

Management of drug overdoses in accident and emergency departments in the United Kingdom

I Greaves, S Goodacre, P Grout

Abstract

A questionnaire consisting of 10 overdose scenarios was sent to 190 career accident and emergency staff in the United Kingdom, asking in each case how the respondents would treat a patient to prevent drug absorption. The responses showed lack of consensus in treatment methods. There was extensive use of both ipecacuanha induced emesis and gastric lavage despite a lack of experimental evidence to support these techniques.

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Key terms: drug overdose; lavage; charcoal; ipecacuanha

The comparative efficacy of the principal methods of preventing drug absorption in cases of overdosage has been a matter of debate and research in recent years. Our aim was to survey the use of three principal methods: gastric lavage, ipecacuanha induced emesis, and activated charcoal in accident and emergency departments in the United Kingdom.

Methods

A questionnaire consisting of 10 case scenarios, each representing a typical presentation of drug overdosage, was sent to 190 members of the British Association for Accident and Emergency Medicine working in accident and emergency (A&E) departments in the United Kingdom. Of these, 120 were consultants (63% of recipients).

In each scenario the respondent was asked to indicate their preferred treatment by ticking one or more boxes from the options indicated below. Where appropriate, the option of checking drug levels before treatment was included. All patients were asymptomatic unless described otherwise.

Gastric lavage	[]
Ipecacuanha	[]
Charcoal	[]
None	[]
Check drug levels first	[]

The scenarios are outlined in the results section to avoid repetition.

Results

Ninety three responses were returned. The breakdown in terms of grade of staff responding was: consultants, 52 (56% of respondents), senior registrars, 20; registrar, 14; staff grade, 5; senior house officer, 1; clinical assistant, 1. Forty two of the respondents (46%) worked in

a department where there was a written policy for the treatment of overdose.

Gastric lavage in combination with charcoal was a frequent combination and hence is listed separately from gastric lavage alone or charcoal alone.

Scenarios 1-4 are variations of paracetamol poisoning. Responses are outlined in table 1.

- (1) A 26 year old male who claims to have taken 100 paracetamol one hour previously. He is a chronic attender who has taken many previous overdoses.
- (2) A 19 year old male who has taken 30 paracetamol 500 mg tablets two hours previously after having lost his job. He has not vomited.
- (3) A 32 year old female who has taken 12 paracetamol 500 mg tablets two hours previously following a family argument. She is asymptomatic.
- (4) A 26 year old male whose wife has left him has taken 20 Co-proxamol tablets eight hours ago. He is asymptomatic.

Scenarios 5 and 6 are benzodiazepine poisonings. Responses are outlined in table 2.

- (5) A 50 year old female with depression and insomnia who has taken eight temazepam 10 mg tablets two hours ago. She is asymptomatic.
- (6) An 18 year old female, recently split up from her boyfriend, who took 20 diazepam 2 mg tablets two hours ago after drinking half a bottle of vodka.

The remaining scenarios are miscellaneous overdoses. These are outlined in table 3.

- (7) A 43 year old female who, following the death of her son, has taken 20 amitriptyline 25 mg tablets four hours previously. She is tachycardic and sweaty.
- (8) A 30 year old female who has taken 20 Ponstan tablets (mefenamic acid) over the last eight hours while suffering unbearable period pains. She is otherwise asymptomatic.
- (9) A 45 year old male, recently diagnosed as having motor neurone disease, who has taken 50 aspirin 300 mg tablets eight hours previously. He has nausea and tinnitus.
- (10) A chronically depressed 35 year old male who took 30 tablets from various unlabelled bottles two hours ago. He is nauseated and unable to remember the drug names.

Accident and
Emergency
Department,
Hull Royal Infirmary,
Anlaby Road,
Hull HU3 2JZ
I Greaves
P Grout

Accident and
Emergency
Department St James's
University Hospital,
Beckett Street,
Leeds LS9 7TF
S Goodacre

Correspondence to:
Dr I Greaves,
Long On Cottage,
High Street,
Madsington,
North Yorkshire HG3 3NR.

