and holding them with that degree of certainty which the evidence warrants" to the use of heparin in either disseminated intravascular coagulation or immune complex disease, you don't use it. Samuel Butler gave another view, that "life is the art of drawing significant conclusions from insufficient evidence," and I have no doubt that some would have treated the patient with heparin. The patient died and who knows if the treatment was right or wrong?

APPOINTMENTS OF SPEAKERS

- (1) Professor G P McNicol, MD, PHD, head of department of medicine, University of Leeds.
- (2) Dr S H Taylor, BSC, FRCPED, senior lecturer in medicine, deputy director of cardiovascular unit, University of Leeds.

- (3) Dr M F Dixon, MB, MRCPATH, lecturer in pathology, University of Leeds.
- (4) Professor A G W Whitfield, PHD, FRCP, emeritus professor of medicine, University of Birmingham.
- (5) Dr R Freeman, MB, CHB, lecturer in bacteriology, University of Leeds.

References

- ¹ Garrod, L P, Lambert, H P, and O'Grady, F, *Antibiotic and Chemotherapy*, p 314. London, Livingstone, 1973.
- ² Weinstein, L, and Schlesinger, J, *Progress in Cardiovascular Diseases*, 1973, 16, 275.
- ³ Tu, W H, Shearn, M A, and Lee, J C, *Annals of Internal Medicine*, 1969, 71, 335.
- ⁴ Gutman, R A, et al, *Medicine*, 1972, 51, 1.
- ⁵ Baggenstoss, A H, *American Journal of Pathology*, 1948, 24, 1003.

Hospital Topics

Why do people use paracetamol for suicide?

B G GAZZARD, M DAVIS, J SPOONER, ROGER WILLIAMS

British Medical Journal, 1976, 1, 212-213

Summary

A questionnaire to assess motives for choosing paracetamol as a suicidal agent was completed by 107 patients admitted after an overdose of the drug. None of the 48 patients interviewed would have chosen paracetamol had they known that there would be an interval of two to three days before the onset of serious symptoms. Only five of the patients had obtained the drug on prescription, but the remainder had obtained it easily from a retail pharmacy. There was no apparent reason for the preference for paracetamol. It would be difficult to restrict the availability of paracetamol, and educating the public about the effects of an overdose would be more appropriate.

Introduction

Taking an overdose of a drug is now so common that it warrants the description of "the modern epidemic." In Britain at least 15% of acute adult medical admissions to hospital are for self-poisoning.¹ This amounts to some 100 000 admissions a year in England and Wales, a figure that has nearly doubled since 1965.² One analysis has shown that the chief agents used

are sedatives, tranquillisers, and antidepressants,¹ and they accounted for over 2300 deaths in Great Britain in 1973.³ In the same year analgesic preparations containing salicylates and paracetamol caused 17% of hospital admissions for self-poisoning,¹ and no fewer than 201 patients died from salicylate overdose, and 66 from paracetamol.⁴

In strong contrast to the effects of an overdose of salicylates or of sedative and antidepressant drugs, taking large quantities of paracetamol does not lead to rapid loss of consciousness. Apart from some early nausea and vomiting due to gastric irritation the patient may feel quite well until hepatic necrosis develops some two to three days later.⁵ Nevertheless, in spite of its lack of immediate clinical toxicity there has recently been an increasing number of cases of overdosage with paracetamol, while the incidence of deaths from salicylates has remained fairly constant.^{1 6-10}

In view of the different effects of overdose with paracetamol compared with other agents, we studied the reasons for selecting the drug for self-poisoning to try and identify means of dealing with this abuse. We asked patients who had taken an overdose of paracetamol to complete a questionnaire.

Patients and methods

The questionnaire asked four basic questions: how were the tablets obtained; were they originally obtained specifically for taking an overdose; why was paracetamol chosen in preference to other drugs; and did you know that liver failure was a feature of paracetamol overdose? The patients were also asked whether they would have taken the same quantity if the tablets had been foil-wrapped.

