

## Acute Poisoning in Barcelona, Spain

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In the Western world acute poisoning is one of the most important medicosocial phenomena today and its incidence is increasing. In spite of the interest that the subject has attracted, the problem has been difficult to characterize epidemiologically in Spain, basically owing to the lack of data and also to the absence of a center sufficiently coordinated and specialized to give sufficient assistance and information on this type of problem.

The subject may be regarded under two main headings; household accidents mainly affecting children under five years of age and deliberate self-poisoning in the older age groups, chiefly due to drugs. At the same time, there is little evidence, overall, that the mortality has increased, even though hospital admissions have risen steeply.

In Spain, poisoning accounts for 11% of all accidents in children [1]. About half of these accidents are brought about by the ingestion of drugs and 20-40% arise by the ingestion of household products [2-4].

As regards self-poisoning among adults, it is calculated that, in the Province of Barcelona, there are 2500 such attempts annually, about 1% having a fatal outcome. The ingestion of drugs is responsible

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in approximately 80% of these incidents, notably of psychotropic agents and analgesics [5, 6].

Cases of acute poisoning usually first present at the accident-and-emergency department of the nearest hospital, where they constitute not more than 3% of total admissions for all causes.

The aim of this study has been twofold: on the one hand to assemble the epidemiological picture for poisoning as seen at one general hospital within our health district, and on the other hand to ascertain the manner in which these patients are being managed medically.

## MATERIAL AND METHODS

All cases of poisoning admitted to one general hospital in Barcelona (Hospital de San Pablo) were studied over a period of 6 months (January-July 1977), totaling 330 admissions and representing 1.8% of all the patients dealt with in the accident-and-emergency department over this period.

The data were obtained retrospectively from the records in the hospital. In spite of some incompleteness and inconsistency, the information obtained was sufficient to determine the principal clinical characteristics of the poisoning, the diagnosis made, and the treatment system followed. Because there is no toxicological laboratory in the hospital, analytical confirmation was lacking.

All the data were processed in the Centro de Calculo de la Universidad Autónoma de Barcelona, through a Fortran IV program under our own control.

## RESULTS

### Classification

Out of a total of 330 acute poisonings recorded over this period, 159 (48.2%) were classified as suicide attempts and 129 (39.1%) were accidental.

### Age, Sex, and Occurrence

From Table 1 it can be seen that 86.8% of the accidental poisonings occurred in children under 5 years of age, 65.4% of the self-poisoning involved subjects between 13 and 30 years of age, and acute ethyl alcohol poisoning was seen among youths as well as among adults. Of the self-poisoning patients, 20.3% had histories of one or more previous similar incidents.

In all, the cases of poisoning seen in the accident-and-emergency department over the 6-month period could be divided into 54.7% males

TABLE 1. Age Distribution

Age	Accidental poisonings		Suicide attempts		Acute ethyl alcohol intoxication	
	%	% cumulative	%	% cumulative	%	% cumulative
0-1	19.4	19.4	-	-	-	-
2-5	67.4	86.8	-	-	-	-
6-12	1.5	88.4	0.6	0.6	2.6	2.6
13-30	4.7	93.0	65.4	66.0	43.6	46.1
31-45	2.3	95.3	18.9	84.9	35.9	82.0
>45	4.7	100.0	15.1	100.0	18.0	100.0

and 45.3% females, whereas the general distribution of the population of Barcelona, according to data from the Instituto Municipal de Estadística (Municipal Institute of Statistics), was made up, in 1977, of 47.3% males and 52.7% females. For accidental poisoning the division was 59.8% males and 40.2% females.

No significant differences in the frequency of distribution could be seen when the admissions were classified according to the day, week, or month in which they were seen.

### Poisons Involved

Among the accidental poisonings, 47.7% were due to drugs; 37.1% to detergents, caustics, and other cleaning products; and 14.4% to other causes. On the other hand, for deliberate self-poisonings, drugs were used in 88.8% of cases, contrasting with detergents, caustics, gas, or unknown agent amounting to no more than 6.4% of the cases.

Looking more specifically at the drugs involved, it can be seen from Table 2 that, for accidental poisoning, these were diverse, 36.5% being psychoactive agents and 17.5% being analgesics. On the other hand, 91.6% of the drugs used in the cases of self-poisoning were psychoactive. Carrying this analysis still further, it can be noted that, for both accidental and deliberate self-poisoning together, 34% involved barbiturates, 32% benzodiazepines, 19% alcohol, 9.5% analgesics, and the remaining 5.5% were antidepressants. In only 20.7% of all the cases did patients take two or more drugs.

### Clinical Features

In some 80% of the cases the information was sufficient to draw some general conclusions about the clinical picture in relation to the poison used. Thus, coma of Grade II or more was observed only from psychoactive drugs, whereas the analgesics caused little alteration of consciousness. Further, coma of Grade II or more severity was noted in 27.7% of poisonings with antidepressants, in 21.1% with barbiturates, in 11.8% with ethyl alcohol, and in only 3.1% with benzodiazepines.

In terms of recovery, only 10% of the accidental poisonings and 5% of acute ethyl alcohol poisonings had to stay longer than 24 hr in the hospital, whereas 31.8% of the self-poisonings had to remain longer than 24 hr in the hospital and the only deaths—4—also occurred among this group.

