smith&nephew

Supporting healthcare
professionals for over 150 years

NAVIO◇ robotic-assisted unicompartmental knee arthroplasty (UKA) demonstrated a lower revision rate and improved implant alignment compared to conventional UKA

No revisions occurred due to component malposition or limb malalignment with NAVIO

Accuracy

Study overview

- Retrospective case-control study comparing implant position and revision rate for UKA performed with NAVIO robotic-assisted or conventional technique
  - NAVIO group: 80 UKAs (lateral, 23; medial, 57; mean age, 69 years; mean length of follow-up; 19.7 months)
  - Conventional group: 80 UKAs (lateral, 23; medial, 57; mean age, 68 years; mean length of follow-up; 24.2 months)
- Implant position was assessed via radiographs at 1 year post-UKA
- Revision rate was calculated at the last follow up

Key results

- NAVIO group revision rate: 5% (lateral UKA, 0%; medial UKA; 7%)
  - Reasons for revision:
    - Change to a thicker polyethylene due to persistent medial pain (1)
    - Tibial plate subsidence (1)
    - Aseptic loosening of the tibial implant (1)
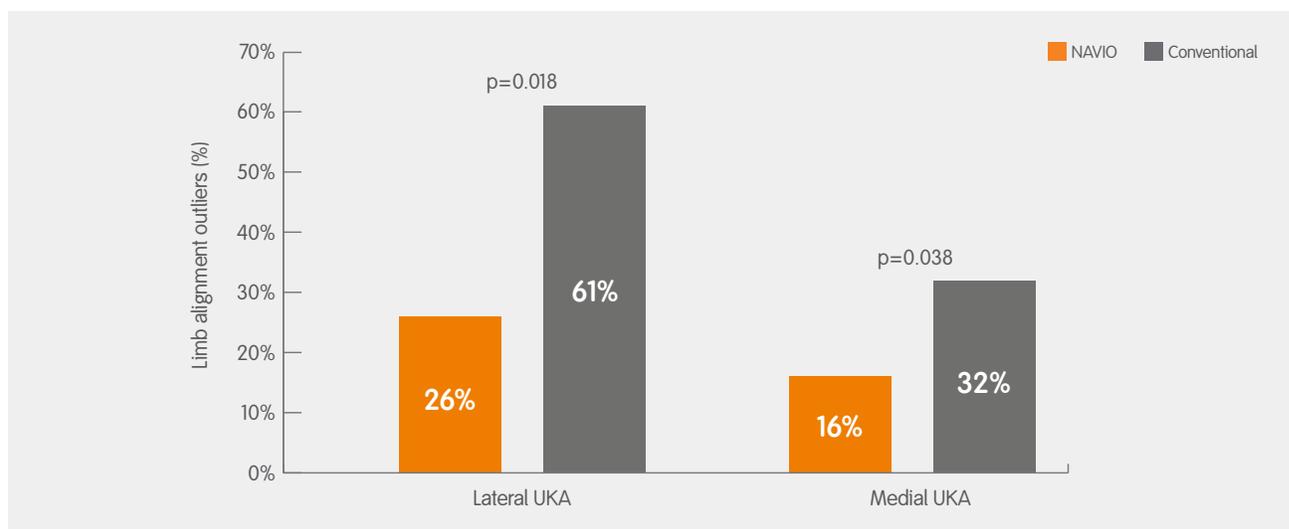   - Unexplained pain, localised to the medial compartment (1)

Figure. Rate of post-UKA limb alignment outliers (±2°) in the NAVIO and conventional groups

Evidence in focus (continued)

Key results (continued)

- Conventional group revision rate: 9% (lateral UKA, 9%; medial UKA, 9%)
  - Reasons for revision:
    - Malposition of the femoral implant (1)
    - Overcorrection (1)
    - Pain and tibial loosening (1)
    - Change to a thicker polyethylene due to persistent pain and hypocorrection (2)
    - Persistent pain without loosening (1)
    - Tibial loosening with varus alignment (1)
- The total reoperation rate was significantly lower in the NAVIO° group compared to the conventional group for lateral UKAs (0 vs 22%; p=0.025) but there was no significant difference for medial UKAs (18 vs 14%)
- Rate of post-UKA limb alignment outliers (±2°) was significantly higher in the conventional group compared to the NAVIO group for both lateral (26 vs 61%; p=0.018) and medial (16 vs 32%; p=0.038) UKAs (Figure)
- Coronal and sagittal tibial baseplate position had significantly fewer outliers (±3°) in the NAVIO group compared to the conventional group (11 vs 35%; p=0.0003)

Conclusion

Revisions due to implant malposition or limb malalignment are more common after conventional UKA than NAVIO robotics-assisted UKA.

Considerations

- The HLS Uni evolution, Tornier® implant was used in both groups of this study
- Two revisions with lateral NAVIO robotic-assisted UKA were likely due to the surgeon planning larger than usual tibial resection. The surgical technique and planning for cases with NAVIO at this institution was adapted to a decreased tibial cut following these revisions

Study citation

*Batailler C, White N, Ranaldi FM, Neyret P, Servien E, Lustig S. Improved implant position and lower revision rate with robotic-assisted unicompartmental knee arthroplasty. *Knee Surg Sports Traumatol Arthrosc*. 2018 Jul 31. [Epub ahead of print]
Available at: Knee Surgery, Sports Traumatology, Arthroscopy