Her clinical improvement was such that she bought her own cassette player and was able to leave hospital taking reduced doses of drugs. She continued to listen to tapes when troubled by voices. At nine months' follow up she had a part time job and was using the cassette player on most days.

Comment

Our results provide tentative support for the hypothesis that increased external auditory stimulation reduces the severity of persistent auditory hallucinations. The response to the use of earplugs did not support Green's hypothesis.⁴ Our patient's hallucinations spontaneously disappeared every morning at 10 am. We surmise that this was caused by her concentrating on ward based occupational therapy that started then. The clinical outcome in this patient was impressive, though conclusions can be only tentative.

Using a portable cassette player has the advantages of being cheap, simple, safe, non-invasive, and socially acceptable, and the patient is given a degree of personal control over distressing symptoms.

We thank Dr J Hollyman for permission to study her patient. The study was supported by a grant from the South West Thames Regional Health Authority's locally organised research scheme.

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(Accepted 16 May 1989)

Steroid aerosols and cataract formation

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Br Med J 1989;299:432-3

Posterior subcapsular cataract is a well recognised complication of treatment with oral corticosteroids, the incidence increasing with both dose and duration of treatment. Over 10 mg of prednisolone per day for one year may be necessary for cataracts to develop, but this may be a conservative estimate.^{1,2} Inhaled steroids have been available in Britain since the early 1970s and there is little evidence to implicate them in the development of cataracts.³

We have recently seen three patients whose asthma was treated with inhaled beclomethasone dipropionate and small total doses of oral steroids over several years and who developed posterior subcapsular cataract.

Case reports

Details of the patients are summarised in the table. Apart from the inhaled beclomethasone dipropionate, the only steroids the patients received were short reducing courses of oral prednisolone. Clinical examination showed no features associated with chronic use of steroids, and all three had normal fasting blood glucose concentrations. Full ophthalmological assessment showed normal intraocular tensions and no other reasons for the development of cataracts.

Comment

Cataracts have been described in patients with asthma who received substantial doses of oral steroids. In 1966 posterior subcapsular cataracts were identified

in 3% of 265 asthmatic patients and in 32% of 406 patients with rheumatoid arthritis.¹ A recent review confirmed this discrepancy, subcapsular cataracts occurring in 9% of patients with asthma, 18% with rheumatoid arthritis, and over 40% either with systemic lupus erythematosus or after renal transplantation.² The lower incidence in asthmatic patients was thought to be due to a lower total dose of steroids, their younger ages, and the intermittent reducing regimens used. Children and young adults (aged less than 20 years) may be at greater risk of developing posterior subcapsular cataract: 29% of children taking steroids had cataracts, some occurring after only four months' treatment.^{2,4}

As our patients had received fairly small doses of oral prednisolone the cataracts might have occurred by chance. Little information is available on the incidence and prevalence of posterior subcapsular cataract. A report in 1966 suggested a frequency of 0.6% in adults aged between 50 and 60 years.¹ In 1977-81 posterior subcapsular cataracts were found in nine of 760 unselected patients from a general practitioner's list who underwent a full ophthalmological examination. Routine ophthalmological practice indicates that most of these nine patients would have had factors predisposing them to development of cataracts, suggesting that unexplained posterior subcapsular cataract is uncommon (J Cuthbert, personal communication).

Thus the relation between steroid treatment and development of posterior subcapsular cataract is complex, being related to patients' age, total dose of steroids and how often they were given, and probably the underlying medical condition. Some early cataracts regress after steroids are stopped, and susceptibility varies to the ophthalmological effects of steroids, as seen in glaucoma.^{1,4,5}

In our three patients the only explanation for the development of cataracts was the steroid treatment. Oral steroids may have been responsible for the initial

Details of patients receiving inhaled and oral steroids who developed posterior subcapsular cataract

	Case 1	Case 2	Case 3
Age (years)	52	40	47
Sex	Female	Female	Female
Duration of asthma (years)	10	10	2
Dose of inhaled beclomethasone dipropionate	400 µg/day	400 µg/day	400 µg/day for 1 year; 1500 µg/day for 1 year
Estimated total intake of prednisolone	1 g (3 courses)	1.6 g (11 courses)	540 mg (3 courses)
Time since prednisolone last taken	3 years	6 months	2 years
Ophthalmological findings	Bilateral posterior subcapsular cataract, right>left	Dense right cataract, left posterior subcapsular cataract	Bilateral posterior subcapsular cataract
Visual acuities (with spectacles normally worn)	Right eye: hand movements; left eye: 6/9	Right eye: light only; left eye: 6/9	Right eye: 6/12; left eye: 6/12
Action	Extraction of bilateral cataract and implantation of intraocular lens	Extraction of right cataract and implantation of intraocular lens	Observation

