menopausal bleeding from which the women workers suffered.

Finally, the criticism of the inappropriate use of the unpaired *t* test in the statistical analysis is groundless because, firstly, there is no obvious violation of the assumptions of the *t* test and, secondly, the robustness of the *t* statistic secures its use in comparing two groups.

We have no doubt therefore about the significance of our findings.

L POLLER
JEAN M THOMSON
K F YEE

National (UK) Reference Laboratory
for Anticoagulant Reagents and
Control,
Withington Hospital,
Manchester M20 8LR

¹ Poller, L, in *Recent Advances in Thrombosis*, ed L Poller, p 181. London, Churchill, 1973.

² Poller, L, *British Medical Bulletin*, 1978, **34**, 151.

Serum bilirubin and hepatic enzyme induction

SIR,—The recommendation of measurement of serum unconjugated bilirubin on a fasting specimen, as a means of detecting hepatic enzyme induction, by Dr A K Scott and his associates (4 August, p 310) at the moment has more academic than practical potential. At the reported levels of serum total bilirubin of 7 $\mu\text{mol/l}$ (0.4 mg/100 ml) or less the accuracy, precision, and sensitivity of fractionation procedures, in our hands as well as in those of others, are quite poor. The result of fractionation under these circumstances is in fact little better than guesswork, and accordingly interpretation of such results could be quite hazardous. For this reason I, like many other chemical pathologists, decline requests for fractionation of serum bilirubin which has a value well inside the normal range.

Dr Scott and his colleagues state that serum unconjugated bilirubin estimation is less time-consuming and cumbersome than other methods commonly used to assess hepatic enzyme induction. They quote antipyrine half life, urinary D-glucuric acid, and 6- β -hydroxycortisol excretion as examples of such methods. Serum γ -GT (γ -glutamyl-transferase, EC 2.3.2.2), however, has been omitted from their list. Elevation of serum levels of this enzyme as a result of hepatic enzyme induction by alcohol and by anticonvulsant and other drugs was reported in 1971.¹ In our laboratory as in many others, the practical usefulness of this test has since been confirmed; quite often an isolated raised level of this enzyme, among normal results for routine biochemical parameters, reflects the state of hepatic enzyme induction. This is a test which is now widely available in most if not all clinical biochemistry laboratories; in fact it is an automated test in our laboratory, available as part of our routine liver function tests. It is fairly simple and is sensitive enough to be recommended for monitoring of patients on anticonvulsant drugs. Like all other tests used for assessment of hepatic enzyme induction during anticonvulsant therapy, interpretation of results of serum levels of this enzyme should be made with caution in the presence of hepatobiliary disease, when "routine" liver function tests give abnormal results, and in cases of alcoholism, as well as in patients receiving other drugs capable of inducing hepatic enzymes.

In conclusion, until fractionation methods

with improved sensitivity and reliability become available for routine use, clinicians as well as chemical pathologists should not consider fractionation of serum bilirubin when concentrations are normal or low. Estimation of serum γ -GT is more practical and more meaningful, and should give more reliable information for monitoring hepatic enzyme induction.

B F ALLAM

Department of Biochemistry,
Stobhill General Hospital,
Glasgow G21 3UW

¹ Rosalki, S B, Tarlow, D, and Rau, D, *Lancet*, 1971, **2**, 376.

Volunteer and professional treatments of dysphasia after stroke

SIR,—We noted with interest the original article "Comparative trial of volunteer and professional treatment of dysphasia after stroke" by Margaret Meikle and others (14 July, p 87). There are several aspects of their study which require clarification.

