The incidence of hip fracture in Finland in the year 2000

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During 1985, 4,490 patients with a hip fracture were treated in Finland. From 1970 to 1985, the number almost doubled. The predicted annual number of patients with a hip fracture by the year 2000 will rise to 5,800 if the calculations are based on available demographic data, and to 7,100 if the trend observed during the period 1970 to 1985 continues.

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The average age of the population in the Western countries is increasing, while the incidence of hip fractures is increasing exponentially (Cummings 1987, Hedlund et al. 1987, Schröder et al. 1988).

The purpose of the present study was to estimate the hospital resources needed for hip fractures in the year 2000 in Finland.

Patients and methods

All the patients admitted to Finnish hospitals in 1985 for primary and secondary treatment of hip fractures were selected from the National Board of Health Statistics. The material was analyzed according to age, sex, type of fracture, type of hospital (university, central, and city or regional hospital), stay in hospital, and costs of hospital treatment (mean bed day costs). The increase in these fractures since 1970 was counted from an earlier study (Lüthje 1985). In the forecast the age-specific incidence per 100,000 inhabitants was projected on the population forecast for the year 2000 (Central Statistical Office 1989).

Results

During 1985, totally 3,212 patients with femoral neck and 1,278 with trochanteric fractures were given primary treatment (Tables 1 and 2). The femoral neck fracture was three times and the trochanteric fracture twice as common in women as in men.

The total number of days of hospitalization was 153,348, whereas the mean duration of hospitalization of the total material was 34 days for both fracture types (Table 3).

The age-specific incidence for femoral neck fractures rose for both sexes over aged 45 years (Figure 1). For trochanteric fractures, the age-specific incidence rose for men over aged 45 years and for

Table 1. Number of femoral neck fractures in 1985 grouped according to age and sex

Age	Women		Men		Ratio W/M
	n	%	n	%	
0– 9	6	0	12	2	0.5
10–19	7	0	14	2	0.5
20–29	7	0	27	3	0.3
30–39	20	1	24	3	0.8
40–49	23	1	33	4	0.7
50–59	71	3	71	9	1.0
60–69	232	10	112	14	2.1
70–79	902	37	233	29	3.9
80–	1,153	48	265	34	4.4
Total	2,421	100	791	100	3.1

Table 2. Number of trochanteric fractures in 1985 grouped according to age and sex

Age	Women		Men		Ratio W/M
	n	%	n	%	
0– 9	8	1	11	3	0.7
10–19	5	1	16	4	0.3
20–29	2	0	18	4	0.1
30–39	6	1	26	6	0.2
40–49	10	1	28	7	0.4
50–59	12	1	49	12	0.2
60–69	72	8	63	15	1.1
70–79	266	31	109	26	2.4
80–	478	56	99	23	4.8
Total	859	100	419	100	2.0

Table 3. Mean duration of hospitalization (days)

Hospital	Femoral neck fracture	Trochanteric fracture
University	25	24
Central	18	20
Peripheral	52	54
Total	34	34

women over aged 55 years. (Figure 2). The annual incidence rate of hip fractures per 100,000 inhabitants was 91.

In 1985, 427 patients with hip fractures needed retreatment, and their total number of days of hospitalization was 27,878.

The costs for hospitalization were FIM 145 million, for primary treatment and FIM 23 million for secondary treatment, or a total amount of FIM 168 million (42 million USD).

From 1970 to 1985, femoral neck fractures in both sexes increased by 51 percent. For women the increase was 50 percent for trochanteric fractures and for men only 16 percent. The increase in all hip fractures was 47 percent.

The total number of hip fractures in the year 2000 will be about 5,800 if the hip fracture incidence in the different age groups is the same as in 1985. The total number will rise, however, to about 7,100 if the steep increase observed in the period 1970 to 1985 continues towards the end of the century.

