$), and 20.8% had genu valgum (mean: $15.9°$) ($p>0.05$); 46 (63.89%) patients had hindfoot varus (mean: $8.5°±6.07$), and 26 (36.11%) had hindfoot valgus (mean: $3.9°±3.92$). We observed a significant association between the knee and hindfoot axes ($p<0.05$). There was no significant correlation only between genu valgum–hindfoot varus ($p<0.05$). The mean AOFAS score was 74.26 points, with significantly higher scores among patients with hindfoot varus. The AOFAS score was correlated with the hindfoot and knee axes ($P<0.05$).

Conclusion: The knee and hindfoot axes were associated in patients with advanced gonarthrosis. In addition, the patients with hindfoot varus showed better ankle function according to the AOFAS score.

Keywords: Knee osteoarthritis; Arthroplasty, replacement, knee.