

THR Versus Hemiarthroplasty for Displaced Intracapsular Fractures: Predicting Outcomes and Selecting Patients

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Purpose: In the UK, the National Institute of Health and Care Excellence (NICE) recommends offering total hip replacement (THR), rather than hemiarthroplasty, for displaced intracapsular hip fractures (OTA 31 B3, Garden 3-4) in patients who can walk independently outdoors, who are not cognitively impaired, and who are medically fit for anesthesia and the procedure. However, many centers perform THR on only a small proportion of “eligible” patients. This study aimed to compare outcomes after hemiarthroplasty or THR for displaced intracapsular hip fractures and suggest a simple method of identifying the most suitable patients for THR.

Methods: A search of the regional trauma center inpatient database identified all patients treated with hemiarthroplasty or THR for displaced intracapsular hip fracture from 4 January 2011 to 4 August 2014, with admission data on age, American Society of Anesthesiologists (ASA) grade, mini-mental state examination (MMSE, maximum score 10), mobility and function (Barthel score, maximum score 20). All surviving patients had telephone follow-up to 1 year. Patients with the ability to “walk alone outdoors” (WAO), MMSE of 8-10, and ASA grade 1-3 were deemed to meet eligibility criteria for THR.

Results: The search identified 1654 patients including 1506 (91%) hemiarthroplasty and 148 (9%) THR patients. 20% of these hemiarthroplasty patients (295 patients) met eligibility criteria for THR. Among patients with ASA grades 1-3, THR patients were significantly more likely to maintain the ability to WAO at 1 year than hemiarthroplasty patients ($P < 0.0001$). Cohorts of 50 hemiarthroplasty and 50 THR patients were matched for age, gender, mobility (all could WAO), full functional scores (all Barthel score 20), ASA grades (all ASA 1-3), and MMSE score (all 8-10). After matching groups, significantly more THR patients (90%) than hemiarthroplasty patients (46%) maintained the ability to WAO at 1 year ($P < 0.0001$). We have proposed a set of bedside questions to assess for suitability for THR, addressing NICE criteria, and whether the patient could climb stairs unaided preinjury, which implies a full Barthel score.

Conclusion: Mentally competent patients with OTA 31 B3 fractures, with prior ability to WAO, a full functional score, ASA 1-3, and comparable ages are significantly more likely to maintain the ability to WAO at 1 year after THR than hemiarthroplasty. These factors may be used to identify optimal patients for THR after such fractures.