In the year 2000, the estimated need for acute hospital resources in surgical or orthopedic departments of hip fractures will be about 198,000 to 241,000 bed days if the average length of stay in days is the same as in 1985.

Discussion

The present study indicates that the increase in hip fractures in Finland from 1985 to 2000 will be 20 or 37 percent, i.e., somewhat slower than during the previous 15-year period. This is because the estimated increase in the population in age groups over aged 65 years in the latter period is smaller (15 percent) than in the former period (26 percent) (Central Statistical Office 1989). Further, a study from Sweden shows an increase of 50 percent for the total number of hip fractures from 1985 to 2000 (Nilsson et al. 1987). In Rochester, Minnesota, USA, the incidence of hip fractures has not increased significantly during the last 35 years (Melton et al. 1982), whereas in Scandinavia the increase will double or triple within the next 17 to 22 years (Jensen and Tøndevold 1980, Zetterberg and Andersson 1982). However, the estimates vary.

The annual hip fracture rate in Finland in 1985 was nearly the same as reported from the United States (Lewinnek et al. 1980), but was low compared with Sweden (Zetterberg et al. 1984).

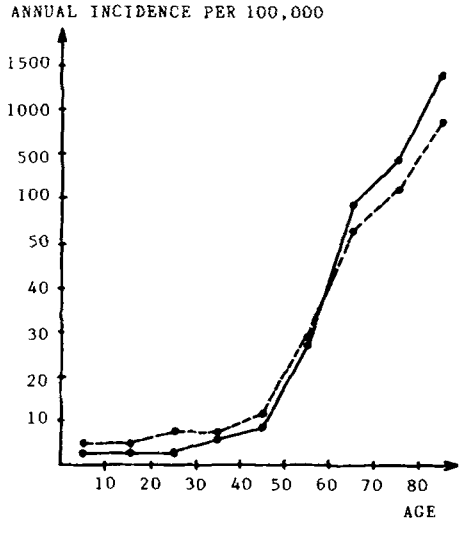

Figure 1. Age-specific incidence of femoral neck fracture in 1985. —— women, - - - men.

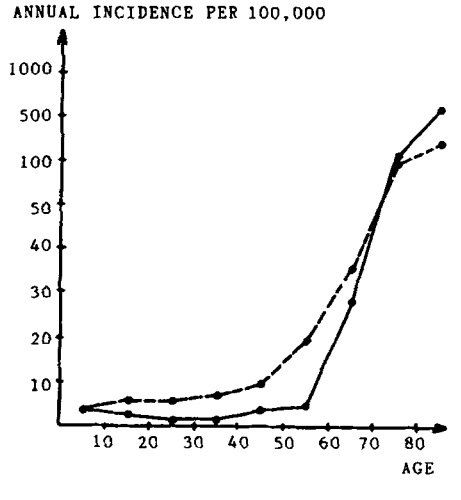

Figure 2. Age-specific incidence of trochanteric fracture in 1985. —— women, - - - men.

In this study, there were great differences in the mean duration of hospitalization. The shortest average length of stay in acute hospitals was recorded from central hospitals and the longest from peripheral (city or regional) hospitals. In Finland, the policy in treatment of hip fracture is generally similar. However, there are great local differences as regards getting the patients to long-term care hospitals when rehabilitation in the acute hospital does not progress satisfactorily. Many hospitals often operate like long-term care hospitals.

In the year 2000 in Finland, the annual number of acute hospital beds occupied by patients with hip fractures will range from 640 to 790 beds if the average length of hospitalization is the same as it was in 1985. Eleven to 13 percent of all the surgery hospital beds will be occupied by these patients in the year 2000; in 1986, there were 5,908 surgery beds in Finland (The Finnish Hospital League 1987).

In the present study, the hospital cost expenditure for each hip fracture was about 8,000 USD. In a Swedish study the corresponding cost was 7,000 US dollars in orthopedic departments, but when complications occurred, the costs more than tripled (Holmberg and Thorngren 1988).

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