The selection of volunteer helpers is described but it is not clear if their supervisors are trained speech therapists. The patients studied would appear to be younger than most stroke patients as only four of the 31 patients are aged 75 years or more and the average age is 65 years. There appears to have been a very late start to speech therapy in the trial as only six patients commenced therapy within six weeks of the onset of dysphasia and two-thirds did not enter the study until more than three months had elapsed. No mention is made of the presence of any articulatory abnormality complicating the dysphasia and this is a crucial consideration in assessing the prognosis of the dysphasic patient undergoing conventional speech therapy.¹

No description of the form of conventional speech therapy is attempted and the use of the six-week retest Porch Index of Communicative Ability (PICA) is not explained. The table on page 88 describes 17 patients as receiving conventional speech therapy, whereas only 16 patients are thus described in the "Results" section. Although the summary states that the impact of aphasic illness on families is examined, this is not described in the text and indeed no reference is made to the key role of the family in the rehabilitation of the dysphasic patient.

We would agree with the authors that they should be reluctant to draw unequivocal conclusions from their trial and we would advocate guarding against the wholesale promotion of volunteer schemes as an alternative to professional speech therapy until more convincing evidence is available.

BRIAN O WILLIAMS
SANDRA A WALKER

Victoria Geriatric Unit,
Victoria Infirmary,
Glasgow G41 3DX

¹ Williams, B O, Walker, S A, and Dall, J L C, *Age and Aging*, 1977, **6**, 96.

* * * We sent a copy of this letter to the authors, whose reply is printed below.—ED, *BMJ*.

SIR,—We are glad to have the opportunity to clarify the points raised in the letter from Dr B O Williams and Mrs Sandra A Walker concerning our paper.

Our trial was not an attempt to examine the efficacy of speech therapy or to assess spontaneous recovery in the natural history of dysphasia. Any patient who would normally have been referred for speech therapy and who met the criteria for the trial was included, regardless of time since the onset of dysphasia. We wished to assess whether some speech therapists might use part of their time profitably in supervising and advising volunteers who would have more time available to devote to individual patients. Our experience from the trial was positive in this respect. In organising the trial suitable arrangements could not be made for volunteers to assist patients in hospital. We were restricted therefore to including only those patients living at home, and this may account for the younger average age of subjects.

In the assessment of linguistic ability the presence of dyspraxia was also recorded. We would agree that this is important in considering the prognosis of dysphasic patients. Severe articulatory dyspraxia presents a problem in rehabilitation to both professionals and volunteers, and we found that the volunteers required considerably more guidance in these cases.

The guidelines for treatment as indicated from the results of individual PICA assessments were carefully followed for all patients. This was outlined in the article, but as each patient had different problems details of specific materials and approaches could not be included. It should be pointed out that similar materials and methods were used on both sides of the trial. At the outset of the trial the intention was to retest at monthly intervals according to PICA guidelines, but as the trial progressed this became impractical because of the increasing number of subjects in the trial, and it was found that in most cases the interval had to be six weeks. Reassessment continued until plateauing occurred on two successive occasions, and again this was in accordance with PICA guidelines.

There is an error in the table on page 88. Subject 28, was in fact, treated by volunteers.

The vital importance of the impact of aphasic illness on families was fully described in the article to which reference was made.¹ It was not one of the aims of the trial to examine the role of the family in rehabilitation. Nor was it at any time our intention to promote volunteer schemes as an alternative to professional speech therapy. We would like to reiterate that our main aim was to find ways of providing more assistance in overcoming the communication problems experienced by dysphasic patients and their families.

MARGARET S MEIKLE

Northwick Park Hospital,
Harrow, Middx HA1 3UJ

ENID WECHSLER

University College Hospital,
London WC1E 6AU

¹ Mulhall, D J, *British Journal of Disorders of Communication*, 1978, **13**, 127.

Cubital tunnel syndrome

SIR,—I should like to make some comments about your leading article "Cubital tunnel syndrome" (25 August, p 460).

