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Association between liberalisation of Scotland's liquor licensing laws and admissions for self poisoning in West Fife

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Abstract

Data were collected prospectively on 2868 consecutive patients admitted for self poisoning between 1971 and 1982. Analysis showed a dramatic increase in the frequency of alcohol taken in association with self poisoning, in both sexes, after the liberalisation of Scotland's liquor licensing laws. This increase, however, did not appear to affect the severity of overdoses or the outcome.

Total admission rates for self poisoning increased with relaxation of the liquor licensing laws, and since overdoses associated with alcohol tend to occur at night these impose considerable strain on casualty departments and acute admitting units.

Introduction

The Clayson committee examined alcohol related problems in Scotland in 1972 and concluded that "licensing, a negative and restrictive process, can play only a strictly limited part in the control

of alcohol misuse."¹ As a result of the committee's recommendations Scotland's liquor licensing laws were relaxed in December 1976, allowing bars to remain open for an extra hour in the evenings. The following year public houses were permitted to open on Sundays and some "all day licences" were granted.

The effects of these changes on alcohol related problems in Scotland have recently been examined.² No increase in death rates from cirrhosis and alcoholism was found compared with England and Wales. There was a fall in the incidence of public order offences related to alcohol since the law was changed in 1976. A lag phase, however, would be expected before the death rate from cirrhosis began to rise, and numbers of deaths from alcoholism are very small. Convictions for public order offences may reflect policing policies as much as alcohol consumption. These deficiencies have been highlighted and recommendations made to consider data which reflect alcohol consumption in the community more accurately.³

This study examines the frequency of alcohol intake associated with admissions for self poisoning during the six year periods before and after the change in the law and the effects of alcohol on the medical outcome of these episodes.

Present study and results

Milesmark Hospital serves a mixed urban and rural population of roughly 130 000. All patients aged 12 and over with self poisoning are admitted to the

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acute medical unit. Data regarding the circumstances of each overdose have been recorded prospectively on punch cards since 1969.

Confidence intervals for the present study were calculated using the difference between two proportions.⁴

A total of 1214 patients (393 male, 821 female) were admitted between January 1971 and December 1976, and 1654 (593 male, 1061 female) between January 1977 and December 1982. The age and sex distributions were similar in the two six year periods. Over half of the patients who took alcohol (497/905; 55%) were admitted between midnight and 6 am compared with just over a quarter of those (514/1963; 26%) who did not. This distribution was similar during both time periods and for both sexes.

Table I shows the proportions of patients taking alcohol with their overdose in each period; figure 1 shows the yearly trends. Between 1971 and 1976, 29% of men took alcohol, and the figure rose to 52% for the period 1977 to 1982. This increase of 23% had a 95% confidence interval of 17% to 29%. For women there was a 21% increase from 14% to 35%, the 95% confidence interval being 17% to 25%. Since neither confidence interval included zero the increases were significant at the 5% level.

TABLE I—Proportions of patients taking alcohol with their overdose before and after change in licensing laws

	1971-6		1977-82	
	Total admissions	No (%) of patients taking alcohol	Total admissions	No (%) of patients taking alcohol
Males	393	114 (29.0)	593	306 (51.6)
Females	821	117 (14.3)	1061	368 (34.7)

FIG 1—Percentages of patients admitted who took alcohol at time of self poisoning.

The total yearly admission rate for self poisoning was rising before 1976, but the rate of increase rose sharply after the change in the law and subsequently fell to previous levels (fig 2). In recent years there has been a fall in the incidence of overdoses with benzodiazepines, barbiturates, and dextropropoxyphene, drugs which interact adversely with alcohol.⁵⁻⁷

Table II shows the grades of unconsciousness⁸ and proportions of patients requiring care of the airway or artificial ventilation. Table III presents these data in relation to patients who took and did not take alcohol at the time of self poisoning.

TABLE II—Numbers (percentages) of patients in coma grades 2 to 4 and numbers (percentages) of patients requiring protection of airway or artificial ventilation before and after change in licensing laws

Period	Total admissions	Coma grade			Oro-pharyngeal airway	Endo-tracheal tube	Ventilator
		2	3	4			
1971-6	1214	57 (4.7)	122 (10.0)	66 (5.4)	61 (5.0)	35 (2.9)	11 (0.9)
1977-82	1654	128 (7.7)	105 (6.3)	69 (4.2)	39 (2.4)	49 (3.0)	26 (1.6)

TABLE III—Numbers (percentages) of patients in coma grades 2 to 4 and numbers (percentages) of patients requiring protection of airway or artificial ventilation stratified according to whether alcohol was or was not used at time of self poisoning

	Total admissions	Coma grade			Oro-pharyngeal airway	Endo-tracheal tube	Ventilator
		2	3	4			
Alcohol	905	65 (7.2)	64 (7.1)	45 (5.0)	24 (2.7)	33 (3.6)	10 (1.1)
No alcohol	1963	120 (6.1)	163 (8.3)	90 (4.6)	76 (3.9)	51 (2.6)	27 (1.4)

FIG 2—Yearly admission rates for self poisoning with associated trends in incidences of benzodiazepine, barbiturate, and dextropropoxyphene overdoses.

