



Original article

Combined orthogeriatric care in the management of hip fractures: a prospective study

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Aims: To evaluate the efficacy of combined care between orthopaedic surgeons and geriatricians in the management of patients with fractured necks of femur.

Patients and Methods: A prospective study of the admissions to a district general hospital with hip fractures was carried out over a 5-year period. In the years 1992–1994, medical problems in this patient group were managed by a consultation-only service. At the end of 1994, a consultant geriatrician was appointed to manage these patients jointly with the orthopaedic surgeons, and the study was then carried through until the end of 1996. Information about the patients from admission to discharge or death was gathered prospectively using a proforma for the 3 years prior to orthogeriatric care, and the 2 years after. Main outcome measures were mortality, length of stay and discharge destination. These were compared for the two periods – pre- and post-orthogeriatric care

Results: No significant differences were noted in mortality, length of stay or discharge destination.

Conclusions: Combined orthogeriatric care according to our model did not have an impact on our chosen outcome measures.

Key words: Orthogeriatric – Combined orthopaedic-geriatric care – Hip fractures – Geriatric rehabilitation

The incidence of proximal femoral fractures is rising exponentially world-wide; in the UK, it is a major challenge facing not just orthopaedic surgeons, but the whole of the National Health Service.^{1–4} Some 57,000 people are affected annually in England and Wales, at an estimated cost of £250 million for hospital care alone.⁵ The rise is partly the result of an increasing population of elderly people, and partly a rise in age-specific incidence.⁶

Hip fracture is a major cause of morbidity and institutional care in the elderly. The mortality in the first year can range up to 33%, being greater in patients with extracapsular rather than intracapsular fractures. Many never regain their previous level of mobility and

independence. There are serious economic repercussions as well. Long stays in orthopaedic wards and occupying short-stay beds are an increasing problem. Many patients also require expensive long-term nursing care.

In addition to an operation for the fracture, a large proportion of the patients suffer from conditions for which they need medical attention. Co-existing medical problems have been reported in up to 90% of patients with hip fracture. Chronic obstructive airways disease, dementia, hypertension, ischaemic heart disease and diabetes are common problems.^{5,8} Surgery, postoperative rehabilitation and discharge are delayed if these medical problems are not appropriately managed.

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Table 1 Demographic data

	Not coded	Male	Female	Total	Mean age (years)
Pre-orthogeriatric		109 (20.3%)	428 (79.7%)	537	81
Postorthogeriatric	2	31 (15%)	175 (85%)	208	82
Total	2	140	603	745	

The concept of shared care between orthopaedic surgeons and geriatricians is a proposed response to this problem. The idea was first described in the late 1950s, and has gained support over the years.^{9,13} There are several models of care.¹¹ In some hospitals, the patient remains under the care of the orthopaedic team and there is routine contact with the geriatrician once or twice a week. In other hospitals, suitable patients are transferred to a rehabilitation ward postoperatively under the care of the geriatricians. There are slight variations on these themes of early discharge home with a suitable carer (the hospital-at-home model), or the use of nursing home beds for rehabilitative aftercare. In yet another variation of orthogeriatric shared care, the patient is admitted to a dedicated unit run jointly by both specialties, and remains there until discharge.

It is this model that we have employed: a dedicated orthogeriatric unit with joint care from admission through to discharge.

Patients and Methods

Data were collected prospectively over a 5-year period, from 1 January 1992 until 31 December 1996. Until 31 December 1994, elderly patients with fractured necks of femur were admitted to one of three orthopaedic wards, under the sole care of orthopaedic surgeons. Medical care was provided on an as-required basis, referrals being made to the on-call geriatric team. Continuity of care was not limited to a single medical team.

At the end of 1994, a consultant geriatrician with a specific interest in elderly patients with hip fractures was appointed. One of the three previous orthopaedic wards was converted to a dedicated orthogeriatric ward where the elderly with fractured necks of femur were admitted under joint orthogeriatric management. The junior medical staffing was provided by the orthopaedics department. The surgical consultant and middle grade management was unchanged. The consultant geriatrician would review patients Monday and Friday and the geriatric specialist registrar would see patients Tuesday and Thursday. There was a formal orthogeriatric ward round on Wednesday with a multidisciplinary meeting afterwards. This system took effect from 1 January 1995. Two other orthopaedic wards cared for all other types of orthopaedic patients.

