

Increasing incidence of tibia condyle and patella fractures

The age and sex specific incidence of tibial condyle fractures and patellar fractures were compared between 1950-55 and 1980-83 in the urban population of Malmö. In elderly women there was an increased incidence over these 30 years for both fracture types.

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In the Department of Diagnostic Radiology in Malmö General Hospital all radiographs have been saved, and since 1950 all fractures have been recorded. Because of the health care delivery system in the city all radiographic examinations of emergency cases including fractures can be included, and the method of registration has remained unchanged. The population has increased from 190.000 to 230.000 since 1950 (Table 1).

We have examined possible changes in incidence of some fractures involving the knee joint.

Material and methods

All radiographs of tibial condyle and patellar fractures occurring in the years 1950-55 and 1980-83 were examined. In tibial condyle fractures the site (lateral, medial or bicondylar) and the degree of compression, measured on plain radiographs with a

ruler, were recorded. In the patellar fractures the type and the degree of displacement was noted; avulsions were not included.

All medical records from patients seen between 1980-83 were examined and the degree of trauma was estimated. Falls from the standing position or less were classified as moderate; all other trauma such as fall from heights, stairs or traffic accidents were classified as severe.

In addition it was noted whether the patients had been operated on. Indications for operation were unstable tibial condyle fractures and displaced patellar fractures. For the period 1980-83 hip and forearm fractures were also recorded.

Statistical method: Chi-square (both 2 x 2 for comparable age groups and 8 x 2 for all age groups).

Results

Condyle fractures (Table 2). During the 6 years in the 1950's 204 tibial condyle fractures were recorded (99 women and 105 men). During the 4 years in the 1980's the corresponding number was 213 (148 women and 65 men).

In women over 55 the age specific incidence of fractures was higher ($0.05 < p < 0.02$) than 30 years ago. The degree of compression in lateral condyle fractures was approximately the same for men in the 1980's compared to the 1950's. In women there was a slight increase in the 1980's in fracture compression 3 mm or more. The types of tibia condyle fractures were equally distributed in the two samples.

Table 1. Population at risk (thousands) in Malmö per year 1950-55 and 1980-83.

Age	Women		Men	
	1950's	1980's	1950's	1980's
0-14	25	17	23	19
15-24	12	16	11	16
25-34	17	16	16	17
35-44	17	14	16	14
45-54	15	14	13	14
55-64	11	17	8,8	15
65-74	7,7	16	5,9	12
>74	4,9	12	2,5	5,6

Table 2. Age-specific annual incidence per 10,000 inhabitants for tibial condyle fractures in Malmö 1950–55 and 1980–83. Within parentheses 95 per cent confidence limits.

Age	Women				Men			
	1950's		1980's		1950's		1980's	
	No.	Incidence	No.	Incidence	No.	Incidence	No.	Incidence
0–14	0	0 (0)	0	0 (0)	1	0.07 (0–0.6)	0	0 (0)
15–24	2	0.3 (0–1.4)	3	0.5 (0–1.9)	7	1.0 (0–3.0)	0	0 (0)
25–34	8	0.8 (0–2.6)	2	0.3 (0–1.4)	7	0.8 (0–2.6)	10	1.5 (0–4.0)
35–44	9	0.9 (0–2.8)	11	2.0 (0–4.8)	27	2.8 (0–6.1)	13	2.2 (0–5.2)
45–54	23	2.6 (0–5.8)	22	3.9 (0–7.8)	23	3.0 (0–6.5)	16	3.0 (0–6.5)
55–64	23	3.5 (0–7.2)	29	4.2 (0.1–8.3)	30	5.7 (0.9–11)	15	2.6 (0–5.8)
65–74	25	5.4 (0.8–10)	44	7.0 (1.7–12)	6	1.7 (0–4.3)	7	1.5 (0–4.0)
>74	9	3.1 (0–6.6)	37	8.0 (2.3–14)	4	2.7 (0–6.0)	4	1.7 (0–4.3)
Total	99		148		105		65	

Table 3. Total number and age-specific annual incidence per 10,000 inhabitants for patellar fractures in Malmö 1950–55 and 1980–83. Within parentheses 95 per cent confidence limits.