A total of 107 patients (69 females and 38 males) answered the questionnaire. Forty-eight of them were interviewed and completed the questionnaire while they were still in hospital and 31 were interviewed as outpatients; the remaining 28 completed it by post. All these patients had been admitted to the liver unit at King's College Hospital, but, as some of them had been transferred from other hospitals after developing hepatic dysfunction, probably relatively more had taken a hepatotoxic overdose of paracetamol than might have been admitted to a general hospital. The study was carried out

Liver Unit and Medical School, King's College, London SE5 8RX
B G GAZZARD, MB, MRCP, research fellow (present address: Whipps Cross Hospital, London E11)

M DAVIS, MB, MRCP, senior lecturer and honorary consultant physician
ROGER WILLIAMS, MD, FRCP, consultant physician and director of unit

Winthrop Laboratories, Sterling-Winthrop House, Surbiton-upon-Thames, Surrey

J SPOONER, MB, BCHIR, senior medical director

from June 1974 to January 1975 and covered admissions during 1973 and 1974.

Results

The number of tablets patients claimed to have taken ranged from 25 to 270. All grades of hepatic dysfunction and damage occurred, from minimal in 22 patients to severe hepatic necrosis with encephalopathy in 11. Two of the patients interviewed died in fulminant hepatic failure. Sixteen patients admitted previous unsuccessful attempts at self-poisoning with other drugs and one had made a previous attempt with paracetamol.

Although the study was essentially concerned with the reasons for choosing paracetamol for suicide, the reasons given for taking an overdose of drugs may be briefly analysed. Sixty-eight of the patients had been depressed for some time and had not experienced any obvious recent emotional upset; 11 of these were being treated in psychiatric hospitals at the time of the overdose. The remaining 39 patients said they took the overdose after a breakdown in personal relationships. The largest group of patients (36) were between the ages of 12 and 20. In this group 19 patients could recall no previous disturbance of mood, 17 having taken the overdose after an argument with parents or friends, and two because of severe financial problems. emotional upset; 11 of these were being treated in psychiatric hospitals at the time of the overdose. The remaining 39 patients said they took the overdose after a breakdown in personal relationships. The largest group of patients (36) were between the ages of 12 and 20. In this group 19 patients could recall no previous disturbance of mood, 17 having taken the overdose after an argument with parents or friends, and two because of severe financial problems.

Several points emerged from the completed questionnaire. Fifty-two patients had bought the tablets, without prescription and usually from a retail pharmacy, specifically for taking an overdose. Forty-two of these patients had obtained the tablets on the day they took the overdose, but 10 had bought them up to a month earlier with suicide in mind. Fifty-five of the patients had kept paracetamol in the home as a stock analgesic and five of them had obtained it on a doctor's prescription. For these patients the drug was conveniently at hand. For the remainder it was a widely available and easily purchased medicine, but no particular reason was given for choosing paracetamol in preference to other drugs.

Only 12 of the 107 patients knew when they took their overdose that in massive doses paracetamol causes hepatic damage and that hepatic failure is a feature of the illness. Eight had learnt of these effects from the press or TV and four knew either because they were nurses or because they had been told by a nursing friend or relative. All had expected to lapse rapidly into a fatal coma after taking the tablets, as this was the expected effect of overdose with any drug and they did not expect paracetamol to be an exception. None of the people interviewed would have taken paracetamol had they known that there was an interval of two to three days before the onset of serious symptoms. Indeed, although all but five patients were adamant that they had wanted to die when they took the overdose, only six were still sure by the time they arrived in hospital some hours later.

If the tablets had been individually wrapped in foil 14 patients would have taken something else, 27 would have taken the same number of tablets, seven would have taken fewer, and the remaining 59 did not know what they would have done.

Discussion

Although it is always difficult to assess the exact motives for self-poisoning, a striking number of patients in this survey took an overdose for reasons that were rapidly regretted. Some were aware of the potential hepatotoxicity of an overdose of paracetamol, but all of them had expected a rapid loss of consciousness and appeared not to know that there was an interval between taking the tablets and the onset of obvious ill effects. All the patients interviewed stated that they would not have taken paracetamol had they known of this interval.

