Shoulder injuries common in alcoholics

An analysis of 413 injuries

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We recorded prospectively all adult patients with a fracture of the proximal end of the humerus, clavicle and scapula or a primary shoulder or acromioclavicular dislocation in the city of Malmö in 1987. Altogether there were 413 injures. The hospital records from the Department of Alcohol Diseases were searched for these patients and for 2 age- and gender-matched controls for each patient. 12% of all patients with a shoulder injury were recorded as alcohol abusers. This number was significantly greater than that of the controls. The difference was more obvious in men than in women. In men between 30 and 64 years, almost half of the proximal humerus fractures and shoulder dislocations, one third of mid-clavicular fractures and two thirds of all lateral clavicle fractures were sustained by alcohol abusers.

Our findings emphasize the significance of alcohol abuse in the etiology of shoulder injuries, especially in men. Most of the men with a fracture of the lateral clavicle are registered at the Department of Alcohol Diseases, making this injury a marker of alcohol abuse.

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The correlation between alcoholism and lower limb fractures has been established by Johnell et al. (1985). We assessed the association between alcohol abuse and shoulder injuries in an urban population.

Patients and methods

The Malmö University Hospital provides treatment for virtually all fractures and dislocations in city residents. In 1987, the city population was 230,000. All fractures of the proximal end of the humerus, the clavicle and the scapula, as well as all primary, traumatic shoulder dislocations and acromioclavicular dislocations sustained in 1987, were prospectively recorded. 498 patients had sustained 504 shoulder injuries. 413 injuries were observed in patients ≥ 18 years. Fractures of the clavicle were classified into 3 subgroups, according to location (Allman 1967): lateral, midpart and medial.

The circumstances surrounding the trauma were recorded. The magnitude of the trauma was regarded as high when corresponding to a fall of more than half a meter or occurring at a speed greater than the ordinary walking pace. A trauma occurring when standing or walking was regarded as low-magnitude.

Since the patients' estimates of alcohol consumption generally are vague or unreliable, registration in the Department of Alcohol Diseases was used as the criterion for alcohol abuse in this study. Attending this department usually implies severe alcoholism or alcohol misuse, rarely single incidents of drunkenness.

For each of the 413 shoulder injuries, 2 age- and gender-matched controls, those immediately before and after the injured patient were selected from the population records of the city of Malmö. The records of the Department of Alcohol Diseases were searched for these 826 controls, as well as for the 413 shoulder injury cases. Chi-square analysis was used to compare the rates of shoulder-injured patients recorded as alcohol misusers and controls.

Results

Of the patients with shoulder injuries 12% had records in the Department of Alcohol Diseases, compared to 3% of the controls (Table 1). This difference was even more pronounced in men. A higher number of alcohol abusers was registered among patients with clavicular fractures, but also among patients with fractures of the proximal end of the humerus and shoulder dislocations. Almost half of the clavicular fractures in men were sustained by patients registered as alcohol abusers. Two thirds of men with a lateral clavicle fracture were alcohol misusers.

In men 30–64 years of age, 71% of the patients with a lateral clavicle fracture, 40% of those with

Table 1. Shoulder injuries in Malmö residents who were on the register of the Department of Alcohol Diseases (DOD) compared with age- and gender-matched controls

	Patients			Controls			
		Reg. in DOD			Reg. in DOD		
	n	n	Fraction	n	n	Fraction	P-value
All patients							
Proximal humerus fractures	258	19	0.07	516	10	0.02	< 0.001
Clavicular fractures	71	21	0.30	142	7	0.05	< 0.001
Lateral	29	14	0.48	58	2	0.03	< 0.001
Mid	39	6	0.15	78	5	0.06	0.1
Medial	3	1	0.33	6	0	0	0.1
Scapular fractures	14	1	0.07	28	2	0.07	1.00
Shoulder dislocations	53	7	0.13	106	4	0.04	0.03
Acromioclavicular dislocations	17	1	0.06	34	4	0.12	0.5
All injuries	413	49	0.12	826	27	0.03	< 0.001
Men							
Proximal humerus fractures	55	12	0.22	110	6	0.05	0.001
Clavicular fractures	42	18	0.43	84	6	0.07	< 0.001
Lateral	16	11	0.69	32	2	0.06	< 0.001
Mid	25	6	0.24	50	4	0.08	0.06
Medial	1	1	1.00	2	0	0	0.08
Scapular fractures	10	1	0.10	20	2	0.10	1.00
Shoulder dislocations	28	5	0.18	56	3	0.05	0.07
Acromioclavicular dislocations	16	0	0	32	4	0.13	0.14
All injuries	151	36	0.24	302	21	0.07	< 0.001

