Acta Orthop Scand *56*, 305–308, 1985

Rehabilitation after femoral neck fracture

3053 patients followed for 6 years

The rehabilitation of 3053 consecutive patients with femoral neck fractures from Stockholm County was followed up for 6 years. Of the patients 79 per cent were admitted from home. The majority of these patients returned home within 6 months, but patients from the city did so more slowly than patients from rural areas, and with increased secondary rehabilitation measures. Patients treated in general surgical units stayed longer and utilized more secondary rehabilitation resources than those treated in orthopaedic units. At 1 year most differences were equalized.

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In previous studies the rehabilitation of patients with hip fracture has been considered mainly in small short-term series (Cobey et al. 1976, Ceder et al. 1980, Jensen & Bagger 1982, Jarnlo et al. 1984). We have studied the long-term rehabilitation outcome in patients with femoral neck fracture from a large population based multicentre series, especially the consumption of acute and rehabilitation resources for patients admitted from their own homes.

Patients and methods

All inhabitants in Stockholm County Council area (SCC) who were treated for femoral neck fracture during 1975 through 1977 were studied. In all, 3053 patients were treated in one of the 12 SCC treatment units (five orthopaedic and seven surgical). They were followed up for 6 years after fracture. The characteristics of these patients have previously been described (Holmberg & Thorngren 1985a).

All information regarding stay in acute and rehabilitation units, convalescence homes, geriatric hospitals (including long-stay hospitals, nursing homes and old people's homes) or their own homes, as well as the mortality rate, were recorded. Also studies on subsets of all patients admitted from their own homes were made according to type of settlement (central city or rural) and type of treatment units (orthopaedic or surgical) (Table 1). At fixed intervals the type of environment for each patient was listed for the total material and for the subsets (Figure 1 and 2). Thus a continuous cumulative estimation of the consumption of resources in hospital, stay at own home and mortality rate was reached.

Results

In the total material, 79 per cent of the patients were admitted from their own homes and the remainder from institutions (Table 1).

A difference ($p<0.001$) regarding admission from patients' own homes between central city

Tabel 1. Prefracture environment and home discharge rates for patients with femoral neck fracture.

Treatment unit	Total	Percent admitted from			Percent home of patients admitted from own home	
		Own home	OPH	LSH P	Directly	Total
Orthopaedic	1348	77	5	19	43	85
City surgical	956	82	1	16	24	78
Rural surgical	412	74	14	12	46	86
Other surgical	337	85	5	10	28	85
Total	3053	79	5	16	36	83

OPH = old people's homes, LSH = chronic long-stay hospital, P = psychiatric hospital.

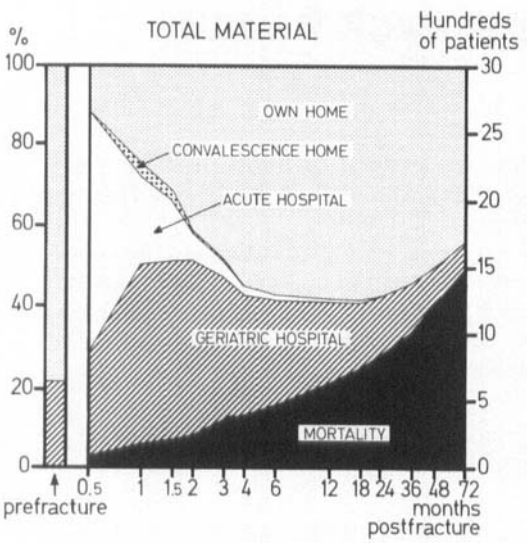

Figure 1. Environment at different periods (logarithmic scale) after femoral neck fracture for the total material (3053 patients). Prefracture environment is indicated to the left.

(82 per cent) and rural areas (74 per cent) was recorded (Table 1). In the rural areas a higher proportion of patients were admitted from old people's homes (14 per cent) than in the central city (1 per cent). The majority of patients returning home did so in the first 6 months after fracture. Later the proportion of patients in their own homes decreased slowly due to mortality. The utilization of geriatric hospitals (also used as rehabilitation units) started to decrease after 2 months and prevailed up to 6 years after fracture (Figure 2).

