Table Agreement with ultrasonographer's assessment of stenosis in 37 arteries

Clinician	No arteries correctly identified	Agree on stenosis n (%; 95% CI)*	Disagree by 1 category of stenosis**	Disagree by 2 categories of stenosis	Uninterpretable
B	36	18 (50, 33–67)	15	2	1
C	29	11 (38, 21–58)	15	2	1
D	28	13 (46, 28–66)	12	1	2
E	26	11 (42, 23–63)	9	1	5

*the proportion of correctly identified arteries in which the clinicians' assessment of stenosis was in the same category as the ultrasonographer and 95% confidence intervals. **categories of stenosis: Normal, 1–24%, 25–49%, 50–74%, 75–99% and occluded.

no experience in DCS had difficulty in identifying the ICA correctly in a significant proportion of cases. Amongst correctly identified arteries there was considerable inter-observer variation in the interpretation of the images and the untrained clinicians made errors in interpreting abnormalities in 50–62% of the arteries even when they identified the arteries correctly. It is likely that similar problems may occur in other departments and hospitals, so until clinicians have a greater experience of DCS, hard copies of images should not be routinely provided. It appears that correct interpretation of duplex images require extra training.⁵

SAMAN GUNATILAKE
PETER SANDERCOCK
JIM SLATTERY
Department of Clinical Neurosciences,
Western General Hospital,
Edinburgh EH4 2XU, UK

Correspondence to: Dr Sandercock

Hyperventilation tetany: effect of carbamazepine

Schaaf and Payne first reported the use of diphenylhydantoin to treat tetany in 1966.¹ We decided to try anticonvulsant therapy with carbamazepine in hyperventilation tetany. Carbamazepine was administered to 211 women and 77 men aged 18–42 (mean 28) in a dose of 600 mg daily for three months. Chvostek's sign was found in 70%, carpopedal spasms and paraesthesiae occurred in 28% and nonspecific features such as headache, fatigue and anxiety in 72%.

Electromyography was performed on all patients after two minutes of hyperventilation and all showed repetitive double, triple and multiple discharges typical of tetany.

Carbamazepine significantly improved many of these features and Chvostek's sign disappeared in 31%.

A general reluctance to use anticonvulsant medication to treat hyperventilation tetany is probably due to the belief that tetany is due to ionic imbalance. Our results have shown that the stabilising effects of carbamazepine on neurons, probably implemented at the level of the brainstem reticular formation which is responsible for the integration of tetanic activity, was the reason for the improvement. The effect on the limbic system was shown by the decrease in anxiety.

Our experience suggests that carbamazepine may be useful in the treatment of hyperventilation tetany.

P KUKUMBERG
Neurological Clinic, University of Komensky,
Limbova 5, 833 05 Bratislava, Czechoslovakia

1 Schaaf M, Payne Ch. Effect of diphenylhydantoin and phenobarbital on overt and latent tetany. *New Engl J Med* 1966;22: 1228–33.

- 1 Hankey GJ, Warlow CP. Symptomatic carotid ischaemic events: safest and most cost effective way of selecting patients for angiography before carotid endarterectomy. *BMJ* 1990; 300:1485–91.
- 2 Taylor KJW. Clinical application of Carotid Doppler ultrasound In: Taylor KJW, Burns PN, Wells PNT, eds. *Clinical application of Doppler ultrasound*. Raven Press: New York, 120–61.
- 3 O'Leary DH, Bryan FA, Goodison MW, et al. Measurement variability of carotid atherosclerosis: real-time (B-mode) ultrasonography and angiography. *Stroke* 1987;18:1011–7.
- 4 Gardner MJ, Altman DG. Calculating confidence intervals for proportions and their differences. In: Gardner MJ, Altman DG, eds. *Statistics with confidence—confidence intervals and statistical guidelines*. London: BMJ Publications 1989:28–33.
- 5 Nelson TR, Pretorius DH. The Doppler signal: where does it come from and what does it mean. *AJR* 1988;151:439–47.

Reversible pituitary stalk enlargement in cranial diabetes insipidus

Infiltrative disease or neoplastic involvement of the pituitary stalk results in the CT appearance of stalk thickening¹ often accompanied clinically by diabetes insipidus. Some patients, however, with cranial diabetes insipidus of no identifiable cause may also exhibit stalk enlargement.² The natural history of this radiological abnormality in so-called idiopathic cranial diabetes insipidus has not been previously reported. We report on the follow up of two patients with cranial diabetes insipidus whose CT findings at initial presentation revealed gross stalk enlargement.

CT scan showed gross thickening of the pituitary stalk in a 14 year old boy who presented three months after onset of symptoms. Water deprivation test with parallel assessment of thirst sensation confirmed the diagnosis of diabetes insipidus with concomitant adipisia. Treatment comprised water restriction (2 l/day) and intranasal desmopressin. Three years later a repeat CT scan showed no abnormality of the stalk. Serial CT and MRI over an eight year follow up have excluded a mass lesion.

In a second case a 24 year old female presented with a two week history of polyuria and polydipsia of sudden onset. Water deprivation testing confirmed cranial diabetes insipidus. Anterior pituitary function was intact. CT findings in this patient at initial presentation are shown in fig 1. The normal pituitary stalk (PS) is smaller than or equal to the size of the basilar artery³ (BA), but as illustrated in fig 2, was considerably enlarged in this patient.

MRI performed after three months of treatment with intranasal desmopressin confirmed that the stalk was still thickened. One year after presentation, however, repeat CT

Figure 1 CT findings in case 2 at presentation. BA = basilar artery, PS = pituitary stalk.

Figure 2 MRI findings in case 2, three months after presentation.

showed that the stalk was then of normal size (fig 3).

Structural involvement of the pituitary stalk in a number of pathological states such as histiocytosis, sarcoidosis, primary and secondary neoplasms may result in diabetes insipidus. Our patients with diabetes insipidus had gross stalk enlargement at presentation but resolution of the abnormality without treatment other than desmopressin in these cases confirms that stalk enlargement may occur in the absence of any progressive infiltrating or neoplastic process.

The MRI findings in case 2 (fig 2) three months after presentation are noteworthy. There was no abnormalities of the hypothalamus. Stalk thickening was still obvious, though less marked than at presentation suggesting a slowly resolving process. The fact that the lesion was still present at this time excludes the possibility of ischaemic infarction of the stalk since the effects of infarction

Figure 3 CT findings in case 2, one year after presentation.