An audit of drug management of acute behavioural disturbance

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The management of acute behavioural disturbance in psychiatric patients is an area that continues to require investigation, as it is potentially dangerous for both patients and staff. We conducted an audit of the management of these episodes, looking particularly at the drugs given, the doses and any polypharmacy. We also examined whether the issue of guidelines led to any changes in prescribing patterns. We found that we were prescribing appropriately and that the guidelines did lead to some shift toward safer prescribing.

In March 1994 a manic patient admitted to Fulbourn Hospital received, over 48 hours, six different neuroleptic medications. This incident led us to review the literature on the management of the acutely disturbed psychotic patient. We concluded that the behaviour of most patients with psychotic illnesses can be managed with the use of oral medication, usually neuroleptics alone. High potency neuroleptics are favoured because they cause less hypotension, have simpler pharmacokinetic pathways and do not worsen the effects of some misused drugs such as anticholinesterases and phencyclidine (Munizza *et al*, 1993). If additional medication is needed, benzodiazepines can be given in conjunction with neuroleptics.

When a patient is agitated or aggressive, intramuscular medication is often used to control the behaviour rapidly. This route is preferred to oral treatment because it relies less upon the cooperation of the patient and has a more rapid onset of action. The aim of treatment in this situation is to reduce arousal, tension and excitability rather than primarily to sedate the patient. The most commonly used parenteral neuroleptic used in a study by Pilowsky *et al* (1992) was haloperidol. In the same study, the most commonly used benzodiazepine was diazepam. Lorazepam is the benzodiazepine considered most appropriate for intramuscular use (*Drugs and Therapeutics Bulletin*, 1995).

Although intravenous administration carries more risk to the patient, there are situations where rapid sedation is required because of the immediate danger to patient and staff. Diazepam (in the form of Diazemuls) appears to be the most suitable drug for intravenous use in this situation.

Following the literature review and discussion with medical and nursing colleagues, some advisory guidelines were produced on different types of scenarios with guides on which drugs to use, including dose range and method of administration. These were generally agreed and distributed to all medical staff and all wards in July 1994 (copies of guidelines can be obtained from NH). The aim of the guidelines was to reduce the use of cocktails of treatment and to encourage the use of higher potency neuroleptics.

In 1995, an audit was undertaken to review practice in the management of acute behavioural disturbance during 1994 and to see whether the guidelines had any effect on prescribing practice.

The study

The medical notes of all patients admitted to the adult acute wards in Fulbourn Hospital, Cambridge, over a ten-month period (March–December 1994) were reviewed.

The sample

An episode of acute behavioural disturbance (ABD) was defined as occurring in any patient who was given parenteral medication (neuroleptic, benzodiazepine or barbiturate) within ten days of admission for the control of aggressive or disruptive behaviour. The case notes were examined and information collected on age, sex, Mental Health Act status, diagnosis (as coded in the notes in ICD–9 or ICD–10), type of behavioural disturbance and medication given.

Standards set and parameters measured

We set three standards: (a) all prescriptions were to be within *British National Formulary* (BNF) limits; (b) only two drugs from any class (e.g. neuroleptic) were to be prescribed within 48

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hours; (c) intravenous medication was only to be given when there was a danger of imminent personal violence. We also examined the drugs prescribed before and after the issue of the guidelines.

Audit activity

The results of this audit were presented to the multidisciplinary hospital audit meeting. Standards were discussed again and the guidelines are currently being revised.

Results

Of the 609 admissions during the study period, 604 (99%) case notes were found. Of those, 590 (98%) contained the correct drug chart and so were reviewed. During 46 (7.6%) of these admissions an acute behavioural disturbance occurred (representing 43 patients). There were no significant differences by age or sex between the ABD group and the total 609. Patients were more likely to receive an injection out of hours than during the normal working day (9 am–5.30 pm weekdays), but this was in proportion to the greater number of hours that fall 'out of hours'.

In the ABD group, the largest diagnostic group was of bipolar patients (16 patients, 35%). Other diagnoses were schizophrenia (9), schizoaffective disorder (5), other psychotic disorder (9), depressive illness (1), alcohol-related disorder (3) and other diagnoses (3). This contrasted with the total 609 admissions where the biggest diagnostic group was of schizophrenia (116 patients, 19%), followed by bipolar affective disorder (88 patients, 14.4%).

Thirty-one of the 46 patients (67%) were detained under the Mental Health Act 1983 prior to the acute behavioural disturbance. Eleven were placed on a section as a result of the disturbance, and five were not on a section at any time during their admission.

