

# **NO CLINICAL OUTCOME DIFFERENCE BETWEEN VARUS PHENOTYPES AFTER MEDIAL OPENING-WEDGE HIGH TIBIAL OSTEOTOMY AT 2 YEARS FOLLOW-UP**

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## **ABSTRACT**

### **PURPOSE**

Clinical studies regarding medial open-wedge high tibial osteotomy (MOWHTO) often analyse a large group of mechanical varus knees rather than differentiating for its primary varus-inducing component. This study aims to compare the radiological and clinical outcomes of the most prevalent varus malalignment phenotypes using the coronal plane alignment of the knee (CPAK) classification.

### **METHODS**

MOWHTO cases with minimal two year clinical follow-up were retrospectively selected from a knee osteotomy database (2016-2020). Based on the medial proximal tibial angle (MPTA) and lateral distal femoral angle (LDFA) subjects were allocated to the correct CPAK phenotype pre- and postoperatively. Clinical outcomes were the numeric rating scale (NRS), the knee injury and osteoarthritis outcome score (KOOS) and therapeutic response rate (TRR) at two year follow-up. Inter-observer correlation coefficient (ICC) and unpaired student t-test was performed for cross-phenotype comparison.

### **RESULTS**

One hundred thirty-five (135) subjects were found eligible (53.0 years old  $\pm$ 9.6 [19-77], 72% male, 53% left sided). The most prevalent preoperative phenotype was CPAK 1 (n=70 (52%)) and postoperative phenotype was CPAK 6 (n=66 (49%)). All CPAK phenotypes improved significantly relative to baseline but cross-phenotype comparison yielded no significant differences in clinical outcome. The TRR at two year was 67% for CPAK 1, 69% for CPAK 2 and 87% for CPAK 4. The TRR for CPAK 6 was 64% compared to 80% for the CPAK 9, which was not significantly different.

### **CONCLUSION**

At two years follow-up, no clinical significant differences are observed between different CPAK phenotypes. Accurate MOWHTO corrections provide significant clinical improvement even in the femoral-driven varus knee

and the constitutional varus knee dominated by intra-articular wear. The clinical indication for MOWHTO performance should not be reduced to the medial arthritic varus knee with underlying tibial varus alone.

**KEYWORDS**

High tibial osteotomy; Indication; Outcome; Knee; Alignment; Varus

**LEVEL OF EVIDENCE IV:** retrospective comparative study.