intracranial metastases is well documented⁴⁻⁸ 47-80% of unselected patients with intracranial metastases may be expected to obtain symptomatic relief with cranial irradiation⁵⁻⁸ and about 12% are still alive and active one year later.³ These results are obtained without the stress to the patient of a major operation.

We hope these details will encourage the general physician to consider irradiation as a palliative measure for patients with cerebral metastases.

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¹ Paillas, J E, and Pellet, W, in *Handbook of Clinical Neurology*, ed P J Vinken and G W Bruyn, p 229. Amsterdam, North Holland, 1975.

² Harr, F, and Patterson, R, *Cancer*, 1972, **30**, 1241.

³ Montana, G, Mescham, W, and Caldwell, W, *Cancer*, 1972, **29**, 1477.

⁴ Hinds, W A, et al, *Cancer*, 1970, **26**, 138.

⁵ Chu, F C H, and Hilaris, B B, *Cancer*, 1961, **14**, 577.

⁶ Chao, J, Phillips, H R, and Nickson, J J, *Cancer*, 1954, **7**, 682.

⁷ Valk, J, in *Handbook of Clinical Neurology* ed P J Vinken and G W Bruyn, p 512. Amsterdam, North Holland, 1975.

⁸ Deeley, T J, and Edwards, J M, *Lancet*, 1968, **1**, 1209.

Anticonvulsants and thyroid function

SIR,—Dr P P B Yeo and his colleagues (17 June, p 1581) do not refer to an earlier study in which the effects of phenytoin on circulating thyroid hormones were reported.¹ Although agreeing that serum concentrations of thyroxine are significantly reduced in patients taking phenytoin for prolonged periods, our data suggested that this phenomenon could be adequately explained in terms of hormone displacement from serum-binding proteins with consequent increased turnover. Thus we found a small increase in free thyroxine concentration, which was the resultant of a higher free fraction and reduced total serum hormone concentration. This was reflected in an increase in the urinary excretion of unconjugated thyroxine.

Measurement of free thyroid hormone concentration in serum is difficult. The free fraction of thyroxine (0.009%) calculated from the data on control patients presented by Dr Yeo and his colleagues seems rather lower than most other workers have reported.

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¹ Finucane, J F, and Griffiths, R S, *British Journal of Clinical Pharmacology*, 1976, **3**, 1041.

Relative activity of atenolol and metoprolol

SIR—I read with interest the letter from Dr J D Harry and Anne G Shields of ICI (8 July, p 128) on the relative efficacy of atenolol and metoprolol in reducing heart rate in which they confidently claim that, although these two drugs are equipotent 3 h after single dose ingestion, atenolol is significantly more effective 24 h after ingestion.

I have recently completed a double-blind comparison of atenolol and metoprolol in the treatment of hypertensive patients in general practice, the results of which are to be published. From my data there is evidence

that refutes these claims. Three months after the start of the study 12 patients were randomly selected for standard exercise tests (75 W for 5 min) and pulse rate measurements. Six patients were later found to have been taken from the atenolol group and six from the metoprolol group. The single daily doses of the two drugs taken by these patients were comparable (200 mg). The mean pulse rate increases after exercise in the atenolol group were 21/min at 3 h after ingestion, and 26/min at 23 h after ingestion. The corresponding pulse rate increases in metoprolol patients were 19 and 21/min. There were no significant differences between the potency of atenolol and metoprolol at either 3 or 23 h after single-dose ingestion.

It seems to me to be unwise and even irresponsible to use evidence from short-term studies in healthy volunteers to deduce values for a drug which is, after all, more commonly used in the long term in unhealthy patients. Our evidence, after long-term single daily dose treatment of real patients in general practice, suggests that atenolol and metoprolol are equipotent 23 h after single-dose ingestion. This evidence, coming as it does from a well-designed general practice study is, I would suggest, of more and real practical value. One further point: since our data suggest that atenolol and metoprolol are equipotent at 3 h and at 23 h after ingestion the threefold price difference between the two drugs surely makes metoprolol preferable to atenolol in the long-term treatment of patients with chronic cardiovascular disease.

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Health care in developing countries

SIR,—Rational decisions on health care policies, both in developed and in underdeveloped countries, depend on reliable figures of cost and of outcome. For this reason, the study by Dr P H Rees and others (8 July, p 102) performs a most useful function. The conclusions, however, suggest that the application of cost-benefit methods is limited to the work of a hospital.

Most underdeveloped countries have inherited a health care system from the colonial era which was based on the model found in the industrialised countries. Hospitals in towns and cities cater mainly for the urban population, who are often relatively well provided for in terms of food, a clean water supply, and sewerage. In most underdeveloped countries, however, 80-90% of the population lives in rural areas. Allocation of resources to hospital care will inevitably deprive rural populations of cheap primary care, and urban teaching hospitals cannot logically be justified as a substitute for improving care in rural dispensaries. The annual cost of the intensive care unit at Kenyatta Hospital could provide prophylactic antimalarials for about one-million under-5s.

The authors justify the expense of reference hospitals in terms of their teaching function. Yet these hospitals will produce health workers who have become accustomed to using expensive investigative and therapeutic methods available only in the large hospitals and will be reluctant to work outside these "centres of excellence." The exodus of health care workers from underdeveloped countries

to Britain and other industrialised countries is in part the consequence of training these health workers in the skills of Western-type medicine in Western-style hospitals.

