Analysis of the variability of a new angular measurement for hallux valgus

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My disclosure is in the Final AOFAS Program Book and in the Orthopaedic Surgeon’s Disclosure Program database.

I have no potential conflicts with this presentation
Introduction:

• Intermetatarsal angle (IMTT): is the most common objective parameter used for selecting procedures to treat HV


• Angle to be corrected: A new angle measured between a line representing the first metatarsal axis and a line drawn from the base of the first metatarsal passing distally through the midpoint of the sesamoid complex. Represents the angular correction needed to place the metatarsal head over the sesamoid complex

  Wolfgang Sch., et al. Reproducibility of the radiographic metatarsophalangeal angle in hallux surgery. JBJS Am. 2003
Objective:

- To evaluate interobserver variability for the measurement of the IMTT and the “angle to be corrected” in patients with and without hallux valgus
Methods:

• In this retrospective study 63 patients were included:
  – 28 pts with HV (48 feet)
  – 35 pts without HV (48 feet)

• Measurements:
  – IMTT angle
  – Angle to be corrected
  – All measurements were made by 3 observers (TMT)
  – All Rx were taken at the same center and using the same technique.

• The test of variances was used for statistical analysis
Results:

- Patients with HV:
  - IMTT 13.62° (SD 3.31, variability coefficient 0.243)
    The difference between the observers was not significant.
  - Angle to be corrected 8.91° (SD 3.74, variability coefficient 0.42)
    The difference between the observers was not significant.

- The analysis of the variances between the two measurements was not significant.
Results:

• Pts without HV:
  - IMTT 7.65° (SD 1.87, variability coefficient 0.244)
    The difference between the observers was not significant
  - Angle to be corrected 3.56° (SD 1.49, variability coefficient 0.419)
    The difference between the observers was not significant

• The analysis of the variances between the two angles measured showed a greater variance in the IMTT angle
Discussion:

- The IMTT angle is a useful tool in the prooperative planning for the treatment of HV


- In HV the metatarsal head moves off the sling of the sesamoid and intersesamoid ligament

Conclusion:

• The “angle to be corrected” presents a similar interobserver variability as the IMTT angle, in hallux valgus and non-hallux valgus patients.

• As this new angle is designed to be used in hallux valgus deformities, we think that it is a useful tool in the preoperative planning as it helps to choose the technique to use in a certain case.
Bibliography:

- Wolfgang Sch., et al. Reproducibility of the radiographic metatarsophalangeal angle in hallux surgery. JBJS Am. 2003
- Tanaka Y., et al. Precise anatomic configuration changes in the first ray of the hallux valgus foot. FAI 2000