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The Results of Total Hip Arthroplasty for Fractured Neck of Femur in Octogenarians

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ABSTRACT

The role of total hip arthroplasty (THA) for fracture in octogenarians remains unclear. Over a two-year period, 354 patients aged > 80 years were admitted with a displaced intracapsular hip fracture. Using defined clinical guidelines, 38 patients underwent THA with a median age of 84 years, mean follow-up of 20 months. Primary outcomes were dislocation, 30-day and one-year mortality, revision surgery and periprosthetic fracture. There were no dislocations or periprosthetic fractures and patient survival was 97% at 30 days and 87% at one year. There was one revision for deep infection. This study demonstrates that THA for selected octogenarians can be performed safely, allows the majority of patients to return to independent living and has a low complication rate.

Total Hip Arthroplasty (THA) for displaced intracapsular hip fracture has been shown to provide better function, lower re-operation rates and greater cost-effectiveness when compared to Hemiarthroplasty (HA) [1–3]. With an increasingly active and independent elderly population the use of THA for managing hip fracture is likely to increase. Recent UK guidance from the National Institute for Health and Clinical Excellence (NICE) has recommended total hip arthroplasty for this injury in patients who are able to walk independently and have no cognitive impairment [4]. Concerns remain about the suitability and safety profile of THA for elderly patients possibly due to the perceived greater risk of dislocation associated with THA when compared to Hemiarthroplasty [2]. There is debate regarding application of the available evidence which has led to widespread variations in treatment; patients in England and Wales are only one third as likely to receive a THA compared to an equivalent population in Sweden [5].

The purpose of this study was to establish the safety profile, survival and short-term results for patients of 80 years and over who received THA for fracture according to United Kingdom National guidelines [4]. Functional outcome scores such as the Oxford/Harris Hip Scores were not performed.

Patients & Methods

Study Design& Patient Selection

Database

This study was a retrospective analysis of data from our Institution's Hip Fracture database, incorporating data submitted to the National Hip Fracture Database (NHFD). These data were used to analyse outcomes in patients 80 years and older who sustained an intracapsular hip fracture.

Patient Selection

All patients who sustained an intracapsular neck of femur between November 2009 and November 2011 were identified and those who were selected for THA were identified as a sub-group and their outcomes studied (See Fig. 1). Active, independent patients with no history of cognitive impairment were offered THA as recommended by current UK Guidance (ie those who did not use any walking aids, were admitted from their own home and had an abbreviated mental test score (Hodkinson's AMTS) of greater than 8 out of 10) [4]. Our unit uses a scoring system to quantify this with a total of 15 or greater indicating THA as the procedure of choice;

1) An AMTS of >8/10 then they score 5 points (2 if 8/10 or less),
2) Mobility using one stick or no aids scores 5 points (two sticks or worse scores 2).
3) Admission from their own home scores 5 (residential accommodation or care scores 2),
4) Age <80 scores 5 points (80 years old or older scores 2),

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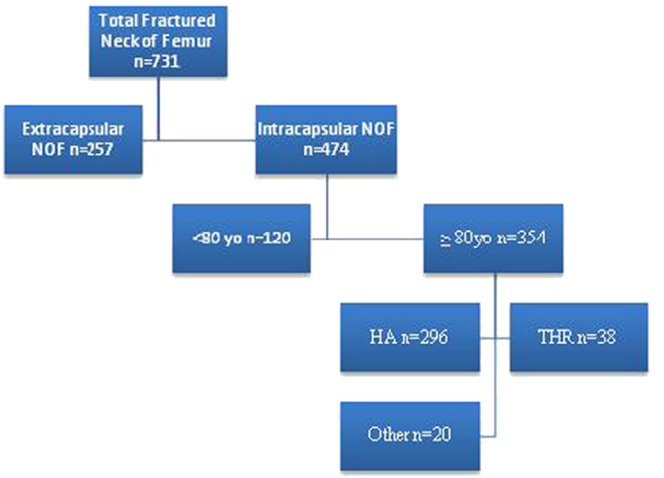

Fig. 1. Caseload of fractured neck of femur patients by age and procedure performed between November 2009 and November 2011. ('Other' includes Internal fixation of all types and those patients treated non-operatively).

