

Epidemiology of distal radius fractures in Budapest

A retrospective study of 2,241 cases in 1989

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Retrospective data concerning 2,223 patients with fracture of the distal radius were related to the age- and sex-profiles of the population. Compared with observations from other countries, we found a simi-

lar sex ratio with a steep rise in fracture incidence in women after age 30–40. Our data did not permit calculation of absolute fracture incidence rates.

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Patients and methods

In 1989 the number of inhabitants over the age of 15 years in Budapest was 1.6 million. At our department, which has the largest outpatient population in the city, most patients were seen primarily, but we treated patients referred to us from smaller outpatient departments as well with distal radius fractures, which required manipulation, or surgery. In this study we report the data of our hospital only.

In 1989, altogether 2,241 fractures of the distal radius were seen in 2,223 cases (18 bilateral cases). In 2,197 cases of Colles' fracture and 44 cases of Smith's fracture, the female-male ratio was 2.5:1. The mean ages of women and men were 61 (15–92) and 42 (15–91) years, respectively.

Each case was classified regarding several aspects:

1. *Trauma*: moderate (fall from standing position) and severe (fall from a height, traffic accidents).

2. *Displacement*: according to Alffram and Bauer (1962), the ratio of fractures reduced (including surgical cases) to fractures not reduced.

3. *Type*: the age-specific ratio of severe (Older et al. 1965 Types 3 and 4) to moderate (Types 1 and 2) fractures was analyzed in cases of injuries caused by moderate trauma only, in order to reveal bone fragility of the radius.

For statistical analysis, the chi-square test was used.

Results

The age and sex incidence of distal radius fractures (Table 1) increased with age in women, as in Malmö (Bengnéér and Johnell 1985), Uppsala (Mallmin and Ljunghall 1992) and Rochester (Owen et al. 1982). The steep rise in fracture incidence in women from age 40 to 60 was quite like that reported from Malmö (Table 2). In men the tendency was similar to earlier reports with the highest incidence under the age of 20, and a constant level maintained up to a very old age. Our material differed from the experiences of others (Róbertsson et al. 1990), with one half due to falls in flats and one quarter in the street. Industrial injuries were observed in only 6 percent. The rate of reduction in our series was as high as 86 percent, even higher than that reported by Frykman (1967). The age-specific ratios of fracture types caused by severe/moderate trauma were similar in women and men. In both sexes, the frequencies of severe and moderate fracture types were almost equal in 20-year-olds, while at age 60 there were 2 severe fractures against 1 moderate, and this ratio increased to 3 in the very old.

Discussion

Contrary to the northern countries half of our patients fell in their well known home. This probably indicates that because of differences in the way of life, the elderly inhabitants of Budapest less and less frequently leave their homes.

In our opinion, although in women after 40 the distal radius is affected by postmenopausal bone

Table 1. Number of fractures of the distal radius in the National Institute of Traumatology in Budapest in 1989. The age- and sex-specific incidence, calculated for 10,000 inhabitants of Budapest is relative only, as the Institute of Traumatology did not treat all radius fractures in Budapest

Age	Women		Men	
	n	n/10 ⁴	n	n/10 ⁴
15-19	23	3	123	16
20-29	43	4	53	4
30-39	84	5.5	106	7
40-49	163	10	112	7.8
50-59	290	23	100	8.3
60-69	443	32	74	7.9
70-79	332	36	52	10
80-	228	47	15	7.8
Total	1,606		635	

changes, the steep rise in fracture incidence is the consequence of more and more frequent falls. These hormonal changes possibly cause more frequent falls among women due to the chronic insufficiency of the dopaminergic extrapyramidal system or to the momentary failure of adrenergic vasomotor regulation.

This finding directs even greater attention to endogenous factors in the etiology of fractures, of which we consider osteoporosis is to be the most important but not the single cause (Mallmin and Ljunghall 1992). Bone fragility determines rather the degree of severity (Solgaard and Petersen 1985) while the cause of fracture per se is the fall, becoming more and more frequent with age. Therefore, to prevent fractures in the elderly, progressive insufficiency of functions of the nerve and locomotor organs with ageing should also be considered.

Table 2. Comparison of Budapest with Malmö. Incidence of distal radius fracture in women. In each city, the incidence has been expressed as a percentage of the relative (Budapest, Table 1) or absolute (Malmö, Bengnér and Johnell 1985) incidence in the 60-69-year age-group

Age	Incidence		
	Budapest	Malmö	Budapest/Malmö
30-39	17	17	1.0
40-49	32	16	2.0
50-59	73	64	1.1
60-69	100	100	1.0
70-79	114	103	1.1
> 80	148	134	1.1

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