a factor predisposing to the syndrome. Residual neurological sequelae have been described in some patients with NMS, mostly signs of Parkinsonism or decrease of general intellectual faculties.8-10 Our patient who had a long and severe course in relation to the syndrome was left with a hypertonia (mainly of the left hand) and dysarthria, though we cannot tell whether they are due to his Wilson's disease or to the NMS.

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Brain death and pinpoint pupils

Sir: Non-reactive pupils are one of the cardinal signs in brain death. Contrary to what was required at one stage it is no longer considered necessary for the pupils to be dilated. In fact they are most often found to be in the mid position.1-3 Pinpoint pupils are not a feature of brain death and may be the result of a bilateral pontine lesion affecting the sympathetic fibres. That pinpoint pupils may be seen in verified brain death is evident from the following case.

The patient was a 69 year old woman with coronary heart disease for 12 years, and one mild ischaemic stroke two months before carotid endarterectomy. The endarterectomy was performed successfully but twenty hours after operation the sutures of the carotid artery ruptured resulting in a profuse bleeding. The huge haematoma in the neck prevented intubation, and an emergency tracheostomy was performed. During about ten minutes the respiration was severely impaired and the situation was further complicated by cardiac arrest. After ten minutes' resuscitation the heart began to beat but the intra-arterially measured blood pressure readings stayed for 80 minutes at the level of 30-50 mm Hg systolic. The patient did not regain consciousness, and six hours later she was deeply comatous with no pupillary reactions, no response to the oculo-cerebral test, and no grimacing during firm compression of the supraorbital nerves. The patient was ventilated for ten minutes with 100% oxygen and then disconnected from the respirator for 10 minutes. During the disconnection 100% oxygen was insufflated into the trachea at a rate of 6 l/min. At the time of the disconnection the $\text{PaCO}_2$ level was 4-5 kPa which, according to a recent study4 results in final $\text{PaCO}_2$ levels giving a maximal stimulation of the respiratory centre. No spontaneous breathing movements occurred during the test. Because the non-reactive pupils were of pin-point size and thus not in accordance with the criteria of brain death, the patient was again connected with the respirator. Twenty-four hours later the examination gave the same result, the pupils were still of pin-point size. The scrutiny of the case history revealed glaucoma treated with pilocarpine eye drops given twice daily in both eyes before and after surgery. The patient was disconnected from the respirator, and two days later a medicalogical necropsy showed a typical respirator brain.

Our case emphasises the importance of a thorough scrutiny of the medication used in case of suspect brain death. In his excellent articles on brain stem death Pallis mentions as pitfalls in the diagnosis anticholinergic drugs, neuromuscular blockers, and pre-existing eye disease.3 In 1971, Wexler reported of two patients in irreversible coma with non-myrdiac pupils who had been using miotics for glaucoma. We would like to add pilocarpine to the list of pitfalls in the diagnosis of brain death. It acts as a cholinergic mimetic directly on cholinergic receptors, an effect which is not abolished by denervation. Because glaucoma is common especially among older people, and is often treated with pilocarpine, this possible cause of miotic pupils in suspect brain death must be kept in mind.

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Acute dystonic reaction with asterixis and myoclonus following metoclopramide therapy

Sir: Extrapyramidal side effects are well recognised following medication with metoclopramide, a selective D2 dopamine antagonist.1-2 Some 95% of these effects are of the acute dystonic-dyskinetic type. They occur mostly in younger females, within 72 hours of taking the drug, and disappear without specific treatment. Oculogyric crises, torticollis, opisthotonus, and orofacial dyskinesias are often present. However, the occurrence of asterixis and myoclonus together with acute dystonic reactions has not been reported. We observed such a patient.

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