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Displaced femoral neck fractures in elderly - variations in treatment regimens, baseline patient characteristics and mortality based on a cohort in the Swedish Fracture Register 2013-2016

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Abstract

Background: Displaced femoral neck fractures (FNFs) in the elderly are commonly treated with arthroplasty. Several randomized studies have compared arthroplasty and internal fixation (IF) and found better patient reported outcome measure (PROM) and fewer reoperations for arthroplasty. But for both the younger and the very oldest segment, consensus is lacking regarding which method to use. This register study aims to describe current treatment and mortality rates for displaced hip fractures in three different age groups. A secondary aim is to compare changes in PROM and correlation with treatment.

Methods: Patient data was retrieved from the Swedish Fracture Register. We found 9564 hip fractures classified as displaced (Garden III-IV) in patients 60 years or older between 2013-2016. Of these 8706 met inclusion criteria. They were treated with either internal fixation (IF), hemiarthroplasty (HA) or total hip arthroplasty (THA). We analyzed primary treatment in relation to age, sex, mortality and PROM. Differences between outcomes (THA and IF) could be analyzed only in the youngest group, 60-69 years old, due to low response rates in older patients.

Results: Of all patients, 25% was primarily treated with THA, 65% with HA and 10% with IF. In the age group 60-69 no significant differences in mortality could be seen between THA and IF. Overall, mortality increased with increasing age and to a greater extent in patients treated with IF. But in the older patients, mortality increased most rapidly with increasing age for patients treated with IF. Patients >80 treated with IF displayed an almost doubled 30-day mortality compared to similarly aged patients treated with HA.

Response rate for only PROM 0 (PROM at injury) was 47% (n=4053). Response rate for both PROM (0 and 1 meaning both at injury and one year later) was 30% (n=2573) overall. In those patients not responding to PROM at injury and one year later, 35% (n=2186) had died within one year after surgery as compared to the overall one-year mortality of 25%. PROM response rates decreased with increasing age and varied greatly across treatments making comparisons difficult. This made PROM analysis precarious for the eldest patients, as replying to PROM was a strong confounder to better overall health as well as survival. Women's overall response rate to PROM was 31% and men's 27%.

In the youngest age group, 60-69, we found no significant difference in change in PROM between THA and IF. In all age groups, THA patients reported better overall PROM 0.

Conclusions: THA is relatively common as FNF treatment in Sweden, 25% of those >60 receive a THA and only 10% are treated with IF. In patients 60-69 yrs, where the choice between THA and IF is controversial, we did not find any differences in PROM at 1 year between these methods. Patients treated with THA had better PROM 0 than both HA and IF independent of age. Treatment with IF is associated with a rapid increase in mortality after the age of 70 in comparison to the other treatment options. The use of PROM-questionnaires is not without pit-falls in hip fracture surgery due to confounding factors influencing both treatment option as well as response rates. We found large variations in response rate with age and treatment choice.

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