LETTERS

Note to authors of letters: Please note that all letters submitted for publication should be typed with *double spacing*. Failure to comply with this may lead to delay in publication.

Neuroleptic malignant syndrome from chlorpromazine: case report

Sir,

We would like to draw attention to a case report detailing a condition which can be avoided by careful selection of medication.

A 56-year-old housewife who had suffered depression for several years, was readmitted to a psychiatric ward with symptoms of a relapse of depression including insomnia. Treatment was begun with lofepramine (120 mg), temazepam (10 mg) and piroxicam (20 mg). She had taken thioridazine intermittently in the past without any ill effects but during her recent admission thioridazine was not prescribed and she had last taken thioridazine many months before. During the second night of her stay in hospital she was given chlorpromazine (50 mg) orally as she was unable to sleep. She had never taken chlorpromazine before. She slept well but early in the morning awoke with acute hyperpyrexia, acute rigidity and acute confusion. She was transferred to a medical ward where, three hours later, she became unconscious and did not respond to painful stimuli.

Her past medical history includes appendicectomy, hysterectomy, oophorectomy, non-specific chest pain, episcleritis and osteoarthritis. She is known to be allergic to chlormethiazole.

At the time of admission to the medical ward her temperature was 41.1 °C, her pulse rate 123 per minute and regular, and her blood pressure 150/90 mmHg. She was deeply unconscious, had cogwheel rigidity and lead pipe rigidity in all limbs. Her reflexes were normal, the Babinski sign was negative, there was no meningism, her pupils were small and reacted equally, and her chest was clear. Her cardiovascular system and gastrointestinal systems were normal.

Her haemoglobin at that time was 16.2 g dl^{-1}, white cell count 6.1 × 10 l^{-1}, erythrocyte sedimentation rate 85 mm in the first hour, sodium 146 mM, chloride 112 mM, potassium 3.9 mM, urea 22.1 mM, creatinine 171 mM, alkaline phosphatase 90 IUl^{-1}, alanine aminotransferase 70 IUl^{-1}, calcium 2.23 mM, random blood sugar 10.5 mM, and bilirubin 17 μM. Her serum salicylate and paracetamol levels were negative. She had *Escherichia coli* in her urine with red blood cells, occasional white cells and some proteins. Her blood culture showed skin contaminants of staphylococci. Her creatine phosphokinase was raised to 4877 mM and her T4 level was 94 nM. Her electrogardiogram and chest x-ray were normal. A lumbar puncture or computerized tomography scan were not done. The characteristics of the arterial blood gases are shown in Table 1.

Table 1. Characteristics of the arterial blood gases.

	At admission on air	Two hours later, on 50% oxygen	In 24 hours, on 60% oxygen
pH	7.1	7.5	7.4
$P(O_2)$ (kPa)	5.2	5.9	6.4
$P(CO_2)$ (kPa)	3.4	3.4	4.4
Bicarbonate concentration (mM)	24.0	24.0	22.4

This 56-year-old, obese, heavy smoker had a single dose of chlorpromazine and became unconscious, hyperpyrexial, rigid and uraemic overnight. Highly raised creatine phosphokinase indicated a catabolic state. Having excluded infection, thyroid problems, catatonia and malignant hyperthermia of anaesthesia, she was diagnosed to have developed neuroleptic malignant syndrome, possibly from chlorpromazine therapy.

The patient was treated with supportive measures for hyperthermia and neuroleptics were immediately discontinued.[1] Fluid and electrolytic balance was maintained and appropriate oxygenation was undertaken. Before anticholinergics, dopamine agonists or dantrolene sodium could be introduced she improved remarkably. She regained consciousness on the third day with no residual neurological signs and was transferred back to the psychiatry ward for further psychiatric treatment. She was discharged by them in good health on lofepramine, temazepam and thioridazine.

In the USA in 1985 a survey of 53 patients with neuroleptic malignant syndrome showed pyrexia in 98% and raised creatine phosphokinase in 97% of the patients.[2] Remaining features included tachycardia in 91%, rigidity in 89%, altered consciousness in 84%, leucocytosis in 79%, abnormal blood pressure in 74%, tachypnoea in 73%, profuse diaphoresis in 67%, tremor in 45% and incontinence in 21%. Our patient had six of these 11 criteria.

Neuroleptic malignant syndrome is a potentially lethal reaction following the use of antipsychotic medication.[3] The most notorious drugs are those capable of blocking dopamine receptors in the basal ganglia and hypothalamus.[4] Up to November 1987 the Committee on Safety of Medicines had registered 634 side effects from chlorpromazine, of which nine were neuroleptic malignant syndrome. Three of these proved fatal and the mortality rate is said to be 20–30%. This case is perhaps the tenth in the series, warning us of the need for more selectivity when using chlorpromazine as a hypnotic or even a psychotropic drug. Unfortunately, there are no definite means of determining which patient will develop the syndrome.

TARIQ MAHMOOD
JOHN P. WARREN

Princess Alexandra Hospital
Harlow
Essex CM20 1QX

References

1. Dallman JH. Neuroleptic malignant syndrome — a review. *Milit Med* 1984; **149:** 8.471-8.473.
2. Levenson JL. Neuroleptic malignant syndromes. *Am J Psychiatry* 1985; **142:** 1137-1145.
3. Kellam B. A survey of the world literature. *Br J Psychiatry* 1987; **150:** 752-754.
4. Birkhimer LJ, Lindsay C, Vane D. Pharma-CE testing. *Drug Intel Clin Pharm* 1984; **18:** 462-465.

