Unmasking of cerebellar tumours by amitriptyline in depressive patients

Sir: In three patients receiving antidepressive treatment with 75 to 100 mg amitriptyline per day, a cerebellar syndrome appeared on the fourth or fifth day after the commencement of this treatment. In all three patients the computed tomographic (CT) scan demonstrated an intra-axial mass lesion in the cerebellum.

The first case was a 58-year-old female. Following the death of her husband she became severely depressed. Complaints of nausea and mild instability were assumed to be due to her depression and 75 mg of amitriptyline daily was prescribed. Five days after the patient began taking the medication, she was referred to the emergency room because of vomiting, severe ataxia, rotatory/horizontal nystagmus and dysdiadochokinesia. A CT scan demonstrated a homogeneously enhanced left cerebellar mass with surrounding oedema. Two weeks after surgical excision of the tumour, the patient became unconscious. The CT scan showed intraventricular and intracerebral bleeding in the right hemisphere. She died five days later. The histological examination of the tumour revealed a haemangioblastoma.

The second case was a 65-year-old male tourist, who, while travelling to Israel, developed an anxiety state which in turn was followed by apathy. The patient also complained of dizziness and nausea. His wife related these latter symptoms to the unusual and unstable behaviour of her husband before and during the trip. His treatment initially consisted of 100 mg of amitriptyline per day. Four days after the commencement of treatment, he developed severe incoordination and vomiting. A neurological examination at this stage revealed a rotatory/horizontal nystagmus, gait ataxia and a right-sided intention tremor. A CT scan demonstrated the presence of a large intraaxial mass in the left cerebellar hemisphere which displaced the fourth ventricle to the right and enhanced in an irregular ring-like fashion. The lateral ventricles were of normal size. Three days after resection of the lesion, the patient died with clinical signs of brainstem oedema. The tumour proved to be a glioblastoma.

The third case was a 65-year-old male who became depressed two months after his retirement. His physician felt that the patient's complaints of occipital headache and vertigo were due to an unstable blood pressure. He prescribed 100 mg amitriptyline daily. Four days after the commencement of this treatment, the patient was examined neurologically in the emergency room because of general weakness, severe vertigo, and incoordination of his arms and legs. He was found to have a coarse horizontal nystagmus, a right intention tremor and an ataxic gait. A contrast-enhanced CT scan demonstrated a mass in the right cerebellar hemisphere. A right cerebellar tumour, subsequently identified as an astrocytoma, was resected. The patient died five days after the operation with clinical signs of brain-stem oedema.

Cerebellar tumours produce symptoms and clinical signs according to the site of the lesion. These include nausea, vomiting and incoordination. Papilloedema due to associated increase in intracranial pressure may also be found.[1] The three cases described in this report developed an acute cerebellar syndrome four or five days after the commencement of treatment with amitriptyline used as an antidepressive drug. The clinical picture was similar in our patients and was independent of the histology of the tumour, which was different in each case.

Amitriptyline and related compounds have an antimuscarinic action, which gives rise to the side-effects of mucosal dryness, blurred vision, constipation and urinary retention. The drug inhibits the reuptake of norepinephrine in the postganglionic nerve terminals.[3] This results in a potentiated blood pressure response.[4] This latter effect has produced an aggravation of the signs and symptoms in patients with a phaeochromocytoma[5–8] who were given amitriptyline. Occasionally the tricyclic antidepressants produce hypotensive episodes; this can be explained by vasodilation caused by increased circulating catecholamines and blocking of the alpha-receptors.[4] An additional influence of the drug on the vasoactive brain-vessel receptors probably plays an important role. Amitriptyline, like other tricyclic antidepressants, is known to produce nystagmus and myoclonic like movements of the eyes, probably as a direct effect on the ocular motor system, so that exacerbation and aggravation of cerebellar symptoms due to administration of this drug could be expected.

In all three cases the symptoms became much worse four or five days after starting treatment and because of this, neurological examination and investigation was carried out revealing characteristic abnormalities consistent with cerebellar disease. Our impression is that antidepressive tricyclic drugs may play a crucial role in the development of symptoms and signs in the presence of a previously unsuspected posterior fossa tumour. We believe that neurological examination should be meticulously performed before treatment of depression with tricyclic drugs.

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Notice

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