

The changing profile of poisoning and its management

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SUMMARY

To identify changes in treatment methods and types of drugs taken in overdoses over a 10-year period we conducted a retrospective study in the accident and emergency department of a large teaching hospital. The influence of a protocol to direct medical management was also studied. Results were compared with those of a 1984 survey at the same institution.

409 cases of accidental and deliberate poisoning were reviewed. In deliberate poisoning 52% of drugs taken were prescription drugs, 41.6% over-the-counter medications and the remaining 6.4% illicit drugs. Only 13% of patients had a stomach emptying procedure compared with 75.2% of patients in the previous survey. Charcoal was administered or offered in over 95% of cases.

Medical management of overdoses in this centre changed drastically over 10 years. A department protocol had been adhered to in the great majority of cases, and we recommend that all accident and emergency departments as well as medical and paediatric teams establish similar protocols. Over-the-counter drugs are increasingly troublesome, especially paracetamol, which accounts for 28.8% of drugs taken in deliberate overdose.

INTRODUCTION

The sharp increase in self-poisoning as a social phenomenon since the late 1960s has been well documented elsewhere^{1,2}. 2-3% of all patients who attend urban accident and emergency departments are there because of accidental or deliberate poisoning. The clinical picture in Leicestershire was described by Godfrey *et al.* in 1984³. Historically, the main emphasis of treatment has been to empty the stomach, either by induced emesis with ipecac or by gastric lavage. The results of research over the past 10-15 years have de-emphasized the role of gastric emptying and have led to use of activated charcoal as the main treatment intervention⁴⁻¹². We now follow a department protocol for the management of the poisoned patient which adopts this strategy:

- Assess airway, breathing and circulation
- Use antidotes where applicable
- In other cases give 50 g charcoal in adults, 25 g in children
- Empty stomach by gastric lavage if:
 - (a) Serious ingestions seen within 1 h (guidelines on mg/kg dose issued for paracetamol, aspirin and theophylline)
 - (b) Tricyclic antidepressants or aspirin up to 4 h post-ingestion
 - (c) Unconscious patient, following intubation
- Ipecac to be avoided

The purpose of this study was to identify the changes over a 10-year period in medical management and the types of drugs being taken. We also studied how closely the management protocol had been followed.

METHOD

To allow comparison between our results and those obtained by Godfrey in the same institution 10 years previously the study was performed over a similar 9-week period and took the form of retrospective case note review. We selected all case notes of patients in whom initial triage or discharge coding suggested either overdose or toxic ingestion. Those who presented with simple alcohol excess were excluded, as were those who discharged themselves before being seen by a doctor. The remaining case notes were then analysed for patient demographics, drug or substance taken, treatment given in the accident and emergency department and whether treatment adhered to the departmental protocol.

RESULTS

Of 19 139 patient episodes during the study period, 409 (2.1%) were due to either accidental or deliberate poisoning. Table 1 shows the distribution by age and sex. The F:M ratio was 1:1 for accidental poisoning and 1.3:1 for self poisoning. The 83 cases of accidental poisoning involved 94 substances; 50% were household items and plants ingested by children and the remainder were drugs, paracetamol being the most common (29% of cases).

Table 1 Poisonings by sex and age

	0-14 years	15-25 years	25 years	Total
M	34	60	87	181
F	53	83	92	228

There were 326 cases of deliberate self poisoning. The number of drugs ingested in these cases (not including alcohol) varied between one and five and involved 406 substances. 52% were prescription-only medicines, 41.6% 'over-the-counter' medicines and the remaining 6.4% illicit drugs. Paracetamol accounted for 28.8% of all drugs taken in deliberate overdose (Table 2).

Of 409 patients with poisoning seen during the study period 40 (9.9%) had gastric lavage performed and 13 (3.2%) received ipecac. On review it was felt that 12 of these 53 procedures had been unnecessary and signified a failure to adhere to the protocol. Of the 409 cases, we judged that activated charcoal had been indicated in 264. Charcoal was actually given in 225 (85.2%), was refused by the patient in 26 (9.9%), and was not offered in only 10 (3.8%) where it would have been helpful in preventing drug absorption. In three cases we could not determine whether charcoal had been given or not. Additional supportive measures and specific antidotes included desferrioxamine, glucagon, naloxone, and acetyl cysteine (used according to the guidelines for paracetamol poisoning issued by the British Association for Accident and Emergency Medicine¹³).

DISCUSSION

409 cases of poisoning were seen over our study period, compared with the 405 (excluding alcohol excess) in Godfrey's work of 1984. In Godfrey's study only 28% of the drugs identified were over-the-counter medications. In our series this figure has risen to 41.6%. Paracetamol alone accounted for 28.8% of all drugs deliberately taken, with non-steroidal anti-inflammatory drugs replacing aspirin as the second most popular. We postulate that this represents a change in the perceived safety of aspirin in the mind of the general public. Those who take paracetamol in overdose are often unaware of its true toxicity^{14,15}.

What about management? Our department's protocol has led to a dramatic decline in the number of stomach emptying procedures. During the study period only 13% of patients underwent a stomach emptying procedure compared with 75.2% in Godfrey's study¹. As each gastric lavage takes an hour of nursing time (2-3 nurses occupied for 20 min), this change in our practice greatly decreases the

Table 2 Drugs taken in deliberate overdose

Drugs	No. of cases
Analgesics	
Paracetamol	116 (28.8%)
NSAI	26 (6.4%)
Aspirin	25 (6.3%)
Compound analgesic	40 (9.7%)
Centrally acting	
Benzodiazepines	53 (13.1%)
Antidepressants	43 (10.6%)
Anticonvulsant	8 (2.0%)
Lithium	3 (0.7%)
Other CNS	27 (6.6%)
Other drugs	
Beta blockers	9 (2.2%)
Antibiotics	9 (2.2%)
Street drugs	21 (5.2%)
Theophylline	3 (0.7%)
Iron	2 (0.5%)
Household	5 (1.2%)
Hypoglycaemics	2 (0.5%)
Miscellaneous	14 (3.5%)

NSAI=Non-steroidal anti-inflammatory; CNS=central nervous system

demand on nursing resources as well as sparing the patients unnecessary and potentially hazardous procedures. Stomach-emptying is hard to justify with the lack of any proven benefit in prospective trials⁹.

Greaves *et al.*¹⁶ lately reported that, of those replying to a questionnaire circulated to career accident and emergency staff, less than half worked in a department with a formal protocol for the management of the poisoned patient. We feel it is unsurprising that the same study identified great differences in how cases of poisoning would be managed by the respondents; it identified the overuse of both gastric lavage and ipecac. Our protocol, relying on gastrointestinal decontamination with activated charcoal, allows a cohesive

approach to medical management of the poisoned patient and speeds the progress of these patients through the department. We recommend that all accident and emergency departments as well as medical and paediatric teams establish similar protocols.

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