At 4 months after fracture 69 per cent of patients admitted from their own homes were back home, 20 per cent were in a geriatric hospital, and 2% in an acute hospital. The mortality rate was lower among patients admitted from their own homes than in the total material. After 4 months, 9 per cent of patients admitted from their own homes had died, in contrast to 16 per cent in the total material. At 1 year after fracture, 16 and 22 per cent and at 2 years 22 and 30 per cent had died in the respective series. Convalescent homes were used predominantly during the first 2 months after fracture by patients admitted from their own homes; after 4 months only about 1 per cent of the patients were still in a convalescence home.

In the central city area a higher proportion of patients utilized rehabilitation units than in the rural areas. This tendency was most marked during the first 2 months after fracture and prevailed up to 6 months, but after 2 years almost the same proportion (65 and 67 per cent) were at home in both types of area. The mortality rates were equal throughout the study.

A great difference was recorded when orthopaedic units were compared with surgical units regarding early return home. After 1 month, 42 per cent of the patients from orthopaedic and 24 per cent from surgical units had returned home. After 12 months only minor differences were recorded, and at the end of the studied period somewhat more patients were home from orthopaedic units (75 per cent) than from surgical units (70 per cent). The mortality rate was almost identical in these two series.

Discussion

The most disastrous factor for the patient who has sustained a femoral neck fracture is loss of function, which means loss of independence (Devas 1974). Programs to re-establish that independence are the major goal in rehabilitation (Ceder 1980). Regarding patients coming from their own homes, return home is equivalent to re-establishment of their independence, whereas patients admitted from institutions can hardly be rehabilitated to a less recource-consuming level of care.

A high proportion of patients in the total material were admitted from their own homes (79 per cent). In previous smaller materials various figures have been presented: Ödegård & Unsgård (1978) reported 75 per cent coming from their own homes, Ceder (1980) 67 per cent, and Jensen & Bagger (1982) 74 per cent. This reflects the special feature concerning the habitat of the elderly in SCC with a scanty use of old people's homes compared to other regions (Ceder et al. 1980, Jensen & Bagger 1982). In SCC few patients returned to old people's homes after hip fracture. Many elderly patients, especially in the old city areas of SCC, lived in their own homes (Holmberg & Thorngren 1985a), which partly explains the higher consumption of institutionalized rehabilitation by patients from these areas.

