

عنوان مقاله:

Different References for Valgus Cut Angle in Total Knee Arthroplasty

محل انتشار:

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خلاصه مقاله:

Background: The valgus cut angle (VCA) of the distal femur in Total Knee Arthroplasty (TKA) is measured preoperatively on three-joint alignment radiographs. The anatomical axis of the femur can be described as the anatomical axis of the full length of the femur or as the anatomical axis of the distal half of the femur, which may result in different angles in some cases. During TKA, the anatomical axis of the femur is determined by intramedullary femoral guides, which may follow the distal half or near full anatomical axis, based on the length of the femoral guide. The aim of this study was to compare using the anatomical axis of the full length of the femur versus the anatomical axis of the distal half of the femur for measuring VCA, in normal and varus aligned femurs. We hypothesized that the VCA would be different based upon these two definitions of the anatomical axis of the femur. **Methods:** Full-length weight bearing radiographs were used to determine three-joint alignment in normal aligned (Lateral Distal Femoral Angle; LDFA = $87^{\circ} \pm 2^{\circ}$) and varus aligned (LDFA > 89°) femurs. Full-length anatomical axis-mechanical axis angle (angle 1) and distal half anatomical axis-mechanical axis angle (angle 2) were measured in all subjects by two independent orthopedic surgeons using a DICOM viewer software (PACS). Angles 1 and 2 were compared in normal and varus aligned subjects to determine whether there was a significant difference. **Results:** Ninety-seven consecutive subjects with normally aligned femurs and 97 consecutive subjects with varus aligned femurs were included in this study. In normally aligned femurs, the mean value of angle 1 was $5.05^{\circ} \pm 0.76^{\circ}$ and for angle 2 was $3.62^{\circ} \pm 1.19^{\circ}$, which were statistically different ($P = 0.0001$). In varus aligned femurs, the mean value of angle 1 was $5.42^{\circ} \pm 0.85^{\circ}$ and for angle 2 was $4.23^{\circ} \pm 1.27^{\circ}$, which were also statistically different ($P = 0.0047$). **Conclusion:** The two different methods of outlining the anatomical axis of the femur lead to different results in both normal and varus-aligned femurs. This should be considered in determination of the valgus cut angle on preoperative radiographs and be adjusted according to the length of the intramedullary guide.

کلمات کلیدی:

Anatomical axis, Preoperative planning, Total knee arthroplasty, Valgus cut angle