The capacity of the cubital tunnel is diminished in elbow flexion owing to tautening of the arcuate ligament, which stretches

between the two heads of the flexor carpi ulnaris muscle, and bulging of the medial ligament: in some otherwise normal elbows diminution of capacity in the flexed-elbow position is such as to cause transitory "sleep palsy."¹⁻³ The cubital tunnel syndrome may usefully be classified as follows³: *physiological* ("sleep palsy"), *acute* and *subacute* (the cubital tunnel external compression syndrome), and *chronic*, which may in turn be divided into space-occupying lesions and tardy ulnar palsy associated with cubitus valgus following injury to the capitular epiphysis (the sequence of events being damage to the trochlear-capitular ossific link, lateral shift of the ulna, and approximation of the arcuate ligament to the floor of the tunnel).

From my experience, I cannot agree that one-third of cases of the cubital tunnel syndrome are of unknown aetiology: I respectfully suggest that many of these cases may be due to external compression. Cases of the subacute form of the cubital tunnel external compression syndrome are not uncommonly seen in hospital practice¹⁻³; all those concerned with caring for patients in the operating theatre and in the ward need to be aware of the syndrome, and external pressure over the cubital tunnel should be avoided.

In those cases of the cubital tunnel syndrome requiring surgery, the usual choice is between simple division of the arcuate ligament, which is then sewn together deep to the ulnar nerve, and anterior transposition. However, the latter procedure is mandatory for the dislocating, hypermobile nerve that is the subject of neuropathy.

The *elbow flexion test*, which I have described,³ is a useful clinical sign for the cubital tunnel syndrome, particularly where the differential diagnosis is confusing: the elbow is kept fully flexed for five minutes and the test is positive when there is initiation or aggravation of numbness or paraesthesiae, or both, in the ulnar nerve distribution. As explained, there is tautening of the arcuate ligament, bulging of the medial ligament, and consequent intraneural hypertension.

THOMAS G WADSWORTH

London W1

¹ Wadsworth, T G, and Williams, J R, *British Medical Journal*, 1973, **1**, 662.

² Wadsworth, T G, *Anesthesia and Analgesia*, 1974, **53**, 303.

³ Wadsworth, T G, *Clinical Orthopaedics and Related Research*, 1977, **124**, 189.

Dangerous antihypertensive treatment

SIR,—I refer to your leading article (28 July, p 228) concerning rapid blood pressure reduction in severe hypertension. The disquieting report by Dr D H Cove and others (p 245) focuses attention on a distressing complication of malignant hypertension—namely, blindness. Although they had found no previous reports we described this complication in two of 197 patients,¹ one following drug-induced hypotension and one unrelated to treatment. Our patients were more fortunate in that the blindness was temporary, lasting for 30 minutes in one patient and two hours in the second.

For many years it has been our practice to use intravenous diazoxide or other parenteral medication only for hypertensive emergencies such as hypertensive encephalopathy, acute left ventricular failure due to hypertension, aortic dissection, intracranial bleeding, and severe hypertension in late pregnancy. We do

not use parenteral agents routinely in malignant hypertension.

Because intravenous diazoxide may cause hypotension we recently conducted a random allocation study to assess the relative value of intravenous diazoxide, labetalol, and clonidine in 30 episodes of severe hypertension in 27 patients.² Labetalol, which you mention as the alternative to diazoxide, was disappointing in our study. Most patients were already receiving some medication when the episode of severe hypertension occurred and we found labetalol in a dose of 100 mg intravenously ineffective in these patients, as did Rosei *et al.*³ Clonidine in a dose of 300 µg in 10 ml of saline injected over 10 minutes produced a more gradual fall in the blood pressure than diazoxide; hence at five minutes the fall was not as great as that seen with diazoxide, but similar levels were seen between 10 and 180 minutes after the injection. Severe hypotension occurred on only one occasion and this followed intravenous diazoxide. Side effects were encountered with all three medications, but were clinically insignificant in the context of the complications which may warrant such medication. Drowsiness and dry mouth were the major side effects following clonidine.

Both clonidine and diazoxide were equally effective but there may be some advantage in using clonidine because of the more gradual fall in blood pressure seen with this drug.