Age	Women				Men			
	1950's		1980's		1950's		1980's	
	No.	Incidence	No.	Incidence	No.	Incidence	No.	Incidence
0–14	5	0.3 (0–1.4)	4	0.6 (0–2.1)	8	0.6 (0–2.1)	7	0.9 (0–2.8)
15–24	5	0.7 (0–2.4)	7	1.1 (0–3.2)	9	1.3 (0–3.6)	20	3.2 (0–6.8)
25–34	5	0.5 (0–1.9)	3	0.5 (0–1.9)	17	1.8 (0–4.5)	9	1.3 (0–3.6)
35–44	7	0.7 (0–2.4)	6	1.1 (0–3.2)	20	2.1 (0–5.0)	11	2.0 (0–4.8)
45–54	8	0.9 (0–2.8)	11	1.9 (0–4.7)	13	1.7 (0–4.3)	12	2.2 (0–5.2)
55–64	17	2.6 (0–5.8)	20	2.9 (0–6.3)	19	3.6 (0–7.4)	20	3.5 (0–7.2)
65–74	3	0.7 (0–2.4)	36	5.7 (0.9–11)	6	1.7 (0–4.3)	13	2.8 (0–6.1)
>74	1	0.4 (0–1.7)	36	7.8 (2.2–13)	4	2.7 (0–6.0)	12	5.5 (0.8–10)
Total	51		123		96		104	

Patellar fractures (Table 3). In the 1950's there were 147 patellar fractures (51 women and 96 men), and in the 1980's 227 patellar fractures (123 women and 104 men). There was an increase ($p < 0.001$) in women over 55 but not in men (Figure 1). Comminuted patellar fractures were slightly more common in women of the 1980's than in the 1950's. Otherwise fracture types or locations did not differ between the two time periods.

In the 1980's moderate and severe trauma was equally common both in women and in men with tibia condyle fractures, even after

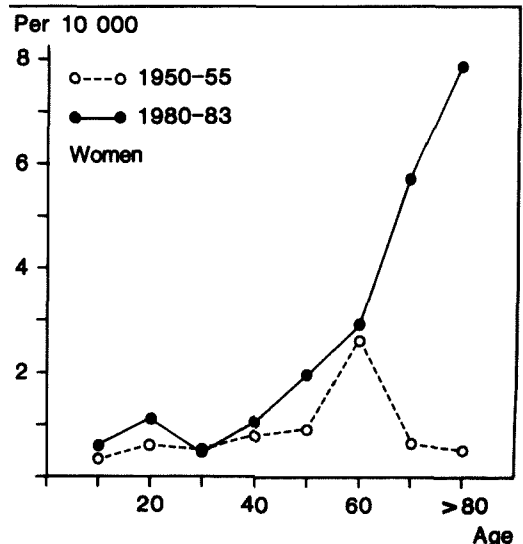


Figure 1. Age-specific annual incidence of patellar fractures in women per 10,000 in 1950–55 and 1980–83.

age 50. In patellar fractures moderate trauma was several times more frequent than severe trauma after age 50 in both sexes.

Discussion

The age and sex specific incidence of cervical and trochanteric hip fracture has increased in Scandinavia and the UK (Falch & Ilebeek 1978, Zetterberg & Andersson 1982, Swanson & Murdoch 1983, Johnell et al. 1984). Other fragility fractures such as fracture of the distal end of the radius follow a similar pattern with an increase in the elderly (Bengnér & Johnell 1985). We have now shown that tibial condyle and patellar fractures follow the same pattern with an increase in elderly women.

Previous studies of tibial condyle fractures have approximately the same proportion of women as we found in the 1950's (Rasmussen 1971, Bowel & Hohl 1982), but in the 1980's the proportion of women has increased in our material.

The increase of 'fragility' fractures in women over 30 years cannot readily be explained. There may be changes in bone mass or in the activities of daily life. Another explanation could be that women are referred for radiographic examination more often than before. This is, however, unlikely in these knee joint

fractures with hemarthrosis and much discomfort and the fracture displacement is also greater now compared with 30 years ago.

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