Discussion

This study shows that there was a significant increase in the frequency of alcohol intake in association with self poisoning during the two years after the liberalisation of Scotland's liquor licensing laws in 1976. During the six years after the change in the law compared with the six years before the proportion of male patients taking alcohol with their overdose almost doubled, while that of female patients more than doubled. We are not aware of any other firm evidence suggesting that the change in the law had a deleterious effect, though an increase in the alcohol intake of previously heavy drinkers has been recognised.⁹

It has been suggested that alcohol intake has an aetiological role in self poisoning.¹⁰ Alcohol reduces inhibitions and powers of reasoning, which may precipitate an overdose. A similar mechanism has been suggested to explain the high incidence of self poisoning with benzodiazepines and other psychotropic drugs.¹¹ Increased alcohol consumption by the population at risk of self poisoning might therefore account for the observed increase in total admission rates after the change in the licensing law. The more recent fall in admission rates is not confined to Scotland and may reflect the decreased prescribing of benzodiazepines which has occurred throughout the United Kingdom.¹²

It has been stated that overdoses tend to be more serious, and sometimes unexpectedly fatal, when even moderate amounts of alcohol are taken concurrently.¹³ We found no evidence to support this. There was no increase in the proportion of patients with grade 3 or 4 coma after 1976, and there was no significant difference in grade of coma between those who took alcohol and those who did not. Similarly, no definite association was found when the numbers of patients requiring special measures for care of the airway or artificial ventilation were considered. Other recent studies have also failed to find an association between alcohol intake and severity of

poisoning¹⁴ and have shown a decreasing need for intensive care since 1978.¹⁵

Because of the change in types of drugs commonly taken in overdose over the past 15 years it may no longer be possible to detect an association between alcohol intake and severity of poisoning. Benzodiazepines, barbiturates, and dextropropoxyphene, all of which interact adversely with alcohol,⁵⁻⁷ now account for a smaller proportion of overdoses than before. Furthermore, it has become increasingly recognised that alcohol has pharmacological actions which may moderate the effects of certain types of drug overdose. In the acute phase alcohol may decrease the severity of self poisoning by decreasing the intestinal absorption of the drug taken in overdose.¹⁶ In more chronic usage alcohol may cause tolerance to the depressive effects of an overdose on the central nervous system and by inducing hepatic enzyme activity enhance the rate of drug metabolism.

Thus, though there appears to have been no increase in the severity of overdoses associated with increasing alcohol use, there has been a rise in total admission rates. Overdoses associated with alcohol tend to occur at night and therefore impose a considerable workload on casualty departments and acute admitting units.

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Vegetarian diet in mild hypertension: a randomised controlled trial

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Abstract

In a randomised crossover trial 58 subjects aged 30-64 with mild untreated hypertension were allocated either to a control group eating a typical omnivorous diet or to one of two groups eating an ovolactovegetarian diet for one of two six week periods.

A fall in systolic blood pressure of the order of 5 mm Hg occurred during the vegetarian diet periods, with a corresponding rise on resuming a meat diet. The main nutrient changes with the vegetarian diet included an increase in the ratio of polyunsaturated to saturated fats and intake of fibre, calcium, and magnesium and a decrease in the intake of protein and vitamin B₁₂. There were no consistent changes in urinary sodium or potassium excretion or body weight.

In untreated subjects with mild hypertension, changing to a vegetarian diet may bring about a worthwhile fall in systolic blood pressure.

Introduction

A blood pressure lowering effect of an ovolactovegetarian diet has been suggested by studies reporting a smaller rise in blood pressure with age in Seventh Day Adventist vegetarians¹ and macrobiotic vegetarians² than in the general population. This effect appears to be independent of differences in body weight and other differences in lifestyle, as Seventh Day Adventist vegetarians also have lower blood pressures than Mormon omnivores, who in common with Seventh Day Adventists also avoid alcohol, tobacco, and caffeine.³ More direct evidence comes from a controlled trial of a vegetarian diet in healthy normotensive meat eaters, which found a diet related reduction in systolic blood pressure of 5-6 mm Hg independent of changes in body weight.⁴

We have examined the effect of a vegetarian diet in subjects with mild hypertension.

Subjects and methods

Between June and November 1983 the National Heart Foundation of Australia conducted a risk factor prevalence survey in which 1788 residents of Perth, Western Australia, aged 25 to 64 were selected at random for measurement of coronary risk factors. Blood pressures were measured in duplicate on the right arm after five minutes' sitting by a trained nurse using a standard mercury sphygmomanometer. All subjects whose blood pressures were between 150 and 200 mm Hg systolic or between 90 and 115 mm Hg diastolic and who were not currently being treated for hypertension (inclusion criteria) were asked to return a week later for a second blood pressure measurement with a view to possible participation in the dietary trial.

At the second and all subsequent visits blood pressures were measured in duplicate on the right arm after five minutes' sitting using an automatic oscillometric device (Dinamap recorder). If the blood pressure readings still met the inclusion criteria at this and a subsequent visit a week later subjects

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