Paracetamol was usually chosen as a suicidal agent because it was either readily available in the home or widely and easily obtainable on purchase. Making the drug obtainable on prescription only would certainly limit its availability, but it would be unreasonable to do this unless similar measures were taken for salicylates. Otherwise it would serve only to increase the

number of people taking aspirin overdoses, in whom there is a higher overall mortality rate than in those taking paracetamol.^{11 12} Placing both groups of drugs on prescription would add an intolerable work load to doctors dealing with mildly painful conditions. In this survey there were two distinct groups of people taking overdoses with paracetamol. One group, consisting of over half the patients, were suffering from varying degrees of depression and appeared to have been precipitated into taking an overdose without appreciable recent emotional upset. Since such patients are particularly liable to attempt suicide, restricting the availability of analgesics might divert them to taking overdoses of sedatives and psychotropic agents, which cause most deaths from self-poisoning in England and Wales, even though they are available only on prescription.

A lesser restriction on the availability of analgesics, including paracetamol, would be to limit their sale to pharmacies only. The recent recommendation of the Medicines Commission went some way towards this in suggesting that the number of tablets of paracetamol or aspirin available for sale in a single pack outside pharmacies should be limited to 25.¹³

A stronger deterrent might be for each analgesic tablet to be individually wrapped in foil. Given the number of patients who specified a breakdown in personal relationships as the cause of attempted suicide, and the fact that the largest age group was that between 12 and 20, probably the time taken to open such packaging might discourage impulsive overdoses with the drug.

Alternatively, a substance could be incorporated into the tablet itself to reduce its toxicity. A small dose of the emetic ipecacuhana in each tablet would lower the dose required to produce vomiting, but individual susceptibility to its effect varies considerably, and it would be difficult to assess the correct dose. Hepatic glutathione depletion is implicated in paracetamol-induced liver injury,¹⁴ and, as an alternative, a glutathione precursor, such as cysteine or methionine, could be included in the paracetamol tablet.¹⁵ Nevertheless, such a compound preparation would be prohibitively expensive to produce, and, since a built-in safety mechanism would probably soon become common knowledge, patients would turn to other drugs when contemplating suicide.

The results of this survey suggest that if the effects of an overdose of paracetamol had been known the patients would not have taken the drug. Hence the public should be told this fact, possibly as follows. Firstly, specific propaganda could be incorporated into a wide programme of education aimed at reducing the current misuse of medicines. Secondly, the usual wording on the packaging against exceeding the recommended dose could be revised, though this would have to avoid frightening the normal therapeutic user.

References

- 1 Matthew, H, *Medicine*, 1975, 5, 214.
- 2 Registrar General's Report on hospital In-patient Inquiry for 1968, Part I Tables, London, HMSO, 1972.
- 3 Registrar General's Statistical review of England and Wales for 1973, Part I Tables Medical. London, HMSO, 1975.
- 4 Office of Population Censuses and Surveys, *Pharmaceutical Journal*, 1975, 214, 260.
- 5 Clark, R, *et al*, *Lancet*, 1973, 1, 66.
- 6 Office of Population Censuses and Surveys, *Pharmaceutical Journal*, 1970, 204, 703.
- 7 Office of Population Censuses and Surveys, *Pharmaceutical Journal*, 1971, 206, 422.
- 8 Office of Population Censuses and Surveys, *Pharmaceutical Journal*, 1972, 208, 530.
- 9 Office of Population Censuses and Surveys, *Pharmaceutical Journal*, 1973, 210, 77.
- 10 Office of Population Censuses and Surveys, *Pharmaceutical Journal*, 1974, 212, 92.
- 11 Campbell, H, *Salicylates*, ed A StJ Dixon, *et al*, p 259. London, Churchill, 1963.
- 12 Wright, N, *Prescribers Journal*, 1974, 14, 78.
- 13 Department of Health and Social Security. *Report on a General Sale List of Medical Products for Human Use*. London, HMSO, 1973.
- 14 Mitchell, J R, *et al*, *Journal of Pharmacology and Experimental Therapeutics*, 1973, 187, 211.
- 15 McLean, A E M, *Lancet*, 1974, 1, 729.