Table 2. Mid-clavicular fractures, lateral clavicular fractures, proximal humerus fractures and shoulder dislocations in Malmö in 1987 sustained by men 30–64 years. Age- and gender-matched controls were used for comparison

	Patients			Controls			
		Reg. in DOD			Reg. in DOD		
	n	n	Fraction	n	n	Fraction	P-value
Prox humerus fractures	20	8	0.4	40	4	0.1	0.006
Mid-clavicular fractures	17	5	0.3	34	3	0.1	0.06
Lateral clavicular fractures	14	10	0.7	28	2	0.1	< 0.001
Shoulder dislocations	10	4	0.4	20	0	0	0.002

Table 3. The circumstances surrounding trauma of the shoulder in 49 patients registered in the Department of Alcohol Diseases

	High energy	Low energy	Work	Traffic	Sports	Fight	Epilepsy	Falling indoors	Falling outdoors
Prox. humerus fractures	5	14	0	2	1	0	1	9	6
Clavicular fractures	13	8	0	6	1	1	1	5	7
Scapular fractures	1	0	0	1	0	0	0	0	0
Shoulder dislocations	3	4	0	0	0	2	1	4	0
Acromioclav. dislocations	0	1	0	0	0	0	0	0	1
All injuries	22	27	0	9	2	3	3	18	14

proximal humerus fractures, 40% of the shoulder dislocation patients and 29% of those with mid-clavicular fractures had records in the Department of Alcohol Diseases (Table 2).

Many of the clavicular fractures were caused by a high-energy trauma, whereas fractures of the proximal end of the humerus were generally the result of a low-energy fall accident (Table 3).

Discussion

Kristensson et al. (1980) found fractures to be 4 times as common in alcoholics as in age-matched controls. A substantial reduction in bone mineral content similar to that in elderly women has been noted in alcohol addicts (Saville 1965, Nilsson and Westlin 1973, Dalén and Feldreich 1974, Kristensson et al. 1980, Johnell et al. 1982).

Horak and Nilsson (1975) reported fractures of the proximal humerus to be bone fragility fractures, but they also found a significantly greater prevalence of severe alcoholism in these patients than in controls, especially in men younger than 65 years. Our findings were similar. Johnell et al. (1985) studied the number of patients with a lower limb fracture who were registered in the Department of Alcohol Diseases. In men, 30% of the malleolar fractures and 24% of the fractures of the tibia diaphysis were sustained by alcohol addicts. Jonsson et al. (1993) found that more than one third of men 50–64 years of age with a hip fracture were known alcohol abusers.

12% of all shoulder injuries in our study were sustained by alcohol abusers, 24% in men, 5% in women. This was significantly more than in the control group. Since registration in the Department of Alcohol Diseases is an indicator of rather severe alcohol misuse, the numbers in this study probably would have been higher had it been possible to detect all patients with a high consumption of alcohol—our findings represent the minimum rates.

In our study, the type of trauma in alcoholics was similar to that in other patients with shoulder injuries (Nordqvist and Petersson 1995) except for more injuries caused by street fights or by epileptic seizures.

A fracture of the clavicle was the commonest shoulder injury sustained by patients registered in the Department of Alcohol Diseases. Clavicular fracture is the dominant shoulder injury in men 15–65 years of age (Nordqvist and Petersson 1995). Furthermore, the age- and gender-specific incidence curve of lateral clavicle fractures shows an incidence peak in men aged 30–65 years (Nordqvist and Petersson 1994). In this age group, 71% with a lateral clavicle fracture were registered as alcohol abusers. This makes the lateral clavicle fracture in men the injury with the strongest correlation to alcohol abuse and also explains the marked incidence peak of this fracture in adult men. Also, the lateral fracture of the clavicle in the population has a fragility pattern not found in the mid-clavicular. Also mid-clavicular fractures were commoner in alcoholics. Mid-clavicular fractures and shoulder dislocations in alcoholics are caused by the trauma rather than by the quality of the bone.

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