

Does Surgical Approach Influence The Outcomes Following Total Hip Arthroplasty Performed For Displaced Intracapsular Hip Fractures? An Analysis From The National Joint Registry For England And Wales

Trauma / Hip & Femur Trauma / Surgical Treatment

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Background

Total hip arthroplasty (THA) is increasingly being performed in independently mobile patients with no cognitive impairment who sustain displaced intracapsular hip fractures. Studies have suggested that the anterolateral approach is preferable to the posterior approach when operating on these patients as the former is associated with a reduced risk of revision for all-causes and for dislocation. However, these observations come from small studies with only short-term follow-up.

Objectives

We used registry data to assess the effect of surgical approach on outcomes following THA performed for hip fractures.

Study Design & Methods

A retrospective observational study was performed using data collected prospectively by the National Joint Registry for England and Wales. All primary stemmed THAs implanted for hip fractures between 2003 and 2015 were eligible for inclusion (n=19,432). The exposure of interest was surgical approach (posterior vs. anterolateral). Primary THAs performed using the posterior and anterolateral approach were matched for multiple potential patient (including age, gender, and ASA grade) and surgical (including type of anaesthesia, surgeon grade, THA bearing, head size and fixation) confounding factors using propensity scores. Outcomes following primary THA were compared between the two matched surgical approach groups using various regression models. Outcomes assessed included revision surgery (Fine and Gray competing risk regression), mortality (Cox regression), and intraoperative complications (logistic regression).

Results

After matching, 14,536 primary THAs performed for hip fractures were studied (7,268 posterior approach and 7,268 anterolateral approach). The 5-year cumulative implant survival rates were similar between THAs performed using a posterior approach and those performed using an anterolateral approach (97.3% vs. 97.4%; sub-hazard ratio (SHR) 1.15 (95% CI 0.93-1.42); p=0.185). Five-year implant survival rates free from revision for dislocation (98.9% vs. 99.2%; SHR=1.28 (CI=0.89-1.84); p=0.188) and free from revision for periprosthetic fracture (99.4% vs. 99.4%; SHR=1.03 (CI=0.68-1.56); p=0.879) were also comparable. Thirty-day patient mortality was significantly lower in THAs implanted using a posterior approach compared with the anterolateral approach (0.5% vs. 1.2%; hazard ratio (HR)=0.44 (CI=0.30-0.64); p<0.001). This observation was maintained at both 1-year (HR=0.73 (CI=0.64-0.84); p<0.001) and 5-years (HR=0.87 (CI=0.81-0.94); p<0.001) postoperatively.

Patients undergoing THA using the posterior approach had a significantly reduced risk of intraoperative complications (including fractures of the calcar, trochanter, and femoral shaft) compared with when using the anterolateral approach (odds ratio=0.59 (CI=0.45-0.78); $p<0.001$).

Conclusions

This is the largest study assessing the influence of surgical approach on outcomes following THA performed for hip fractures. In matched patients undergoing THA for hip fractures, the posterior approach was associated with a reduced risk of mortality, which was maintained for up to 5-years, and also a lower risk of intraoperative complications compared with the anterolateral approach. Furthermore the posterior approach did not confer any increased risk of revision surgery, including revisions specifically for dislocation and periprosthetic fracture, compared with the anterolateral approach. We conclude that the posterior approach is both safe and effective when performing THA for hip fractures, and therefore should be used in preference to the anterolateral approach whenever possible.