



Sleep can kill.

If misuse of drugs is suspected, a plasma or urinary drug screen is indicated. Particular caution should be exercised when prescribing for young and elderly patients, and for those with personality disorders and bipolar depressive illnesses.

A simple sleep log with mood, alertness, and behavioural self rating scales during the first three months of treatment helps to monitor treatment. Changes in lifestyle and behaviour will also help.

For patients who wish to drive it is sensible to assess response over a six month period before considering issuing a provisional licence.

Central nervous system stimulants should not be prescribed to anybody with a history of psychosis, physical violence, or drug misuse, or to women who are pregnant or breast feeding. Cardiovascular risks should be assessed with care.

Professor J D Parkes is professor of clinical neurology, Kings College Hospital School of Medicine and Dentistry, and Institute of Psychiatry, London.

The ABC of Sleep Disorders has been edited by Professor Colin M Shapiro.

Lesson of the Week

Acute bacterial meningitis in young adults mistaken for substance abuse

L N Baldwin, A Henderson, P Thomas, M Wright

Bacterial meningitis can present with acute disturbance of behaviour which may closely mimic substance abuse

Patients admitted to the casualty department with disordered behaviour present a considerable diagnostic challenge. An organic cause (acute confusional state or brain syndrome) may be differentiated from an acute functional psychosis by the presence of abnormal neurological signs, particularly clouding of consciousness. Psychiatric symptoms, however, are poor diagnostic discriminators.

In urban casualty departments an important cause of acute brain syndrome occurring in adolescents and young adults is the abuse of therapeutic or recreational substances, including alcohol.¹ In south east Queensland the use of hallucinogenic leaves and petals of "angels' trumpets" (*Brugmanasia suaveolens*) is a particularly common cause of acutely disturbed behaviour.

We present the case histories of two young adults in whom acute behavioural disturbance, initially diagnosed and treated as substance abuse, was the presenting manifestation of acute bacterial meningitis.

Case 1

A previously well 15 year old, who had been living with friends, became acutely violent and confused shortly after his return home. Recreational drug abuse was suspected by his family and, with the help of the police, he was taken to the casualty department at the Princess Alexandra Hospital. During the initial examination he remained aggressive and confused. The axillary temperature was 37.3°C and he had a tachycardia of 110 beats/min. Detailed neurological examination was impossible but no focal abnormalities or neck rigidity were noted. To facilitate further investigations the patient was sedated and ventilated. As he was thought to have abused an hallucinogenic drug, he was given activated charcoal and sorbitol by nasogastric tube. A white cell count of $30.1 \times 10^9/l$, a negative urine drug screen, and normal results on cranial computed tomography prompted examination of the cerebrospinal fluid. Lumbar puncture, per-

formed three and a half hours after admission, showed turbid cerebrospinal fluid containing 1500 white cells/ μl (100% polymorphs), protein 5.7 g/l (normal 0.15-0.45 g/l), and glucose 1.2 mmol/l. The Gram stain showed intracellular diplococci, later confirmed as *Neisseria meningitidis*. He was given benzylpenicillin with cefotaxime and transferred to the intensive care unit, where he subsequently made an uncomplicated recovery.

Case 2

A previously healthy 34 year old man was arrested after he was discovered defaecating in a neighbour's living room. He required physical restraint and was then taken to the local psychiatric hospital by the police. On examination the patient was extremely agitated and appeared to be hallucinating. His axillary temperature was 37°C, and his heart rate was 90 beats/min. Further assessment was interrupted when the patient had a seizure. Acute self poisoning was suspected, and he was transferred to the Princess Alexandra Hospital. Following admission he remained aggressive and required physical restraint. He was then sedated and ventilated to facilitate further examination and investigation. Activated charcoal with sorbitol was administered by nasogastric tube. Subsequent investigations showed normal results on cranial computed tomography, with only alcohol present in the urine drug screen. A full blood count, measured in blood taken on admission, however, showed a leucocytosis of $36.9 \times 10^9/l$ (89% neutrophils). A lumbar puncture, performed five hours later, showed turbid cerebrospinal fluid containing 2880 white cells/ μl (100% polymorphs), protein 6.4 g/l (normal 0.15-0.45 g/l), and glucose 5.1 mmol/l (blood glucose 8.8 mmol/l). Gram staining and culture gave negative results. Following penicillin and cefotaxime administration he was transferred to the intensive care unit, where he made a complete recovery.

Intensive Care Unit,
Princess Alexandra
Hospital, Woolloongabba,
Brisbane 4102,
Queensland, Australia
L N Baldwin, senior registrar
A Henderson, associate
professor
M Wright, director

Department of Emergency
Medicine, Princess
Alexandra Hospital,
Brisbane 4102
P Thomas, consultant

Correspondence to:
Dr Henderson.

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Discussion

Patients admitted to casualty departments with acutely disturbed behaviour present a major diagnostic challenge. The differential diagnosis includes both primary psychiatric illness and a wide range of organic acute brain syndromes, including substance abuse.

