

Do Trabecular Metal Acetabular Components Reduce The Risk Of Re-Revision Following Revision Total Hip Arthroplasty? A Propensity Score Matched Study From The National Joint Registry For England And Wales

Orthopaedics / Pelvis, Hip & Femur / Joint Replacement - Secondary

Gulraj Matharu, Andrew Judge, David Murray, **Hemant Pandit**

University of Oxford, Oxford, United Kingdom

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Background

Trabecular metal (TM) coated acetabular components have been reported to reduce implant failure following revision total hip arthroplasty (THA). However these studies involved small single-centre cohorts with many lacking a control group.

Objectives

We compared re-revision rates following revision THA between TM and non-TM coated acetabular components using National Joint Registry data from England and Wales.

Study Design & Methods

This retrospective observational study included all revision THAs with the same cementless acetabular component (either TM or non-TM coated). Revision THAs with TM and non-TM implants were matched for multiple potential patient and surgical confounding factors using propensity scores. Outcomes following revision THA (re-revision for all-cause acetabular indications, aseptic acetabular loosening, and infection) were compared between matched groups using competing risk regression analysis. Analyses were repeated in a subgroup initially revised for infection.

Results

In 3,862 matched revision THAs (1,931 TM and 1,931 non-TM), the overall prevalence of acetabular re-revision (2.7%), re-revision for aseptic acetabular loosening (0.96%), and re-revision for infection (1.4%) were low. Six-year re-revision rates for all-causes (sub-hazard ratio (SHR)=0.91, 95% CI=0.61-1.35; p=0.636), aseptic acetabular loosening (SHR=1.32, CI=0.68-2.53; p=0.410), and infection (SHR=0.68, CI=0.39-1.20; p=0.165) were similar between revision THAs with TM and non-TM coatings. In 247 THAs revised for infection (116 TM and 131 non-TM), the re-revision rates for all-causes (SHR=0.48, CI=0.15-1.56; p=0.225), aseptic acetabular loosening (SHR=0.54, CI=0.05-5.74; p=0.608), and infection (SHR=0.82, CI=0.28-2.36; p=0.706) were similar between revision THAs with TM and non-TM coatings.

Conclusions

Following revision THA, TM coated acetabular components had a low risk of both aseptic and septic re-revision which was comparable with non-TM components. Extended follow-up of large revision THA cohorts is required to establish whether TM components have any clinical benefit over non-TM designs when used in patients with similar acetabular bone stock.