Our study compared pre-orthogeriatric care with the 2 years following the establishment of the orthogeriatric unit. Data were collected manually by the junior orthopaedic staff with the aid of a proforma that detailed demographic data including residence prior to admission, operative details,

Table 2 Residential data

	Pre-orthogeriatric	Postorthogeriatric	Total
Own home	303 (56.4%)	110 (52.9%)	413
Relatives' home	44 (8.2%)	18 (8.7%)	62
Sheltered accommodation	51 (9.5%)	1.9 (9.1%)	70
Residential home	65 (12.1%)	24 (11.5%)	89
Nursing home	16 (3.0%)	6 (2.9%)	22
Other	58 (10.8%)	30 (14.4%)	88
Not coded	–	1 (0.5%)	1
Total	537	208	745

postoperative morbidity, discharge destination and mortality. This information was incorporated into a database. The outcome parameters used for the purpose of this study were length of stay, discharge destination and mortality.

Results

Between 1 January 1992 and 31 December 1996, data were available for a total of 745 patients admitted to Mayday Hospital with fractured necks of femur. Of these, 537 were admitted between 1 January 1992 and 31 December 1994 (the pre-orthogeriatric years), and 208 admitted between 1 January 1995 and 31 December 1996 (the postorthogeriatric years). Table 1 presents the sex distribution and mean age on admission. The proportions by sex were not significantly dissimilar, and neither was the mean age on admission.

Table 2 shows the place of residence of the patients prior to admission. The majority of the patients were admitted from their own homes; this proportion was roughly similar in the 2 periods. There was a wide range of other sources as shown.

The mean total length of stay for the 537 patients in the first period of study was 26.14 days, and for the 206 patients in the second period was 26.88 days, as illustrated in Table 3. This difference was not significant.

The outcome measure in terms of discharge destination was quantified in simple terms by whether the patients returned to their pre-admission place of residence or needed a higher level of residential care post-discharge. There was no difference in the proportion that returned to their pre-admission residence in the two groups. This is shown in Table 4.

Our final outcome measure in terms of mortality showed that in the pre-orthogeriatric years there were 56 deaths out of the 537 admissions (10.4%), compared to 23 out of 208 (11.1%) in the postorthogeriatric period (Table 5). Once again, this difference was not significant.

Table 3 Length of stay

	Mean (days)	SD (days)	SEM
Pre-orthogeriatric	26.14	25.96	1.12
Postorthogeriatric	26.88	22-61	1.58

Table 4 Discharge to pre-admission place of residence

	Yes	No	Total
Pre-orthogeriatric	373 (79.5%)	96 (20.5%)	469
Postorthogeriatric	147 (79.5%)	38 (20.5%)	185

Table 5 Mortality

	Discharge	Death	Total
Pre-orthogeriatric	481 (89.6%)	56 (10.4%)	537
Postorthogeriatric	182 (88.9%)	23 (11.1%)	208

Discussion

There is consensus on the routine involvement of an elderly care physician in the management of older patients with hip fractures. We do not believe this to be the issue; rather, the debate lies in the best model of that care. The construction of a dedicated orthogeriatric unit with joint management between the orthopaedic surgeon and the geriatrician has many perceived advantages. Often, the elderly patient with a fractured neck of femur has multiple concomitant medical problems, and continuity of care – undoubtedly better suited to the skills of a geriatrician than the orthopaedic surgeon or junior house surgeon – in the management of these is important. From our experience, the presence of an orthogeriatrician dramatically increased the level of confidence of both anaesthetists and junior orthopaedic staff, and promoted an all-round feel-good factor, even though we have no evidence of benefit.

Orthogeriatric care has been studied, with many authors reporting benefits in terms of shorter hospital stays, reduced mortality and improved placement on discharge, all with associated savings in cost.¹²⁻¹⁷ Others have proposed that a combined approach is more expensive and, therefore, does not compare favourably in a cost-benefit analysis.¹⁸

There have been two prospective randomized control trials to date. In the Glasgow study (1988), with 222 patients, the authors concluded that there was no benefit in terms of mortality, length of stay or placement.¹⁹ In the Stirling study (1988), with 108 patients, there was benefit in length of stay and discharge destination.²⁰ In both studies, patients were randomized postoperatively, either to an orthogeriatric unit or to remain under orthopaedic care.

Our study incorporates larger numbers of patients ($n = 745$) over a longer, period of time than many other similar studies. Using our chosen outcome measures in our model of care, we were unable to demonstrate measurable improved

benefit. The reasons for this are not clear but might include the presence of confounding factors. It may be that a more subtle analysis is required, in terms of sub-stratifying according to comorbidity. Alternatively, other performance indicators may have been more suitable to measure the impact of orthogeriatric care

Hip fractures in the elderly pose one of the greatest current challenges to health and social services, and require close cooperation between surgeons, physicians and anaesthetists.²¹ There appears to be insufficient evidence to support strongly preference for any single system of care. More clinical research is needed to help identify an optimal model of orthogeriatric care, and help ensure the delivery of the optimal level of both preventive and therapeutic care to this vulnerable group of patients.

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