

Epidemiology of ankle fracture 1950 and 1980

Increasing incidence in elderly women

During 1980-82, 739 ankle fractures occurred in Malmö. These were compared with 383 ankle fractures occurring in 1950-52. In men there was an increase in the age-specific incidence up to the age of 60, especially in fractures of the lateral malleolus. In women there was an increase in the age-specific incidence above the age of 50, both in lateral malleolar fractures and, even more pronounced, in bi- and tri-malleolar fractures.

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The age-specific incidence of hip fractures is increasing (Falch & Ilebeek 1978, Zetterberg & Andersson 1982, Frandsen & Kruse 1983, Swanson & Murdoch 1983, Johnell et al. 1984). Fractures of the distal end of the radius have also shown an increasing age-specific incidence in our population (Bengnér & Johnell 1985).

We have studied the age- and sex-specific incidence of fractures of the ankle over 30 years.

Patients and methods

Malmö is a city with approximately 230 000 inhabitants. In 1950, the population was 15 per cent less, but the number of women over 65 has increased by 173 per cent as compared with 30 years ago.

In the Department of Diagnostic Radiology in Malmö General Hospital, all radiographs have been kept and since 1950 all fractures have been recorded. This system of registration, which has remained unchanged over the years, includes all fractures diagnosed in the city, since all emergency radiographic examinations are undertaken at this department.

Radiographs of ankle fractures from 1950-52 and 1980-82 were examined for this study. The fractures were classified according to site (Danis 1949, Weber 1972) at the lateral malleolus. Fractures of the medial malleolus and fractures of the posterior margin of the tibia were also recorded. The medical records of these patients were evaluated. Fifty-four medical records from the 1950's were missing.

Results

The total number of ankle fractures was 383 (209 men and 174 women) during the 1950's, and 739 (352 men and 387 women) during the 1980's (Table 1). The ratio men/women has changed during these 30 years. For fracture of the lateral malleolus, the ratio men/women was 1.16 in the 1950's and 1.07 in the 1980's, and for bi- and tri-malleolar fractures 0.76 in the 1950's and 0.55 in the 1980's.

Since the proportion of elderly people in the city of Malmö has increased, it is the annual age-specific incidence that is most interesting. There was an increase in males in the younger age groups and a female increase mainly among the elderly (Figure 1). For the isolated lateral malleolar fracture, there was an increase in men up to the age of 45 and in women over the age of 75. The distribution of isolated lateral malleolar fractures consisted mainly of type B fractures (Table 2). For bi-malleolar and

Table 1. The distribution of ankle fractures

	1950's		1980's	
	Men	Women	Men	Women
Lateral malleolus	125	108	241	226
Medial malleolus	39	7	33	28
Bi- and tri-malleolar	44	58	68	123
Posterior margin of the tibia	1	1	10	10
Total	209	174	352	387

Statistical method. The chi-square test was used.

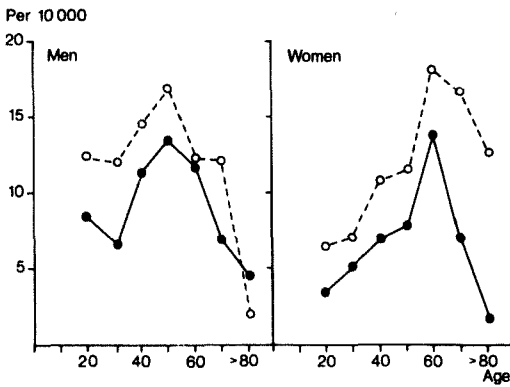


Figure 1. A comparison of the age-specific annual incidence of ankle joint fracture ○--○ 1980-82 with ●—● 1950-52.

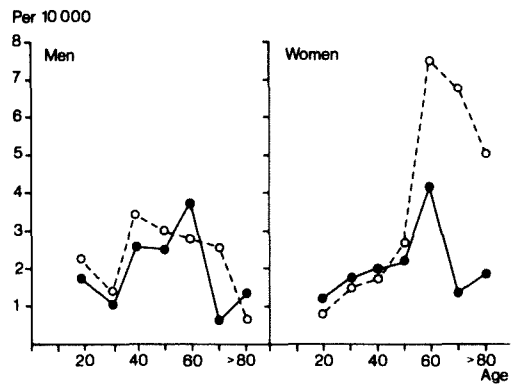


Figure 2. A comparison of the age specific incidence of bi- and tri-malleolar fracture ○--○ 1980 with ●—● 1950-52.

tri-malleolar fractures (Figure 2) men had no increase but in women there was an increase after the age of 45, more pronounced over age 65.

The medical records in 1950-52 contained less information than those from 1980-82; 54 records from the 1950's were not found, thus making the comparison between the two periods difficult.

The ratio of moderate to severe trauma had changed. In men, the ratio moderate/severe trauma was 1.3 in the 1950's and 2.7 in the 1980's, and in women the corresponding figures were 1.8 and 3.5.

Sports activity as a cause of ankle joint fractures was seen in 4 per cent during the 1950's and 16 per cent during the 1980's in men. In women, the corresponding figures were 1 and 4 per cent.

Discussion

The age-specific incidence in the 1950's corresponds well with that recorded by Nilsson (1969), and the proportion men/women with the findings of Buhr & Cooke (1959). Knowelden et al. (1964) also investigated the age-specific annual incidence of malleolar fracture. Our figures for the early 1950's correspond well with those. In women there seems to be the same pattern as in hip fracture and fracture of the distal end of the radius. Elderly women have an increased age-specific incidence of ankle joint fracture now, as compared with 30 years ago (Figure 2). In men there was the opposite pattern, with an increase in the incidence of fractures in younger and middle-aged men now compared with the 1950's.

It seems that bi- and tri-malleolar fractures

Table 2. The distribution of site of the isolated fracture of the lateral malleolus. Type according to Danis-Weber

Type	1950's				1980's			
	Men		Women		Men		Women	
	No.	%	No.	%	No.	%	No.	%
A	22	18	30	28	35	15	59	26
B	83	66	63	58	183	76	152	67
C	20	16	15	14	23	9	15	7
Total	125		108		241		226	

in women are fragility fractures which have increased with age and must be taken into account more when considering different types of treatment of ankle joint fractures.

Acknowledgement

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