Certain toxic syndromes indicating a specific substance may become familiar to medical staff owing to frequent local abuse. An infusion of *B sawveolens*, regularly used in the Brisbane region, causes a central anticholinergic syndrome with wildly disturbed behaviour, visual hallucinations, and dilated pupils.² There was an initial suspicion that this poison had been ingested by our two patients.

Many infections of the central nervous system may have prominent psychiatric manifestations, leading to initial misdiagnosis, psychopharmacological intervention, and delay in starting appropriate treatment.³⁻⁷

Both the young adult patients described above had pyogenic meningitis. Both developed wildly disturbed behaviour of sudden onset with clouding of consciousness but without other, more typical, features of central nervous infection such as fever or neck rigidity. In each case the primary diagnosis was substance abuse, and initial treatment was given accordingly. An important clue, however, to the true diagnosis in both was the finding of leucocytosis.

Diagnostic lumbar puncture and administration of antibiotics were delayed while cerebral computed tomography was performed. To facilitate this investigation both patients were sedated and ventilated, thus preventing further neurological assessment. There is disagreement among neurologists as to whether

lumbar puncture should proceed without tomography in these circumstances. However, if an immediate scan is available then most would advocate its initial use to minimise the risk of coning.

To avoid potentially disastrous delays in treatment clinicians should be aware that bacterial meningitis can present quite atypically, with the sudden onset of severe behavioural disturbance closely mimicking substance abuse. Previously well patients presenting with acute behavioural disturbance and leucocytosis without clear evidence of substance abuse require urgent lumbar puncture and appropriate antibiotics. If immediate cerebral computed tomography is available it may be used before lumbar puncture, although the patient should be given broad spectrum antibiotics first. This is particularly important should short term ventilation be required, and antibiotic therapy should never be withheld while the results of investigations are awaited.⁸

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Guidelines for the management of asthma: a summary

British Thoracic Society and others

In 1990 the *BMJ* published guidelines for the management of asthma in adults, which were the result of initiatives by the British Thoracic Society, the Research Unit of the Royal College of Physicians, the King's Fund Centre, and the National Asthma Campaign. These were produced by a group of respiratory and general physicians and general practitioners and modified after wide circulation and discussion within the British Thoracic Society. They were the first national guidelines for the management of a specific condition in the United Kingdom. These guidelines were intended to be reviewed and revised after two years. Such revision has now taken place and the opportunity has been taken to invite the British Paediatric Association and the British Paediatric Respiratory Group to include guidance for the management of asthma in children. The guidelines have also benefited from the input of the British Association for Accident and Emergency Medicine, the Royal College of Practitioners, and the General Practitioners in Asthma Group.

The revision deals with the management of asthma in both children and adults and covers new treatments not considered in 1990. It also gives clearer descriptions of what represents control of asthma, and it emphasises guided self management. The stepwise approach to managing asthma has been retained and is presented in a way that emphasises the importance of the stepping down of treatment. Mortality and morbidity from asthma are unacceptably high. Many deaths and much unnecessary morbidity have been associated with overreliance on bronchodilators, underuse of inhaled and oral corticosteroids, failure to

make objective measurements of severity, and inadequate supervision. These recommendations promote greater use of inhaled anti-inflammatory drugs (even in patients with apparently mild asthma), objective monitoring of progress of asthma based on the patient's own measurements of peak expiratory flow, and greater participation of the patient or parents in the management of the condition.

The full text of the revision appears this month as a supplement of *Thorax*. The charts published here are a new approach providing the same information in a condensed form designed to provide the busy clinician with a quick but accurate reference guide to asthma management at the point of delivery of care. The six charts cover management of asthma in general practice, in the outpatient department, in the accident and emergency department, and on the wards. These chart guidelines are targeted at doctors and should be seen as a general framework within which most patients with asthma can be managed.

PARTICIPANTS

Asthma in adults: Professor P J Barnes, A H Barnett, R A L Brewis, P S Burge, R A Clark, D Costain, G K Crompton, S R Durham, P Ebdon, B D W Harrison, J P R Hartley, S R Hilton, Professor S T Holgate, W F Holmes, A Hopkins, D J Lane, E R Neville, R Neville, R L Page, M R Partridge, M G Pearson, Professor N B Pride, M Rudolf, D E Stableforth, J G B Thurston.

Asthma in children: W Lenney, J Price, Professor J O Warner, R Clifford, R Campbell, T Liscombe, J Williams, G Russell, M Levy, P McCarthy, N Barnes, M Silverman, S MacKenzie, C Nourse.

Statement by the British Thoracic Society, the British Paediatric Association, the Research Unit of the Royal College of Physicians of London, the King's Fund Centre, The National Asthma Campaign, the Royal College of General Practitioners, the General Practitioners in Asthma Group, the British Association of Accident and Emergency Medicine, and the British Paediatric Respiratory Group

Correspondence to: British Thoracic Society, 1 St Andrew's Place, London NW1 4LB.

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