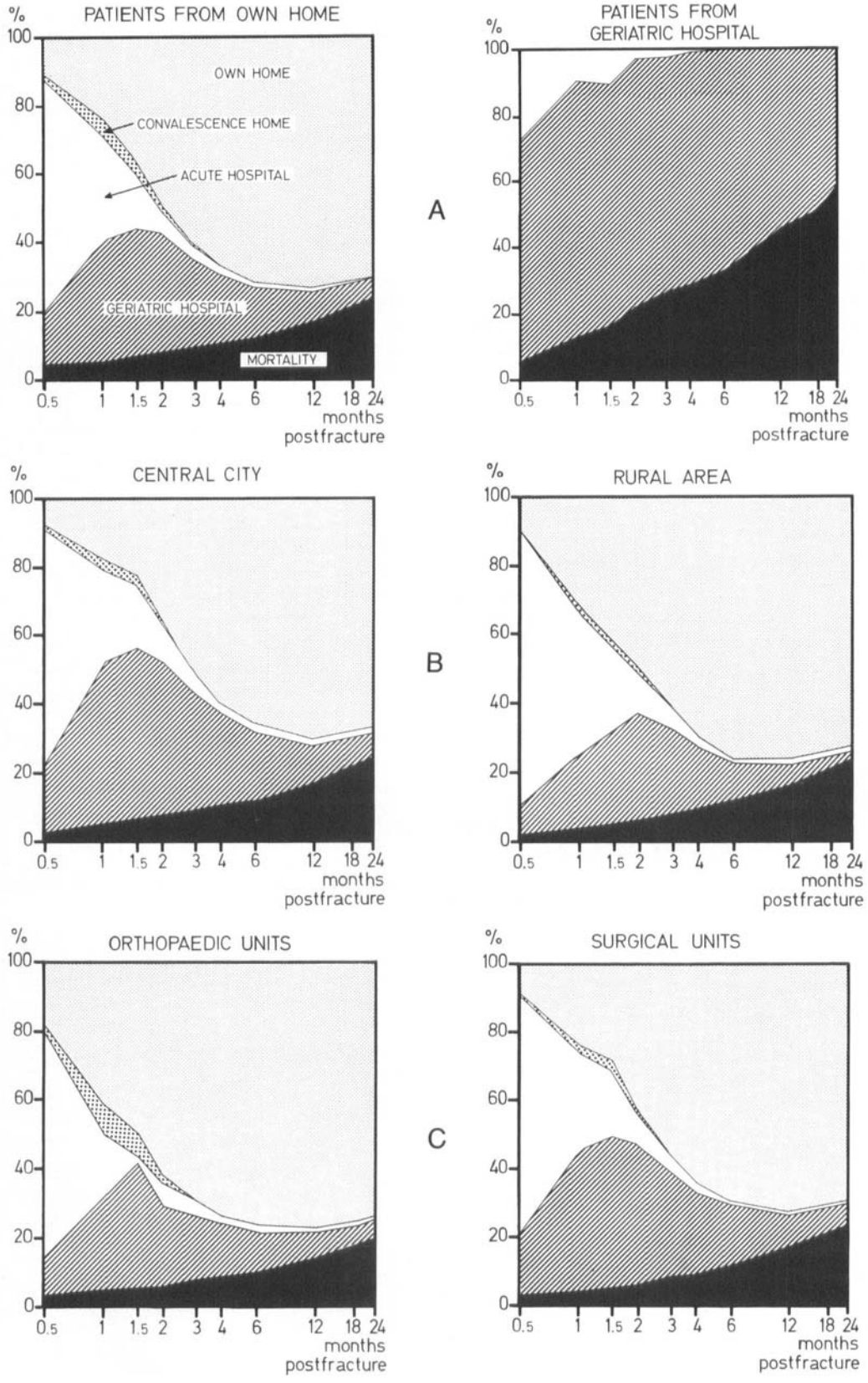

Figure 2. Environment at different periods (logarithmic scale) after femoral neck fracture for all patients admitted from (A) their own homes *or* geriatric hospitals, and for patients admitted from their own homes to (B) central city *or* rural hospitals, and (C) to orthopaedic *or* surgical units.

The higher consumption of both acute and rehabilitation hospital resources in surgical compared to orthopaedic units was due partly to a higher proportion of early complications in the former units (Holmberg & Thorngren 1985b). Most of the differences between settlement and treatment centres were found during the first year of rehabilitation. By 12 months after the fracture, most of the changes had levelled off. This agrees closely with the findings of Ceder (1980).

In the long-run, patients with femoral neck fractures are a comparatively minor burden on the medical care system. At 1 and 2 years after fracture, 8 and 6 per cent, respectively, of the patients originally coming from their own homes were in institutions, whereas 53 and 41 per cent, respectively, of those coming from institutions were still there. The main reason for the need for long-term care after a femoral neck fracture is concomitant diseases (Snaedal et al. 1984).

This study has shown the outcome of long-term rehabilitation within a major city and its surroundings, with diversified attitudes to treatment (Holmberg & Thorngren 1985b). With a more uniform treatment policy, better short-term rehabilitation to the patient's own home can be expected in the future. For the present, the results of this study form a basis for planning the provision of long-term rehabilitation facilities after femoral neck fractures.

Acknowledgements

This study was financially supported by the incurance companies Folksam and Skandia, by Stockholms Läns Landsting (SCC) and by the Swedish Medical Research Council (Project 17X-2031).

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