Table 1 shows the reasons for patients receiving injections. Approximately half the patients were being uncooperative (behaviours ranging from quietly uncooperative (e.g. mute, not eating or drinking) to noisily uncooperative and attempting to leave), while half were violent (behaviours ranging through verbal threats of violence, physical objects used, making physical contact, and self-harm). Female patients were more likely to be uncooperative and male patients more likely to be violent.

Table 1. Type of behaviour precipitating treatment by injection

Type of behaviour	*n* (%)	Sex
Not known	4 (9%)	2F, 2M
Uncooperative	22 (48%)	14F, 8M
Violent	20 (43%)	7F, 13M

Of the 46 cases of ABD, 26 received antipsychotic medication at the time of injection, five a benzodiazepine, and 15 a combination of both. The type of medication received did not affect the need for a further injection in that whatever medication was used (neuroleptic only, benzodiazepine only or a combination), 40% of patients in each group required further parenteral medication within 24 hours. In every case, doses at the time of injection, in the 24 hours before the injection (if applicable) and in the 24 hours post-injection were all within BNF limits. As can be seen from Table 2, in only one case was more than two drugs from any class given within 48 hours. This patient received three neuroleptics, two benzodiazepines and one dose of amylobarbitone sodium. Hence our second standard (above) was met in 98% of cases.

Intravenous medication was used in nine cases; eight of these were for the prevention of personal violence. The ninth case was a patient with delirium tremens. Hence our third standard was met in 89% of cases. In seven cases diazepam (Diazemuls) was the drug used intravenously. In the two other cases droperidol was used.

Table 3 shows the number of times various drugs were prescribed before and after (not including) July 1994, when the advisory guidelines were issued. There was an increase in the prescription of haloperidol in terms of the percentage of total drugs prescribed before and after July 1994 (from 10% to 27.3%). There was a similar increase in the prescription of lorazepam (10% to 24%). The prescription of chlorpromazine, as a percentage of the total number of drugs prescribed, decreased from 30% to 24.2%, as did that of diazepam from 30% to 12.1%. The prescription of Clopixol Acuphase also fell relatively from 20% to 12.1%. The results show a trend towards the high-potency neuroleptics and the benzodiazepine with the shorter half-life, as suggested by the guidelines.

The figures in Table 3 might suggest an increase in prescribing after the issue of the guidelines. They may alternatively reflect a variation in prescribing from month to month.

Comment

The management of acute behavioural disturbance is an area which merits investigation because of the risk to the patient, to other patients and staff. Sudden deaths have been

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Table 2. Numbers of drugs given (see text for details of drugs received by patients who received only one or two drugs)

No. of drugs given per patient	*n*	No. of each type of drug given per patient		
		Neuroleptics	Benzodiazepines	Other drugs
1	13	-	-	0
2	14	-	-	0
3	14 (7)	2	1	0
	(7)	1	2	0
4	4	2	2	0
6	1	3	2	1

Table 3. Number of different drugs prescribed before and after July 1994

Drugs	Before July	After July	All months
Chlorpromazine	6	8	16
Haloperidol	2	9	11
Lorazepam	2	8	10
Diazepam	6	4	10
Clopixol Acuphase	4	4	8

described which may have been related to neuroleptics (Brown & Kochis, 1984; Jusic & Lader, 1994). The relationship between sudden death and type and dose of neuroleptic is unclear. The Royal College of Psychiatrists prepared a consensus statement (Thompson, 1994) regarding the use of high-dose antipsychotic medication. They defined a high dose as "a total daily dose which exceeds the advisory upper limit for general use" in the BNF or product licence. The statement recommends that such total daily doses are not exceeded and advises that not more than one antipsychotic is prescribed at a time. If further measures are required for emergency tranquillisation, it suggests the use of a benzodiazepine together with a neuroleptic or the injection of a medium-term antipsychotic, zuclopenthixol acetate, provided that the patient is known to have previously tolerated antipsychotics well. The statement further comments that a junior trainee psychiatrist (i.e. not qualified as a member of the Royal College of Psychiatrists) is not considered sufficiently qualified to increase the dose of antipsychotics (alone or in combination) above the upper limit. This is particularly pertinent because emergency situations are often dealt with by relatively junior staff, and as Pilowsky *et al* (1992) showed, the BNF upper limits are regularly exceeded in some hospitals.

The standards that we set were met to a very high degree (89–100%). We consider that this indicates that our practice is generally safe in the management of acute behavioural disturbance. In particular we were pleased to see that BNF limits were not being exceeded, and that the only incident of polypharmacy was the one which prompted the audit and was an isolated incident.

We also reviewed the use of zuclopenthixol acetate (Acuphase) in the management of patients in this study. We found that it was only given to patients who had had a previous admission to Fulbourn Hospital (were not neuroleptic naïve) and who had a diagnosis of a psychotic illness. It was therefore used as recommended in the guidelines and by the Royal College of Psychiatrists.

