Abstract

Introduction: Distribution of CPAK types in Indian knees will help surgeons better understand management of knee arthritis using concept of Kinematic alignment (K.A.).

Methodology: A radiological analysis of 200 healthy knees (HC) and 250 osteoarthritic knees (OC) was done and were classified based on C.P.A.K. classification. C.P.A.K. uses a matrix of 9 phenotypes of knees based on arithmetic hip knee ankle angle (aHKA) and Joint Line Obliquity (JLO). Primary outcomes include descriptive analysis of OC and HC groups, and comparison between frequencies of types within each group.

Results: The commonest CPAK types in Healthy group were type 5, type 2, type 1. For arthritic group, common types in order were type 1,type 4 and type 2.The varus CPAK types (1,4,7) accounted for 34% of HC types while 59% of OC type, with odds of developing osteoarthritis in type 1 CPAK being 2.84 while that for type 4 were 2.02. Out of 450 knees studied 216 (48%) accounted for varus alignment.

 Conclusion: C.P.A.K. classification can reliably be used to predict the targets for KA TKR in Indian population. Constitutional varus being commoner in Indian knees (48%) than their western counterparts implies that majority of Indian knees are in varus dynamics, hence K.A. caters to majority of the population. Arthritic Indian populations are predominantly of types C.P.A.K. 1(34%) and 4(22%) which may point that these types are more prone to osteoarthritis. Further research is needed to understand which Indian knee types benefit the most from KA TKR.