

# Increasing incidence of hip fracture in Crete

Emmanuel K. Dretakis, George Giaourakis and Konstantine Steriopoulos

In Crete, 459 patients with a hip fracture were treated during 1986 and studied prospectively. The female/male and trochanteric/cervical fractures ratios were both 2. The majority of the patients (96 percent) were 50 years of age and over. The incidence was found to be 10 per 10,000 inhabitants for the whole population, whereas in the age group of 50 years and over, it was 30; and in the age group of 80 years and over,

140 per 10,000. From 1982 to 1986, the annual number of patients with a hip fracture increased by 20 percent, while the population 50 years and over remained practically unchanged. Compared with Scandinavia, the number of fractures in Crete is lower, and the proportion of trochanteric fractures is higher.

Department of Orthopedics and Traumatology, University Hospital, Iraklion, Crete. Tel +30-81 269111. Fax +30-81 261433  
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During recent years, there have been many reports on a progressive increase in the incidence of hip fracture that cannot only be ascribed to the continuous increase in the size of the aged population (Zetterberg and Anderson 1982, Elabdien et al. 1984, Lindsay 1984, Falch et al. 1985, Hedlund et al. 1985, Luthje 1985).

We studied the epidemiology of hip fractures in Crete and compared the results with those from northern Europe.

## Patients and methods

During 1986, 459 permanent residents of Crete (307 women and 152 men) were admitted to the three existing orthopedic departments with a hip fracture. Data such as sex, age, and type of fracture were recorded prospectively. An analysis was then carried out using the 1986 census data of the Cretan population.

## Results

A cervical fracture occurred in 47 men and 104 women, and a trochanteric fracture in 104 men and 203 women (Table 1). The mean age was 76 years, and 96 percent were over 50 years of age. The mean age of the patients with a cervical fracture was 74 years in the men and 72 in the women. The corresponding figures for a pertrochanteric fracture were 78 and 79 years, respectively. In the women the ratio of trochanteric/cervical fractures was 1.95, while in the men it was 2.2. A cervical fracture occurred in the

women mainly between 50 and 79 years of age, whereas in the men, it occurred predominantly in those over aged 70 years. A trochanteric fracture occurred mostly in the women over aged 65 years, but the majority of the men with this type of fracture were between 50 and 79 years of age.

The 1986 incidence of hip fractures for the whole population of Crete was 10 per 10,000 inhabitants. It was 5 per 10,000 inhabitants for the ages between 50 and 59 years, 10 between 60 and 69 years of age, 40 between 70 and 79 years of age, and 140 per 10,000 inhabitants above 80 years of age (Table 1). For the population 50 years of age or older, it was 30 per 10,000 inhabitants.

## Discussion

Between 1982 and 1986, the annual number of patients in Crete sustaining a hip fracture increased from 380 to 459 while the population of 50 years of age and older remained the same (Dretakis et al.

Table 1. The age and sex distribution of hip fracture in Crete

Age	Population		Patients		Incidence per 10 <sup>4</sup>
	Men	Women	Men	Women	
50-59	27,281	29,596	12	19	5.4
60-69	22,558	25,199	16	43	12
70-79	16,514	20,636	48	117	44
> 80	5,662	8,052	64	128	140

1985). In Crete, the 1986 incidence of hip fractures for the population of 50 years and older was 30 per 10,000 inhabitants. In Uppsala, Sweden, the corresponding incidence for 1980 was 65 (Elabdien et al. 1984). In Norway the incidence for the population over aged 20 years was 21 per 10,000 inhabitants during 1978 and 1979 (Falch et al. 1985), as compared with 14 in Crete during 1982.

From 1982 to 1986, the number of patients with upper femoral fractures in Crete increased by 21 percent. A similar increase has been reported from the Scandinavian countries, Western Europe, and the United States. This observation is only partly attributable to an increase in the number of elderly in the population (Wallace 1983, Elabdien et al. 1984, Falch et al. 1985, Luthje 1985).

The ratio women/men was lower in our study than in a series of patients treated at Asklepeion Orthopedic Hospital, Voula, near Athens, in 1980 (2 in 1986 and 2.6 in 1980). This ratio is higher in the Scandinavian countries (3.1-3.5), although in the Scandinavian countries there may also be a gradual decrease: viz., from 3.8 to 3.1 between 1965 and 1980 (Elabdien et al. 1984, Falch et al. 1985). The difference in the ratio between Crete and the Scandinavian countries may be due to various parameters, such as the ratio of women to men in the population at risk. In Crete the ratio in this age group is 1.3 and in Oslo, Norway 2.0 (Falch et al. 1985).

Our ratio trochanteric/cervical fractures was 2, which is similar to a previous report from Athens (Dretakis et al. 1982, Dretakis and Christodoulou 1983), but it is quite different from what has been reported from the Scandinavian countries. In Finland, there are twice as many cervical fractures (Luthje 1985); in Stockholm, Sweden, the index was 1.1 (Hedlund and Lindgren 1985); in Uppsala, Sweden, it decreased from 1.8 during 1965 to 1.1 in 1980; and in Denmark it was found to be slightly below 1 (Jensen and Tøndevold 1980). These differences between Crete and the Scandinavian countries may possibly be the result of such parameters as physical status of the elderly, diet, consumption of alcohol and tobacco, etc. (Christodoulou and Dretakis 1984).

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