Hip fracture incidence in Malaysia 1981–1989

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The age-corrected incidence of hip fracture in the city of Kuala Lumpur and the surrounding districts has increased from 1981 to 0.7 per 1,000 population in 1989. Women dominated by a factor of 1.3. The mean age was 73 (50–103) years. The increased rate observed was attributed solely to trochanteric fractures among those 70 years and above. There were differences in the various parameters among the different races. The fracture incidence and woman/man ratio were substantially lower than has been reported from developed countries.

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The literature on hip fractures is based mainly on Caucasian populations in Europe and North America. Epidemiologic studies on hip fracture in the Asian population are scarce. To our knowledge, there were only 3 such studies in the last 10 years (Barss 1985, Hamid and Mohamed 1990, Lau et al. 1990). The increasing elderly population with escalating geriatric health expenditure is an important problem also in a rapidly developing country. The aim of this hospital-based study was to elucidate recent trends of hip fracture in the Kuala Lumpur population.

Patients and methods

All patients aged 50 and above who were admitted to the Kuala Lumpur General Hospital with a hip fracture in 1981, 1985, and 1989 were identified. The study included all patients who were managed by the Government and University orthopedic units, and also those patients who were discharged against medical advice or transferred to the few small private clinics in the city. The patients were from the metropolitan area of Kuala Lumpur and the surrounding districts in the state of Selangor which belong to the catchment area of the Kuala Lumpur General Hospital. These account for at least 95 percent of all patients with a hip fracture in the area. The population of Kuala Lumpur and the surrounding catchment area consists of Malays, Chinese, and Indians (Table 1).

11 patients were excluded at the beginning of the study: 9 had incomplete data, 1 was a non-Malaysian, and another was admitted with multiple long bone fractures after a motor vehicle accident. 408 patients were left for analysis. The hip fractures were classified as cervical (intracapsular) or trochanteric (extracapsular); subtrochanteric fractures were excluded. The results were analyzed by chi-square tests.

Results

There was a steady increase in the number of hip fractures in the 3 years under study with a twofold increase from 1981 to 1989. Demographic aging was responsible for 38 percent of this increase. The incidence of hip fracture per thousand population was 0.48 in 1981, 0.75 in 1985 and 0.70 in 1989.

There were 228 women and 180 men (Table 1). The woman-to-man ratio was 1.3, and the mean age was 73 (50–103) years. The overall incidence of hip fracture per thousand population in all women had increased through the 3 years under study (0.53 in 1981 to 0.77 in 1989). There were, however, differences among the women of the three races. For men, all races had an increase in fracture incidence (0.43 in 1981 to 0.63 in 1989).

For both sexes, the Indian patients had the highest incidence of hip fracture. During the 3 years under study, Indian patients had a hip fracture incidence rate of up to 5 times that of the non-Indian patients. In 1989, Indian women had an incidence of 0.95 per thousand population and Indian men 1.14 per thousand population.

The increasing incidence of hip fracture from 1981 to 1989 was due solely to the increasing incidence in the 70 and above age group in both women and men (Table 2).

Table 1. Number of hip fractures (Fr) and population of Kuala Lumpur and surrounding districts aged 50 and above in number of thousands (Pop) in 1981, 1985, and 1989, subdivided into racial groups

	1981		1985		1989	
	Fr	Pop	Fr	Pop	Fr	Pop
Malay						
Women	9	24	13	29	15	37
Men	3	26	9	31	12	38
Chinese						
Women	22	52	50	59	62	67
Men	17	44	28	50	38	60
Indian						
Women	16	13	23	16	18	19
Men	18	19	30	21	25	22
All races						
Women	47	89	86	104	95	123
Men	38	89	67	102	75	120
Total	85	178	153	206	170	243

Table 2. The number of hip fractures (Fr) and population of Kuala Lumpur and surrounding districts aged 50 and above in number of thousands (Pop) in 1981, 1985, and 1989, subdivided into age groups

Age	Women		Men	
	Fr	Pop	Fr	Pop
1981				
50–59	2	44	7	46
60–69	16	27	12	27
70 and above	29	18	19	17
1985				
50–59	9	52	15	54
60–69	19	31	17	29
70 and above	58	21	35	19
1989				
50–59	4	63	8	66
60–69	21	37	15	34
70 and above	70	24	52	20

Table 3. The number and ratio of cervical (C) and trochanteric (T) fractures among the racial groups

	Women	Men	Both sexes
Malay			
C	31	9	40
T	6	15	21
C:T ratio	5.2	0.6	1.9
Chinese			
C	75	31	106
T	59	52	111
C:T ratio	1.3	0.6	1.0
Indian			
C	27	18	45
T	30	55	85
C:T ratio	0.9	0.3	0.5
All races			
C	133	58	191
T	95	122	217
C:T ratio	1.4	0.5	0.9

Fracture types

There were 191 cervical and 217 trochanteric fractures in our series (Table 3). Women had a cervical:trochanteric ratio of 1.4 and men 0.48. The ratio also differed in the 3 races. Malay patients had a tendency to cervical fractures and Indian patients to trochanteric fractures ($P < 0.05$).

The increased incidence of hip fracture from 1981 to 1989 was due solely to the increase in trochanteric fractures in both sexes. The cervical:trochanteric ratio decreased from 1.23 in 1981, 0.91 in 1985, to 0.72 in 1989. The overall incidences of cervical and trochanteric fractures per thousand population in 1989 were 0.29 and 0.41, respectively.

Discussion

There has been an absolute increase in the number of hip fracture admissions to the Kuala Lumpur General Hospital from its catchment area. The age-corrected incidence rate had also increased with demographic aging contributing to 38 percent of the increase from 1981 to 1989. The overall incidence rate of 0.70 per thousand population in 1989 in our population is much lower than that of European countries where the incidence is 2.3 to 5.8 per thousand (Jarnlo et al. 1989, Larsson et al. 1989).

The overall woman-to-man ratio was 1.07 in Hong Kong and 0.58 in Singapore (Wong 1966, Chalmers and Ho 1970), and in our series it was 1.3. This is in

contrast to Western countries where a strong preponderance of women was found; the woman:man ratio was 2.8 in Lund, 3.8 in Siena, 2.8 in Stockholm, 3.3 in Oslo and 3.8 in Minnesota (Melton et al. 1982, Falch et al. 1985, Hedlund et al. 1986, Caniggia and Morreale 1989, Jarnlo et al. 1989). Perhaps factors other than post-menopausal osteoporosis were responsible for causing bone fragility in the aged Asian population.

The mean age of 73 years in our patients was lower than that of Western figures. Life expectancy in Malaysia is lower than that of Western nations. In 1988, the life expectancy of Malaysians at age 60 was 18 years. However, this figure is increasing. It is not surprising that the increasing incidence of hip fracture observed in our population is solely confined to the older age group, as hip fracture incidence is related to life expectancy (Finsen 1988).

There were interesting differences in the incidence of hip fracture in the three races. Even though the incidence in Indian patients was higher than in the other races, it was still lower than in Caucasian populations. Other studies have likewise shown different racial incidences (Farmer et al. 1984, Silverman and Madison 1988, Ross et al. 1991).

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