


Computer-guided THA is associated with reduced risk of revision and increased patient satisfaction compared to conventional THA in the National Joint Registry (NJR) of England, Wales and Northern Ireland

Davis ET, McKinney KD, Kamali A, Kuljaca S, Pagkalos J. Reduced risk of revision with computer-guided versus non-computer-guided THA: An analysis of manufacturer-specific data from the National Joint Registry of England, Wales, Northern Ireland and the Isle of Man. *JBJS Open Access*. 2021;6(3):e21.00006

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Key points

Compared to conventional THA, computer-guided THA with Smith+Nephew acetabular components demonstrated:



Significantly **lower revision rate**
1.06 versus 3.88%
(p=0.005)



55%
Significantly **lower risk of revision**
(p=0.038)



Significantly **higher patient satisfaction**
(p=0.003)

Overview

- An analysis of the effect of computer guidance on the survival of THA implants and on patient satisfaction using the NJR* dataset and linked patient-reported outcome measures (PROMs)
- THA surgery performed using Smith+Nephew cementless acetabular components implanted for osteoarthritis between April 2003 and February 2020
 - THAs with metal-on-metal bearing surfaces were excluded
- Cementless and hybrid cohort:
 - Conventional THA; n=41,683 (mean follow up, 5.2 years; max, 16.9 years)
 - Computer-guided THA; n=871 (mean follow up, 5.6 years; max, 15.7 years)
- A sub-analysis was performed on THA with cementless stems:
 - Conventional THA; n=29,785
 - Computer-guided THA; n=761

Results

Cementless and hybrid cohort 10-year survivorship

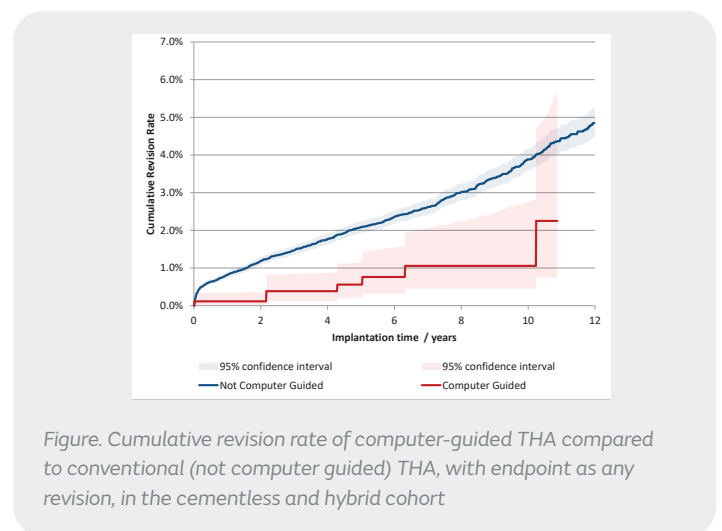
- Significantly lower revision rate with computer-guided THA than with conventional THA (1.06 vs 3.88%, p=0.005; Figure)
 - Revision risk was 55% lower with computer-guided versus conventional THA (p=0.038)

Cementless cohort 10-year survivorship

- Significantly lower revision rate with computer-guided THA than with conventional THA (1.2 vs 3.99%, p=0.013)
 - Revision risk was 53% lower with computer-guided versus conventional THA (p=ns)

PROMs

- Patient satisfaction score was significantly higher in the computer-guided group compared to conventional THA (p=0.003; cementless cohort, p=0.039)
- There was no significant difference in the 6-month Oxford Hip Score, the EQ-5D, EQ-VAS and patient-reported success rates



Conclusions

The use of computer-guided surgery was associated with a significant reduction in the risk of early revision and significantly improved patient satisfaction compared to non-computer-guided surgery in this analysis of Smith+Nephew acetabular components for THA.

Considerations

The study was funded through a restricted grant by Smith+Nephew and two authors were employees of Smith+Nephew at the time of the study. However, the statistical analysis was performed independently.

*The data used for this analysis was obtained from the NJR Supplier Feedback System. The Healthcare Quality Improvement Partnership ("HQIP") and/or the National Joint Registry ("NJR") take no responsibility for the accuracy, currency, reliability and correctness of any data used or referred to in this report, nor for the accuracy, currency, reliability and correctness of links or references to other information sources and disclaims all warranties in relation to such data, links and references to the maximum extent permitted by legislation.