All patients requiring surgery had a score of 17.

Patients who had a stable fracture pattern such as a valgus-impacted intracapsular fracture were treated with internal fixation or non-operatively.

Primary Outcomes

Primary outcomes monitored were; 30-day and 1-year mortality, dislocation, revision or re-operation for all causes, peri-prosthetic fracture, discharge destination and length of stay.

Hip Fracture Care

All patients were admitted under the joint care of a Consultant Orthopaedic surgeon and Consultant Orthogeriatrician, undergoing surgery on a dedicated Trauma list. The surgical approach used was chosen by the senior surgeon and component selection for all patients was a cemented Exeter femoral component and uncemented Trident acetabular component with polyethylene liner (Stryker, Mahwah, New Jersey, USA). A 36 mm diameter cobalt chrome head was used in all but a single patient where a 28 mm diameter head was used due to surgeon preference.

Results

Demographics

Three hundred and fifty four patients 80 years and over were admitted with an intracapsular fractured neck of femur over the two year period (See Fig. 1). There were 38 patients from this cohort selected for THA. Median age was 84 years, (Range 80–93). 14 patients were male, 24 were female. The surgical approach chosen and grade of the operating surgeon are shown in Table 1 whilst Table 2 shows ASA grade. Mean follow-up was 20 months (Range 12–33 months). Follow-up was by clinic appointments. The hemiarthroplasty cohort of the other group was not followed-up with clinic appointments and complications were taken from hospital episode databases.

Of those not selected for THA; Median age was 88 years (Range 80–104). 69 were male, 227 were female. ASA grade is shown in Table 2.

Table 1
Grade of Primary Surgeon and Surgical Approach.

		n	%
Grade of Surgeon	Consultant	15	40
	Associate Specialist	6	15
	Registrar	17	45
Surgical Approach	Posterior	13	32
	Anterolateral	25	68

Table 2
American Society of Anaesthesiologists Grade (ASA) [6].

ASA Grade	THA Group		Other Group	
	n	%	n	%
I	4		3	1.0
II	22	57.9	82	26.1%
III	11	28.9	192	61.1%
IV	1	2.6	36	11.5%
V	0	0	1	0.3%

NB: 2 patients in the Other Group were not scored as they were not assessed for suitability of anaesthesia.

Survival

One patient had died at 30 days (2.6%) whilst three more died in the year after surgery (10.5%). Of the deaths prior to one year, one patient had an intra-operative cerebrovascular accident (CVA) and died 5 days post-operatively. The remainder were at a mean of 165 days post-operatively and all from causes unrelated to their operation (metastatic disease of unknown primary, traumatic intracerebral haemorrhage and CVA followed by seizures). The median length of stay was 5.9 days (range 3.8–9.6).

Discharge Destination

Five weeks after surgery 23 surviving patients (64%) had returned home whilst five (17%) had started residential care (defined as requiring continuous help with activities of daily living). The remaining eight patients (22%) were discharged to long-term rehabilitation (defined as a step-down medical facility for non-acute care). Two patients died during rehabilitation. (See Fig. 2).

Of those not receiving a THA only 77 who survived to be discharged from rehabilitation were able to return to their own home within 5 weeks of surgery (29%). Of the patients who were admitted from their own home and survived to discharge, only 40% (71/175) were discharged back to their home.

Complications

There were no recorded dislocations or periprosthetic fractures.

One patient underwent staged revision surgery for deep infection which developed one month after surgery.

Of the non-THA group 7 patients suffered dislocation of their HA (2.3%) and 4 patients suffered periprosthetic fractures post-operatively (1.3%). 5 patients had infective complications (1.6%), 2 of which were resolved by debridement and washout, 3 of which necessitated 2 stage revision surgery. One further patient was revised to THA due to pain putting the overall revision rate at 3.7%.

Discussion

The management of hip fracture in elderly patients is an increasingly important aspect of Orthopaedic care worldwide. This study shows that THA is a safe and efficient use of resources when performed in selected patients over 80 years old. This represents a significant caseload for Orthopaedic services within the United Kingdom and is likely to increase in the future.

In the UK projections estimate that the incidence will rise from 70,000 patient events per year in the UK to 101,000 by 2020 [7]. The