

References

- 1 Addonizio G, Susman VL, Roth SD. Neuroleptic malignant syndrome: review and analysis of 115 cases. *Biol Psychiatry* 1987;22:1004-20.
- 2 Bowen LW. Fatal hyperpyrexia with antidepressant drugs. *Br Med J* 1964;5:1465-6.
- 3 Johnson HM, Boucher JV. A fatality associated with antidepressant therapy. *Am J Psychiatry* 1964;120:125-6.
- 4 Henderson VW, Wooten GF. Neuroleptic malignant syndrome: a pathogenetic role for dopamine receptor blockade? *Neurology* 1981;31:132-7.
- 5 Bleichner G, Squara P, Parent A. Hypertonia and malignant hyperthermia due to morphine and neuroleptic. *Lancet* 1981;i:386-7.
- 6 Kleinknecht D, Parent A, Blot P, Bocheureau G, Lallement PY, Pourriat JL. Rhabdomyolyses avec insuffisance rénale aiguë et syndrome malin des neuroleptiques. *Ann Med Interne (Paris)* 1982;133:549-52.
- 7 Arita T, Itoh N, Onda A, Takeuchi H, Fuwano S, Sano T. Two cases of syndrome maline treated with dantrolene and bromocriptine. *Clin Psychiatry* 1985;27:966-9. (in Japanese)
- 8 Nishizima K, Ishiguro T, Kato B. Neuroleptic malignant syndrome induced by a withdrawal of an anti-parkinsonian drug, a tricyclic antidepressant and neuroleptics. *Jpn J Clin Psychiatry* 1985;14:1845-54. (in Japanese)
- 9 Ogyu H, Hosaka T, Turumaru Y, Oeda Y, Shirakura K. A case with recurrent hyperthermia and increased serum level of CPK during neuroleptic therapy. *Clin Psychiatry* 1986;28:91-6. (in Japanese)
- 10 Makitsubo T, Sahashi K, Gotoh S, Mitsuma T. A case of neuroleptic malignant syndrome during a long term treatment with sulpiride, amantadine and trihexyphenidyl. *Neurol Med* 1986;24:412-4. (in Japanese)
- 11 Neuroleptic malignant syndrome due to sulpiride. *Drug Information (Japanese Ministry of Health and Welfare)* 1987;85:1-2. (in Japanese)
- 12 Hermesh H, Huberman M, Radvan H, Kottler R. Recurrent neuroleptic malignant syndrome due to tiapride and haloperidol: the possible role of D-2 dopamine receptors. *J Nerv Ment Dis* 1984;172:692-5.
- 13 Schachter M, Bédard P, Debono AG, et al. The role of D-1 and D-2 receptors. *Nature* 1980;286:157-9.
- 14 Seeman P. Brain dopamine receptors. *Pharmacol Rev* 1981;32:229-313.
- 15 Imafuku J. The characterization of [³H] sulpiride binding sites in rat striatal membranes. *Brain Res* 1987;402:331-8.
- 16 Benakis A, Pongis MA, Sugnaux F, Glasson B, Jirounek H, Redard M, Vitas A. Localization, distribution, elimination and metabolism of ¹⁴C-sulpiride in rat. *Eur J Drug Metab Pharmacokin* 1976;1:51-62.
- 17 McGeer PL, McGeer EG, Suzuki JS. Aging and extrapyramidal function. *Arch Neurol* 1977;34:33-5.

Accepted 2 April 1988

Matters arising

McArdle's sign in multiple sclerosis

Sir: Your readers may be interested in the background to the observation of increased pyramidal weakness with neck flexion in patients with spinal cord disease.¹ This phenomenon was first brought to my attention in the mid-1960s by a patient with multiple sclerosis who was referred to me at the National Hospital, Queen Square. He had a marked spastic foot drop and had found that he could dorsiflex his foot if he fully extended his head.

I was able to confirm this observation and I also found that weakness of hip flexion, as tested by straight leg raising against resistance, which is usually the earliest sign of pyramidal weakness in the leg, was weaker on full neck flexion. I thought that this was the motor equivalent of L'hermitte's sign and due to stretch of the spinal cord in full neck flexion.

The effect of neck movement is often slight and therefore, hip flexion should be tested with the neck in full flexion and in full extension to show the difference.

I subsequently tried this test on a large number of patients and found that it could occur in any condition affecting the spinal cord, although most easily demonstrated in multiple sclerosis. It may even be found in patients with lesions of the lower thoracic cord such as a thoracic meningioma as low

as T11. I have observed it in patients with lesions at the foramen magnum, but not with lesions above this level. It is probably most useful in demonstrating weakness that would not otherwise be clearly evident.

MJ MCARDLE
3 Kingsdown,
115a Ridgeway,
Wimbledon,
London SW19 4RL, UK.

Reference

- 1 O'Neill JH, Mills KR, Murray NMF. McArdle's sign in multiple sclerosis. *J Neurol Neurosurg Psychiatry* 1987;50:1691-3.

Correction

Enlargement of the third ventricle in hyponatraemia in aneurysmal subarachnoid haemorrhage, by Wijndicks, van Dongen, Gijn, Hijdra and Vermeulen (*J Neurol Neurosurg Psychiatry* 1988;51:516-20).

Part of the last sentence of the second paragraph of the introduction was deleted. It should read "Therefore, the relationship between hyponatraemia and the size of the third ventricle was separately investigated".