development of the cataracts, and more prolonged exposure to the small amounts of systemic steroids derived from inhalation and subsequent ingestion may have prevented resolution. It remains possible, however, that the inhaled steroids may alone have been responsible for the cataracts. Further studies are needed to confirm if patients with asthma taking regular inhaled steroids with and without occasional reducing doses of oral steroids have an increased risk of developing posterior subcapsular cataract. Until results of such studies are available patients should continue taking their inhaled steroids.

The Committee on Safety of Medicines and Allen and

Hanburys, who market beclomethasone dipropionate as Becotide and Becloforte, have been informed about these adverse reactions.

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(Accepted 10 May 1989)

General practitioners' use of electrocardiography: relevance to early thrombolytic treatment

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Br Med J 1989;299:433

Several recent trials have drawn attention to the benefits of thrombolytic treatment in acute myocardial infarction,¹⁻³ and the evidence strongly suggests that the earlier these agents are given the greater the benefit. In the British Isles general practitioners are ideally placed to ensure the early use of these agents as they are often the first people to see the patient and delay in admission to hospital is still commonplace. Some trials of thrombolysis in hospitals have adopted electrocardiographic criteria to diagnose acute myocardial infarction¹ while others have relied on clinical data.^{2,3} The few studies in general practice have used electrocardiographic data.⁴ The potential benefit of the widespread application of early thrombolysis⁵ suggests a future role for general practitioners in initiating treatment. The side effects, however, make confirmation of the diagnosis important, and the only practicable test available to general practitioners is electrocardiography. Therefore an assessment of the availability and use of electrocardiography in managing acute myocardial infarction in general practice is important.

Doctors, methods, and results

I studied the Hereford and Worcester area, which is administered by one family practitioner committee and covers a large rural area, two cities, the outskirts of Birmingham, and several industrial towns. The standard of general practice is high with 660 000 people on the lists of 348 general practitioners in 90 practices. The average list size (1900) is below the national average, and the use of deputising services is rare. All practices were sent a questionnaire recording the availability and use of electrocardiography in diagnosing acute myocardial infarction. Particular attention was paid to arrangements at different times of the day. Responses were obtained from 82 (91%) of the practices, or 306 (88%) of the area's doctors, an excellent response rate.

In total, 190 (62%) doctors working in 44 practices had access to an electrocardiograph, 85 (45%) of them recording an electrocardiogram in cases of suspected acute myocardial infarction during surgery hours and 50 (26%) doing so outside normal working hours. When doctors who did not own an electrocardiograph were included 28% of doctors recorded electrocardiograms during surgery hours and 16% outside normal working hours. Only 25 (13%) doctors routinely

carried the machine with them outside normal working hours.

Comment

Although the majority of doctors had access to an electrocardiograph, fewer than half of them recorded electrocardiograms in patients suspected of having had an acute myocardial infarction; outside surgery hours the proportion was even smaller. Only 13% of the doctors routinely carried an electrocardiograph with them outside normal working hours—returning to the surgery to collect one might be considered to be unwise with the high incidence of early arrhythmias in acute myocardial infarction and the importance of early thrombolysis. My results suggest that (quite rightly) many general practitioners rely on the clinical picture for diagnosis and are aware of the misleading electrocardiograms that may be recorded during the early stages of infarction. If electrocardiographic confirmation of the diagnosis is considered to be essential before treatment with thrombolytic agents is started outside hospital my results suggest that the widespread introduction of these agents into general practice will be delayed.

Whether the use of thrombolytic agents in general practice before patients are admitted to hospital is justified is debatable because of a lack of data and the side effects of treatment. Furthermore, the patients most likely to benefit from thrombolytic treatment outside hospital are those with the longest journey to hospital, and the risks of transporting such patients have not been adequately studied. Whatever method is used to diagnose myocardial infarction outside hospital the overwhelming responsibility of general practitioners is to ensure that patients receive appropriate thrombolytic treatment as early as possible. Whether this treatment will become commonplace in general practice requires further study, but my results suggest that a considerable modification in general practitioners' use of electrocardiography will be necessary before it can become widespread.

I thank all the doctors who participated, Mr E E Penny and staff at Hereford and Worcester family practitioner committee for administrative help, and Professor D G Julian for his invaluable comments.

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(Accepted 22 May 1989)