four days and, before this, diazepam 5-10 mg thrice daily and nitrazepam 5 mg at night for seven months. Although fits may occur when larger doses of benzodiazepines are withdrawn, their occurrence after withdrawal of therapeutic doses of this kind is extremely rare.[2]

A review of published reports has shown only one other case of fits possibly induced by viloxazine; this also occurred during a clinical trial.[3] In this study a second patient also had an epileptic seizure but was already known to be epileptic. By contrast, Brion[4] found no increase in the frequency of fits among the four depressed epileptic patients included in his trial.

Several psychotropic drugs, including tricyclic antidepressants and monoamine oxidase inhibitors, can precipitate grand mal seizures in people with low convulsive thresholds due to genetic susceptibility or previous brain damage, so it is essential to carry out electroencephalographic studies during the early clinical evaluation of new psychotropic drugs. In the case of viloxazine these were carried out by Pichot *et al*[5] and Floru *et al*[6] during the course of their double-blind comparisons with imipramine. The incidence of abnormal tracings was similar for both drugs.

Although a causal connection between viloxazine and convulsive seizures cannot be established with certainty, this case suggests the possibility that viloxazine has epileptogenic properties. I hope that any other cases of seizures occurring in patients receiving this drug will be reported.

[1] Mallion, K B, *et al*, *Nature*, 1972, **238**, 157.
[2] Hollister, L E, *Psychosomatics*, 1977, **18**, 44.
[3] Magnus, R V, *Journal of International Medical Research*, 1975, **3**, 207.
[4] Brion, S, *Journal of International Medical Research*, 1975, **3**, suppl No 3, p 87.
[5] Pichot, P, *et al*, *Journal of International Medical Research*, 1975, **3**, suppl No 3, p 80.
[6] Floru, von L, *et al*, *Arzneimittell-Forschung*, 1976, **26**, 1170.

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Dysarthria: an unusual side effect of tricyclic antidepressants

The dibenzazepine derivatives, which include amitriptyline and imipramine, are the most widely used drugs for treating depression. Although the postulated action of tricyclic antidepressants is thought to be related to the inhibition of biogenic amine reuptake, little is known about the mechanism of action of these drugs. Their efficacy in alleviating depression has, however, been well established.

The most commonly encountered side effects of the tricyclic drugs are those attributable to atropine-like action, including dry mouth, constipation, tremor, dizziness, tachycardia, blurred vision, and urinary retention. Various cardiovascular effects including changes in the electrocardiogram have also been recorded.[1] A dyskinetic syndrome occurring during administration of tricyclic antidepressants has also been observed.[2] I report here the development of dysarthria on tricyclic treatment.

Case reports

Case 1—A 42-year-old woman was admitted for the first time with a primary diagnosis of depression with anxiety. On admission physical and biochemical investigations showed nothing abnormal. Treatment with dothiepin (thioanalogue of amitriptyline) 25 mg three times a day was started. On the third day the patient reported difficulty with her speech. Continued treatment and observation for the next two days failed to clear the symptoms. Two days after dothiepin was withdrawn her speech returned to normal.

Case 2—A 48-year-old woman was admitted with agitated depression. Amitriptyline 25 mg three times a day was started. The dose was increased to 50 mg three times a day on the third day. A day later she reported speech difficulty. Observation for the next two days confirmed the nature of the symptom. Withdrawal of treatment resulted in the establishment of normal speech.

In neither case was adjunct therapy prescribed.

Comment

Both patients presented with considerable speech difficulty, which could best be described as a "stutter." On examination it became apparent that this dysfunction was a dysarthria resulting in a failure of proper articulation of the labials, the linguals, and the palatal consonants, which were all affected to an equal extent. The speech was characteristic of scanning speech as is often observed in patients with lesions affecting the cerebellum but distinguished from it by an absence of facial grimacing and explosive speech.[3]

In view of the patients' acute embarrassment at their speech difficulties continued treatment with tricyclic drugs was not thought to be justified, and total withdrawal of the drugs produced complete amelioration of symptoms.

Some investigators[4 5] have suggested that depressive states may be related to excess cholinergic activity in the brain and that amitriptyline and similar compounds produce their effects by virtue of their anticholinergic action. While the data on the incidence of side effects of antidepressants are by no means comprehensive, amitriptyline does seem to produce more anticholinergic side effects than other drugs.[6] Although the number of patients affected was small, the appearance of speech difficulty at therapeutic doses range (75-225 mg) is significant.

These two cases illustrate a hitherto unrecognised side effect of tricyclic therapy. It is suggested that the dysarthria may be produced by the direct anticholinergic effect of the tricyclic drug on the cerebellar connections and the striatum, leading to a selective incoordination of articulation.

[1] Goodman, L S, and Gilman, A, *Pharmacological Basis of Therapeutics*, 5th edn, chap 12. London, Macmillan, 1970.
[2] Fann, W E, *et al*, *British Journal of Psychiatry*, 1976, **128**, 490.
[3] Brain, R, *Diseases of the Nervous System*, 7th edn. London, Oxford University Press, 1969.
[4] Cairncross, K O, Gershon, S, and Gust, I D, *Journal of Neuropsychiatry*, 1963, **4**, 224.
[5] Mandell, A J, *et al*, *American Journal of Psychiatry*, 1962-63, **119**, 544.
[6] Hollister, L E, *Clinical Pharmacology and Therapeutics*, 1964, **5**, 322.

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