It was noted that five patients were not detained under the Mental Health Act during their admission. Four of these patients were on the same ward and had their initial injection either at a weekend or on a bank holiday. In all five cases there was no record of the action being discussed with a senior doctor. Two of the patients had bipolar illness, one schizoaffective disorder, one an acute reaction to stress, and one delirium tremens (DT). One might argue that the patient with DT required urgent treatment and that staff anticipated that no further injections would be necessary. There are other possibilities as to why the remaining patients were not detained under the Mental Health Act (e.g. a previous history of rapid compliance with medication). Since this audit was not designed to study the patients' Mental Health Act status in detail, it remains difficult to comment more fully on these results. They suggest the need for further investigation.

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While conducting this audit we found that there was rarely any mention of or record of any physical observations being made or requested, either prior to or following injection. Obviously there will be times when it is difficult if not impossible to make formal observations (pulse, blood pressure, temperature, respiratory rate), but in these cases it would seem prudent to document the fact and to give a description of the patient's behaviour. It is evident that this area is one that requires further efforts to develop more consistent practice (in terms of the level and frequency of observations) that is practical and safe for patients and staff. We are currently seeking consensus within the hospital such that the focus of the audit has shifted away from prescribing practice to level of physical observations.

The effect of the advisory guidelines indicates that it is possible to alter prescribing habits. We would have liked to have seen a bigger fall in the use of intramuscular chlorpromazine, and hence the guidelines were not as effective as we might have hoped. It is likely that cultures of prescribing take time to change and require persistence.

Conclusions

This work has shown that it is possible to set standards and complete an audit of the management of acute behavioural disturbance. Practice at Fulbourn Hospital was found to be generally safe with regard to the prescribing standards set. It is clear, however, that some areas warrant further investigation and discussion, particularly the level and frequency of physical observations made after medication is injected. The issue of guidelines was found to have some effect but not as much as had been hoped. Old habits die hard but this should not deter us from continuing to encourage and support safer prescribing practice.

Appendix

Guidelines for the management of acute behavioural disturbance

These guidelines are intended to provide adequate antipsychotic treatment and calming of the psychotic patient rather than extreme changes between unconsciousness and overactivity. They should not replace consultation with senior nursing and medical staff in cases where management is difficult. Elderly patients are likely to require lower doses and more careful physical monitoring.

Level 1 – Patients who are disturbed but accepting oral treatment

Nurse in a quiet area to reduce stimulation, bring food and fluids to patient. Consider constant observation. Record blood pressure (BP) and pulse rate (PR) 8-hourly.
Medication: Haloperidol 5–10 mg, review after 2 hours. Usual dose 10 mg 8-hourly, up to 30 mg 8-hourly. Maximum dose 100 mg/24 hrs (absolute maximum dose 200 mg/24 hrs).
Alternative: Droperidol (same dosage), maximum dose 120 mg/24 hrs.
If additional sedation required: Diazepam 10 mg (maximum of 30 mg in one dose), repeat up to 8-hourly. Normal maximum dose in 24 hrs is 30 mg but may be higher in those tolerant to benzodiazepines.

Level 2 – Patients who are disturbed and refusing oral medication

Nurse in side-room, bring food, fluids and plastic cutlery to patient. Constant observation of physical and psychiatric state. Record BP and PR 4-hourly, temperature (temp.) 8-hourly. Keep fluid chart. Aim to give oral medication when patient will accept it.
Medication: Haloperidol 5–10 mg IM up to hourly, usually 4–6 hourly. Maximum dose 40 mg IM/24 hrs.
Alternative: Droperidol (same dosage), maximum dose 60 mg IM/24 hrs.
If additional sedation required: Lorazepam 2–5 mg IM/6 hrs.

Level 3 – Emergency sedation of patients for the immediate prevention of violence to people

Physical restraint of patient may be required until medication is effective. Nurse in side-room, bring food, fluids and plastic cutlery to patient. Constant observation of physical and psychiatric state. Record BP and PR hourly for at least 12 hrs after intravenous (IV) treatment, temp. 8-hourly. Keep fluid chart.
Medication: Diazepam (Diazemuls) 10–30 mg as a single dose (may need larger doses in those tolerant to benzodiazepines) having ensured that flumazenil is available on ward.
In extreme circumstances, after discussion with senior medical staff, a single dose of amylobarbitone sodium may be given. Dose: IV (diluted in sterilised water) up to 50 mg per minute, maximum 500 mg.

For patients with an established diagnosis of psychotic illness with previous experience of antipsychotics, if there is particular difficulty over giving medication:

Clopixol Acuphase 50–150 mg IM/24 hrs (maximum 400 mg over three days).

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