Table 1 Responses to scenarios 1-4

Case No	Clinical details	Lavage	Ipecac	Charcoal	None	Levels first	Lavage, charcoal
1	26 year old male, 100 paracetamol 1 h previously	22	21	9	0	13	41
2	19 year old male, 30 paracetamol 2 h previously	22	21	9	0	6	41
3	32 year old female, 12 paracetamol 29h previously	31	12	4	30	16	
4	26 year old male, 20 co-proxamol 8 h previously	4	5	6	9	68	8

Table 2 Responses to scenarios 5 and 6

Case No	Clinical details	Lavage	Ipecac	Charcoal	None	Lavage, charcoal
5	50 year old female, 80 mg temazepam 2 h ago	2	13	11	67	2
6	18 year old female, 40 mg diazepam alcohol	13	23	9	47	4

Table 3 Responses to scenarios 7-10

Case No	Clinical details	Lavage	Ipecac	Charcoal	None	Levels first	Lavage, charcoal
7	43 year old female, amitriptyline	14	3	17	1	N/A	59
8	30 year old female, Ponstan	5	16	24	35	N/A	12
9	45 year old male, aspirin	26	2	12	4	23	43
10	35 year old male, various bottles	19	17	15	1	9	45

Discussion

We were disappointed with the response rate but believe that those responses we received indicate problems with the treatment of self poisoning sufficiently important to publish.

We make no pretence in this paper to suggest that there is a definitive correct way of treating most common overdoses. We would, however, suggest that there is a striking lack of consensus amongst A&E doctors in this field and further that the reasons chosen for particular treatments do not always appear either obvious or consistent.

The responses to scenarios 1 to 4 (those involving paracetamol) show an overwhelming use of lavage (with or without charcoal) and ipecacuanha, despite recent work¹ suggesting that the use of charcoal is more effective than attempts to empty the stomach. The high incidence of lavage in scenario 1 (63 out of 93 respondents), where the history must be in question and the overdose was supposedly taken only one hour previously, suggests that respondents regard this as a fail-safe manoeuvre when the history is in doubt.

Regarding scenarios 5 and 6, there is a large majority who would not treat asymptomatic benzodiazepine overdoses. However 24.7% gave ipecacuanha and 18.3% performed lavage in case 6 (compare responses to case 5). The treatment of these two appears to be inconsistent. Twenty six respondents (28%) treated the overdose of 80 mg of temazepam, whereas 46 (49.5%) treated the patient who

had taken diazepam and alcohol. There is no evidence to suggest that stomach emptying is helpful in benzodiazepine poisoning.²

One of the few probable indications for gastric lavage is significant tricyclic antidepressant overdose.² This is reflected by the 78.5% who recommended this treatment for scenario 7. However, it may be of little value after four hours. That 74.2% of respondents recommended gastric lavage for the late presentation of aspirin overdose (scenario 9) would seem controversial.

Scenarios 8 and 10 are (deliberately) more controversial and this is reflected in the results. However, the number of doctors recommending lavage in scenario 10 (68.8%) is high.

It would appear that there remains a distinct tendency to overtreat common overdoses. Despite increasing evidence supporting a lessening of the use of gastric lavage (except in certain poisonings)³⁻⁶ it would appear that for many doctors this remains the definitive treatment for "overdoses." Recent papers have demonstrated the value of charcoal in absorption of ingested toxins,^{1 7-9} but despite this the use of charcoal seems rare from our survey, and patients are still undergoing lavage without instillation of charcoal. It may be noted that in some cases the figures indicated missing answers. This was due to a small number of recommendations for treatment with ipecacuanha and charcoal together.

Answers to our survey questions would suggest that "punitive" washouts may still be taking place despite lack of clinical indication and awareness of the potential hazards associated with this procedure.

CONCLUSIONS

With few exceptions there appears to be little consistency or scientific basis in the treatment of hypothetical overdoses as revealed in our survey, although published reports seem to provide an increasing consensus in this area. Despite current evidence to suggest that ipecacuanha is of doubtful clinical value¹² and that gastric lavage should be reserved for the early treatment of significant highly toxic overdoses such as tricyclics and iron, both remain in common use, whereas charcoal, which may be more effective in the treatment of the majority of simple self poisonings,^{3 4 7 10 12} has yet to establish itself in widespread clinical use.

We believe that further studies and discussions are needed in order not only to increase consensus in this controversial area but also to reduce the apparent number of unnecessary treatments which this paper would suggest are being carried out. Perhaps this issue should be addressed by the UK Toxicology Group to provide guidelines.

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