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Incidence of hip fracture in Finland

A forecast for 1990

From 1970 to 1980, cervical hip fractures in Finland increased by 55 per cent and trochanteric fractures by 46 per cent. The demographic pattern and increasing fracture risks in the elderly will cause twice as many hip fractures in 1990 as in 1970.

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The incidence of hip fractures is increasing in all Nordic countries (Falch & Ilebekk 1978, Jensen & Tøndevold 1980, Lüthje 1982, Zetterberg & Andersson 1982). I have studied the incidence of hip fractures in Finland from 1970 to 1980 and made a prognosis for 1990.

Patients and methods

All patients admitted to Finnish acute hospitals for primary treatment of hip fracture were selected from the National Board of Health statistics; those who had been treated more than once during the same year because of the same injury were identified. The material was analyzed according to age, sex and type of fracture. The age-specific incidence per 100 000 inhabitants was projected on the population forecast for 1990 (Central Statistical Office of Finland 1971, 1982).

Results

From 1970 to 1980, cervical hip fractures in women increased by 54 per cent, and trochanteric fractures by 74 per cent (Tables 1 and 2). For men, the increase was 59 per cent for cervical fractures, and trochanteric fractures did not change. The increase of both types of fractures was highest for people over 70 years old. In 1980, more than 75 per cent of the patients were over 70 years old. There was no change in sex distribution for cervical fractures during this 10-year period. On the other hand, the female/male ratio was doubled for trochanteric fractures (Table 2).

The age-specific incidence for cervical fractures rose for men over 60 and women over 70 (Table 3); in other age groups the changes were minimal. For trochanteric fractures there was no change in incidence in females, but for men

Table 1. Cervical fractures in Finland 1970 and 1980

Age	1970					1980				
	F		M		F/M	F		M		F/M
	n	%	n	%		n	%	n	%	
0–	3	*0*	14	*4*	0.2	2	*0*	4	*1*	0.5
10–	12	*1*	15	*4*	0.8	3	*0*	14	*2*	0.2
20–	7	*1*	21	*5*	0.3	5	*0*	9	*1*	0.6
30–	10	*1*	14	*4*	0.7	12	*1*	15	*2*	0.8
40–	25	*2*	32	*8*	0.8	18	*1*	31	*5*	0.6
50–	81	*7*	44	*11*	1.8	92	*5*	61	*10*	1.5
60–	267	*22*	83	*21*	3.2	239	*13*	110	*18*	2.2
70–	414	*35*	92	*24*	4.5	717	*39*	214	*34*	3.4
80–	380	*31*	76	*19*	5.0	753	*41*	165	*27*	4.6
Total	1199	*100*	391	*100*	3.0	1841	*100*	623	*100*	3.0

Table 2. Trochanteric fractures in Finland 1970 and 1980

Age	1970					1980				
	F		M		F/M	F		M		F/M
	n	%	n	%		n	%	n	%	
0–	10	*2*	28	*8*	0.4	14	*2*	16	*4*	0.9
10–	8	*2*	60	*17*	0.1	7	*1*	22	*6*	0.3
20–	9	*2*	32	*9*	0.3	8	*1*	19	*5*	0.4
30–	1	*0*	19	*6*	0.1	5	*1*	24	*6*	0.2
40–	9	*2*	43	*12*	0.2	7	*1*	29	*7*	0.2
50–	20	*5*	39	*11*	0.5	30	*4*	44	*11*	0.7
60–	64	*15*	56	*16*	1.1	80	*10*	77	*20*	1.0
70–	141	*33*	42	*12*	3.4	255	*34*	92	*23*	2.8
80–	168	*39*	33	*9*	5.1	343	*46*	73	*18*	4.7
Total	430	*100*	352	*100*	1.2	749	*100*	393	*100*	1.9

Table 3. Age-specific incidence of hip fractures in Finland in 1970 and in 1980

Fracture type	Age	1970		1980	
		F	M	F	M
Cervical	0–	1	4	1	1
	10–	3	4	1	4
	20–	2	5	1	2
	30–	4	5	3	4
	40–	8	12	7	11
	50–	30	21	32	24
	60–	112	48	97	65
	70–	329	130	392	212
	80–	1056	507	1215	688
Trochanteric	0–	3	8	5	5
	10–	2	14	2	6
	20–	2	8	2	5
	30–	1	7	1	6
	40–	3	16	3	11
	50–	7	18	11	18
	60–	27	33	32	45
	70–	112	59	139	91
	80–	467	220	553	304

Number of cases per 100,000 population per year. The age and sex distribution is known from the statistical yearbook.

the incidence dropped under age 50 and rose after 60.

The total number of hip fractures in 1990 (Table 4) will be 2.0–2.3 times that in 1970, with the higher value if the observed rise in age-specific incidence continues.

Table 4. A forecast of hip fractures in Finland in 1990

Fracture type	Age	M		F	
		A	B	A	B
Cervical	0–	3	3	3	3
	10–	3	3	13	13
	20–	3	3	7	4
	30–	12	8	16	12
	40–	26	22	43	39
	50–	86	91	61	69
	60–	259	219	134	169
	70–	786	912	227	315
	80–	1336	1511	287	362
Total		2514	2772	791	986
Trochanteric	0–	15	21	16	6
	10–	6	6	19	3
	20–	7	7	18	7
	30–	4	4	24	20
	40–	11	11	43	23
	50–	29	40	46	46
	60–	86	99	93	118
	70–	279	333	98	132
	80–	608	703	127	162
Total		1045	1224	484	517

A: The expected incidence is the same as in 1980.
B: The expected incidence is based on the assumption that the increase/decrease of the age-specific incidences will remain constant in the period 1970 to 1990.

Discussion

The Finnish National Board of Health has collected basic statistical data regarding patients treated in general hospitals since 1960 (Noro & Härö 1972). Because hip fractures always need to be treated in hospital, all cases are recorded. However, the statistics are not cross-checked, and the same case may be counted several times because of reoperation or because the patient transfers from one hospital to another; in 1968, the true number of hip fractures in Finland was 34 per cent smaller than the official statistics based on hospital admissions (Alhava & Puittinen 1973). In this study the patients were cross-checked with the help of the birth and social identification number in order to minimize this error.

The total number of hip fractures increased by 1.5 from 1970 to 1980. If this tendency in Finland continues, the number of hip fractures will increase by 2.0–2.3 from 1970 to 1990.

Similar forecasts have been made for Oslo, Norway (Falch et al. 1985), Gothenburg, Sweden (Zetterberg et al. 1983), and Denmark (Jensen & Tøndevold 1980, Frandsen & Kruse 1983).

Contrary to findings in Swedish studies, trochanteric fractures did not increase faster than cervical fractures in this study (Bauer 1978, Johnell et al. 1984). The situation was the same in Hellerup, Denmark in the 1970's (Jensen 1980). However, the increase in the incidence of hip fractures was somewhat higher for males over the age of 60 (factor 1.4–1.6) than for women of the same age (factor 1.1–1.2) from 1970 to 1980. In Lund, Sweden the situation was the opposite (Hansson et al. 1982).

The continuing increase in the number of patients with hip fractures in Western industrial countries has to be taken into account in hospital planning. Already in 1980 these patients occupied 7 per cent of all surgical beds in Finland (Lüthje 1983).

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