PRISCILLA KINCAID-SMITH

University Department of Medicine
and Department of Nephrology,
Royal Melbourne Hospital,
Melbourne,
Victoria 3050, Australia

¹ Kincaid-Smith, P, McMichael, J, and Murphy, E A, *Quarterly Journal of Medicine*, 1958, **17** (new series), 117.

² Yeung, C K, *et al*, *Medical Journal of Australia*, in press.

³ Rosei, E A, *et al*, *Australia and New Zealand Journal of Medicine*, 1976, **6**, 83.

SIR,—The recent accounts by Dr D H Cove and others (28 July, p 245) and Dr J H Wetherill (1 September, p 550) of young women suddenly losing sight within the first few days of treatment for malignant hypertension should raise alarm in those who treat this condition and make one reassess the teaching that the blood pressure must be lowered to normal as soon as possible.

The pathology of papilloedema in malignant hypertension differs from that of raised intracranial pressure in that there is a patchy ischaemia with fibrinoid necrosis of some fine arterioles and a flooding of the remaining capillary bed from breakdown of autoregulative arteriolar vasoconstriction. There may or may not also be an element of raised intracranial pressure and of raised intraocular pressure. The raised intraocular pressure was recognised in 1964¹ but not its significance, which probably did not matter with the drugs then available. Now that powerful drugs are in use we have the dire results reported. A sudden drop in arteriolar pressure not balanced by as rapid a drop of intraocular pressure would certainly reduce the perfusion pressure. Even with a normal intraocular pressure there may be some risk when the arterial pressure drops suddenly, as in exsanguination blindness. The interstitial pressure—that is, the intraocular tissue pressure—is the intraocular pressure. It would be raised not from the disc oedema but from raised capillary pressure throughout the eye.

In the patient, not blind, reported in 1964¹ there was a week of sedatives and assessment before more drastic treatment, and even at two weeks when the intraocular pressure was back to normal the blood pressure was still 260/130 mm Hg. This man was 70 and did very well. The recent cases unfortunately responded much more dramatically, their youth probably making them so responsive rather than any hormonal factor.

Finally, two more points for the teachers on malignant hypertension. I have been struck by the lack of headache in these ill patients, though one is led to expect it; and there is often unnecessary panic if papilloedema is unilateral and malignant hypertension is suspected—one cannot have the hypertension unilaterally.

JOHN PRIMROSE

Regional Eye Centre,
Oldchurch Hospital,
Romford, Essex

¹ Primrose, J, *British Journal of Ophthalmology*, 1964, **48**, 19.

Medicine and the media

SIR,—I have argued elsewhere¹ that a constructive and co-operative attitude by NHS managers towards the media is likely to do good rather than harm, and that we should be ready to use the vast potential of the media to disseminate understanding of what we are doing and why. May I through your columns congratulate Dr J M Bird on his objective report of his study of the effect on patients' attitudes of publicity about electric convulsive therapy (1 September, p 526), and encourage other clinical colleagues to undertake similar research?

WILLIS J ELWOOD

Bolton Area Health Authority,
Bolton BL1 1JF

¹ Elwood, W J, *Community Medicine*, 1979, **1**, 97.

General practice in hospital accident and emergency departments

SIR,—By comparing the rates of use of hospital accident and emergency departments and the general practitioner service, Dr Joyce M Watson and others conclude that no significant shift in work load from general practice to hospital has occurred in their district (11 August, p 365).

It has been suggested that attendance at accident and emergency departments for reasons other than trauma is likely to be inappropriate.¹ If increasing numbers of patients were proceeding directly to hospital, without first consulting their general practitioner, one might expect an increase in inappropriate attendance, which would not necessarily be evident from examining the total attendance figures. The incidence of self-referral in a locality may reflect the local availability of hospital care and the accessibility of the general practitioner²; there may thus be considerable variation in the attendance rates between districts.

To investigate these aspects of the work load of the accident and emergency department, I examined the results of a small survey conducted at the Cambridge Military Hospital, Aldershot, which serves both the military and civilian populations of the area. Seventy-three consecutive patients attending outside normal