Funds for research

Sir,

As compared with industry, the activities and effectiveness of the NHS are grossly under-researched. Issues of clinical management and policy arise mostly in

general practice and in district hospitals, where most of the work goes on; thus the people who are faced by these issues, and who should be identifying the research needs, are general practitioners and district hospital staff, including nurses, physiotherapists, occupational therapists and other paramedical workers. Yet the regional research committees receive few applications — and even fewer acceptable ones — from these sources.

The problem is partly a lack of information on the existence of these funds. More fundamental difficulties include lack of training in research methods, lack of time, and professional isolation. To help with these difficulties, in the north west Thames region we have recently widened the guidelines for Locally Organised Research Scheme support. Within the limits of our funding we are now able to offer training fellowships which enable NHS staff to acquire research skills through courses or secondment to an academic centre; to pay the cost of research sessions; and to support collaborative research. These new facilities are additional to the usual research project grants.

The opportunities now exist (at least in this region) to widen the base of NHS research and to link it more closely with clinical practice: the need is to make the opportunities known and for all branches of NHS professional staff to recognize and use them. Further information can be obtained by writing to the secretary of the regional research committee at your regional health authority.

GEOFFREY ROSE

North West Thames RHA
Research Committee
40 Eastbourne Terrace
London W2 3QR

General practice or primary health care?

Sir,

Linda Mark's excellent editorial (January *Journal,* p.1) is timely, and if we are to be serious about the role of general practitioners in achieving health for all it is necessary to be clear about the terms used. I would suggest, however, that there are three distinctions to be made: general practice, primary medical care and primary health care.

General practice is found in a variety of professional settings (for example law and architecture) and it involves the provision of a service on demand to those who request it and can pay for it; in the case of general medical practice in this country payment is mostly via taxation and is made by the state. Historically, general practice has not been concerned with the population who do not seek help, nor is it very interested in prevention, multidisciplinary working, information systems, management skills or evaluation.

Primary medical care is a bolder concept which accepts a responsibility to a defined population. It is concerned with prevention as well as treatment and aims at multidisciplinary working. Proper skills and information systems are an integral part of primary medical care. However, it tends to draw the boundary of medical work around clinical or doctor-like activities, for example immunization, family planning, child health surveillance and hypertension screening. Individual consultation, prescription or procedure define the limits of medical work.

Primary health care, as defined by the World Health Organization, is a much wider concept. At its most extensive it includes everybody because everybody has the possibility of influencing and affecting their own and other peoples' health, particularly that of family members. Managers of supermarkets are primary health workers because of the impact which they can have on peoples' health by their stocking and marketing polices; clearly the workers in the water supply industry and in education and housing departments are primary health workers as is the taxi driver who makes his taxi a no-smoking area. The responsibility of medically trained workers in primary health care is to establish links with these people in the settings of home, school, work, transport and recreation and support their work for health by making knowledge and expertise available to them.

Clearly we have a long way to go. But once we have a conception of the task we can begin to undertake it effectively. This will not happen while the three terms continue to be used interchangeably and little effort is made to achieve the transition from general practice through primary medical care to primary health care.

JOHN ASHTON

Department of Community Health
University of Liverpool
PO Box 147
Liverpool L69 3BX

Preventive care card

Sir,

I read with interest the article on a preventive care card for general practice by Drs Grundy and Dwyer (January *Journal,* p.15). I agree fully with the authors' comments that an adequate record of preventive activities is needed, especially in the age of computerization where suitable data is needed prior to transfer to computer records. However, I feel that the authors' comments that records developed by other practices will be incompatible when the records are transferred from practice to practice is a somewhat false argument since the same objection can be raised about their own preventive care card.

In our practice we have been using summary cards and database cards designed by ourselves for efficient record keeping and preventive care in practice.[1] Like the authors we feel that our cards are eminently suited to our own needs and practice organization. However, we do have criticisms about their preventive care card.

One of the main areas of contention is the lack of available space on Grundy and Dwyer's card for new developments in preventive care. For example, there is at present no space for human immunodeficiency virus status, which in future may be screened for at antenatal clinics, and travel immunization is not mentioned at all. On the reverse side of the card in the prevention section the card does not allow for more than five results to be entered and we feel the results would be difficult to read.

If the Department of Health is to be urged to produce a new card that will suit all practices in all areas then the General Medical Services Committee should encourage those interested practitioners who have taken the time and effort to improve their records to submit cards they have designed. Then finally one or a combination of the best should be chosen as a final template for future records of all general practitioners.

P.F. DOWNEY

Pendeen Surgery
Kent Avenue
Ross-On-Wye
Herefordshire HR9 5AL

References

1. Downey PF, Rogers AJ. Database and summary cards. *Update,* 1988; **137:** 232-233.

Sir,

In Scotland, if not a majority certainly a substantial number of practices use A4 folders, and it may be of interest to Scottish general practitioners to know that a suggested revision of the current A4 sheet 'Immunisations and screening investigations' (GP11H), very much along the lines of the card proposed by Grundy and Dwyer, was submitted to the Scottish Home and Health Department in June 1988 by the Lothian area medical committee's general practice sub-committee. Action is still awaited.

J.J.C. CORMACK

Ladywell Medical Centre
Corstorphine
Edinburgh EH12 7TB