Study of the case notes revealed no consistent plan of management, though gastric lavage was performed on 105 patients out of 303, forced diuresis was applied in 34 cases, and a combination of these in 41.

TABLE 2. Drugs Involved

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 Accidental poisoning:

12	Optalidon
11	Benzodiazepines
11	Analgesics (8 aspirin)
5	Antibiotics
5	Antihistaminics
19	Others
<hr/>	
63	

## Deliberate self-poisoning:

63	Barbiturates (73% Optalidon)
61	Benzodiazepines
13	Antidepressants
10	Analgesics
8	Alcohol
8	Phenothiazines
4	Others
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167	

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**Gastric Lavage.** Among the 146 cases (105 + 41) in which gastric lavage was carried out, in 84% there was some knowledge of the quantity of pills swallowed, while this was unknown in 14% and, in the remaining 2%, there was no record of this. For this maneuver it is important to know what interval has elapsed since the poison was taken. In our series, 46.6% of the patients had taken the poison within 4 hr or less, in 45.2% this was unknown or uncertain, and in 12 cases (8.2%) in which gastric lavage was performed, 16-24 hr had elapsed.

Although there was no mention of the grade of coma in 16% of all the people undergoing gastric lavage, 63% were conscious and 21% were sufficiently comatose to require intubation.

**Forced Diuresis.** Forced alkaline diuresis appeared to be undertaken somewhat indiscriminately. From Table 3 it can be seen that in only 60% of the cases was this measure taken in accordance with pharmacological criteria.

TABLE 3. Forced Diuresis and Poison Involved

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60%	
	42 Long-acting barbiturates
	3 Salicilates
40%	
	9 Benzodiazepines only (BZD)
	3 BZD plus antidepressants
	2 BZD plus alcohol
	2 Antidepressants
	4 Antidepressants plus phenothiazines
	1 Short-acting-barbiturate
	1 Alcohol only
	1 Phenylbutazone
	1 Turpentine
	1 Phenothiazine
	5 Unknown
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75	

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## DISCUSSION

In Spain there are no specialized centers to which poisoned patients can be referred, nor are there physicians with particular training in clinical toxicology. Consequently, such patients are generally seen at the nearest local hospital, where the provision of facilities for proper diagnosis and management may not be adequate or appropriate.

If conclusions can be drawn more generally from this survey of one hospital in Barcelona, it appears that poisoning, to the extent of 1.8% of all casualty patients, is less prominent than in some other countries; for example, Britain.

On the other hand, the occurrence both of accidental poisoning, chiefly in small children, and of self-poisoning in adults resembled that seen elsewhere. In one respect, however, our figures appear unusual, with no less than 11.8% of cases being attributable to acute ethyl alcohol poisoning. Otherwise, as regards sex distribution and age, the data are similar to those of other countries.

Again, the self-poisoning by means of drugs observed in Barcelona follows the same pattern as in other European countries, with an in-

creasing proportion of benzodiazepines in place of barbiturates, even if this change is not yet so advanced as in e.g., Scotland [7], and the emergence of antidepressants as drugs of choice in this context. It should be noted, however, that no cases of paracetamol overdose have encountered in Barcelona, no doubt because of the different choice of mild analgesics for use in Spain.

Impressively, a large proportion of the poisonings with barbiturates in Barcelona can be attributed to one proprietary preparation, viz., Optalidon (Sandoz) (Florinal in the United States), each tablet of which contains 50 mg butalbital, 125 mg aminophenazone, and 25 mg caffeine. It is widely promoted in Spain as a nonhypnotic analgesic and widely resorted to for the relief of a variety of aches and pains, being obtainable without prescription. Moreover, while the containers are labeled to be "kept out of the reach of children," we believe that the bright pink tablets are attractive to youngsters. With medical opinion strengthening against the use of barbiturates except for the control of epilepsy by phenobarbitone, it is regrettable that such a formulation as this should remain on the market, should be so actively promoted, and should be freely available to the public.

Furthermore, in accordance with experience elsewhere, the depth of coma associated with overdoses of barbiturates and antidepressants and thus the likelihood of nonrecovery was much more marked than that seen with overdoses of benzodiazepines. Our cases of ethyl alcohol poisoning, too, require more investigation to establish the blood levels prevailing.

At the same time, it appears that our scheme of clinical management might be improved. Gastric lavage should not be practiced except in accordance with the strict indications for this procedure and, where conscious children are concerned, it would be far preferable to turn to emesis. Scope also exists to establish the value of absorbents such as activated charcoal.

Similarly, forced alkaline diuresis has limited application. It looks as though, in Barcelona, it was often undertaken without due regard to the critical criteria. Being a measure not entirely free from hazard, especially in nonexpert hands, there seems little justification for adopting it on the scale here revealed. That it was often unnecessary is indicated by the fact that 30 of the patients subjected to this form of treatment left the hospital within 24 hr, including 7 within 12 hr.

In conclusion, there is urgent need in Barcelona to establish a medical center properly staffed and equipped to handle cases of poisoning, in which diagnosis and management could be rationalized. Such a center could have an educational function not only within, but also beyond, Barcelona. It could also serve as a focus of specialized knowledge, i.e., as a poisons information center.

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