

Survey on alignment strategies for TKA in Norway

Zulquarnain, O¹. Madsen¹, C. Apold, H¹.

Paper presentation. Norwegian Orthopaedic Association Autumn meeting 2023, Oslo.

¹Skien Hospital, Sykehuset Telemark Hospital Trust

Background: In 2023, approximately 8,500 primary total knee arthroplasties (TKAs) were performed in Norway, representing a twofold increase compared with 2005. Further growth is expected over the next decade. Despite advances in technique and implant design, 15–20% of patients remain dissatisfied following TKA. In efforts to improve outcomes, different alignment strategies have been discussed.

Mechanical alignment (MA) has traditionally been the dominant strategy. Advances in surgical instrumentation with adjustable jigs and tensioning devices have enabled adjusted mechanical alignment (aMA). In recent years, kinematic alignment (KA) has gained popularity, with reported satisfactory outcomes and no increase in revision rates. Functional alignment (FA), which requires computer navigation or robotic assistance to incorporate intraoperative information on bone resection and soft-tissue balance, is currently limited to a small number of hospitals in Norway.

Materials and Methods: In September 2023, a questionnaire was distributed to all Norwegian public hospitals performing TKAs, as identified by the Norwegian Arthroplasty Register. The survey assessed alignment strategies, routines for hip–knee–ankle (HKA) radiographs, and whether surgical planning was based on medial proximal tibial angle (MPTA) and lateral distal femoral angle (LDFA). Additional topics included implant selection, use of navigation or robotic systems, desired future use of technology, and surgeons' views on key factors influencing patient satisfaction.

The survey was completed by heads of knee arthroplasty units at 28 hospitals, representing 138 surgeons performing approximately 6,000 primary TKAs annually, corresponding to 70% of the national annual volume.

Results: MA was used by 39%, and aMA was used by 39%. Variants of kinematic alignment were used by 14%, and functional alignment by 7%. Navigation was used in 10% of hospitals (n=3), while no hospitals reported use of robotic systems. Preoperative HKA radiographs were routinely performed in 55% of hospitals. When asked about preferred future practice regardless of economic constraints, 67% expressed a desire to use computer navigation or robotic systems.

Regarding factors considered most important for patient satisfaction, patient selection was the most frequently cited, followed by the ability to deliver patient-specific alignment and adequate preoperative information. Increased surgical precision using navigation or robotics was also highlighted.

Conflicts of Interest: None.