The authors point out that available and economic methods of prevention will have little impact on most medical admissions. Yet many of the diseases they treat are diseases of poverty, the results of poor nutrition and sanitation. Certainly these are not easily preventable, but equally the incidence of these diseases will not be reduced by any amount of curative health care. One major effect of the emphasis on curative medicine is to create the illusion that health is synonymous with health care. In reality improvement in health can come only from improvements in the conditions which produce ill health, and this is as true in Britain as it is in Africa.

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Axillary hyperhidrosis

SIR,—The results of the trial reported by Dr K T Scholes and others (8 July, p 84) confirm the good results reported by Hurley and Shelley.¹ In Exeter we have used their original regimen for five patients referred for surgery and in each case excellent control has been obtained, so much so that the patients, previously desperate for surgical treatment, have not required it.

Dr Scholes and his colleagues state in their summary that "no troublesome side effects were reported," although one patient had to stop treatment because of "unbearable irritation" and 29 (45%) had irritation severe enough to require topical steroids. We have also found that irritation may be troublesome, although it is certainly greatly reduced if the occlusive film is omitted, without affecting the efficacy of the treatment. Irritation may prevent sleep, and in this case daytime treatment is possible; one of our patients treats herself successfully for four hours each Sunday morning. It is most important to advise the patients not to shave the axillary skin immediately before treatment, since this leads to severe irritation.

Although the treatment is slightly irksome, our patients have accepted it gladly. It is too soon to abandon surgery completely, since the long-term results of this topical treatment are not known. However, this method provides control of socially debilitating symptoms and should be offered to all sufferers before surgery is considered.

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¹ Hurley, H J, and Shelley, W B, *Journal of the American Medical Association*, 1963, **186**, 109.

Abuse of pentazocine

SIR,—The recent report by Drs Alan King and T A Betts (1 July, p 21) suggests that their pentazocine experience is uncharacteristic and their evidence may be incomplete.

The possibility that pentazocine abuse can occur has long been recognised, but experience confirms that the risk of dependence is low. Only 555 reports of alleged dependence are available worldwide up to the end of 1977,

when approximately 84 million patients had received the parenteral form.

Typically, those who abuse pentazocine also abuse narcotics and other drugs.¹ Pentazocine alone does not produce a typical opiate abstinence syndrome,² and withdrawal symptoms are not usually severe and do not require treatment.³ In the group reported by Drs King and Betts the symptoms are described as severe, lasting more than two weeks, and resembling those of diamorphine withdrawal. Clearly this runs contrary to the general experience of pentazocine dependence. Subjective testimony alone cannot be regarded as sufficient evidence to establish which drug is being abused,⁴ since it is reported that analysis revealed no trace of pentazocine in six subjects alleging dependence on this drug, while in five there was evidence of morphine or pethidine usage.⁵

Finally, the authors give no indication of the relative frequency of alleged pentazocine abuse. Comparative data are needed to put their experience into correct perspective. If these data could be made available, then the report can be properly evaluated.

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¹ Chambers, C D, *et al*, *Health Services and Mental Health Administration Reports*, 1971, **86**, 627.

² Council on Drugs, *Journal of the American Medical Association*, 1969, **209**, 1518.

³ Lewis, J R, *Journal of the American Medical Association*, 1973, **225**, 1530.

⁴ *Lancet*, 1971, **1**, 439.

⁵ Roth, C H, and Trout, M E, *Hospital Formulary Management*, 1970, **5**, 13.

Which drug for hypertension?

SIR,—Your leading article (8 July, p 75) on the drug therapy of hypertension requires comment. It implies that until the results of the MRC trial of diuretic versus a beta-blocker are known a thiazide is the drug of choice for virtually all patients with mild to moderate hypertension. However, considerations of cost and long-established usage are not the only criteria for choosing a hypotensive agent.

While accepting that adequate information is not yet available concerning the "cardio-protective" aspects of beta-blocking treatment, many clinicians act ahead of established data and advise the incorporation of beta-adrenergic blockade in all hypotensive regimens when not contraindicated.

If, as the evidence quoted suggests, thiazides reduce the incidence of strokes and beta-blockers reduce the incidence of myocardial infarction, perhaps a tablet should be made containing a low dose of a long-acting beta-blocker and a thiazide. Our patients would then gain the benefits of both groups of drugs.

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Parathyroid adenoma

SIR,—The report by Dr K Y Ahmed and others (8 July, p 92) implies a degree of certainty in the histological diagnosis of parathyroid adenoma which few histopathologists share and suggests a definition of tertiary hyperparathyroidism based on this.

The distinction between parathyroid adenoma and nodular hyperplasia has become increasingly blurred since an "adenoma" producing tertiary hyperparathyroidism was described in 1963.¹ The difficulty is that an adenoma can be identified only by the demonstration of atrophy of residual parathyroid glands,^{2,3} and in many cases with a single prominent parathyroid nodule the remaining parathyroids are either normal or slightly hyperplastic.³ Arbitrary classification of these as adenoma is meaningless, and the concept that adenoma and chief cell hyperplasia are different manifestations of the same process² is supported by this evidence. Since the patient described had at least two hyperplastic glands in addition to that containing the "adenoma" the suggestion that the lesion can be sharply categorised as an adenoma seems unwarranted; cases like this of a nodule with a rim of compressed, apparently normal parathyroid occur in hyperplasia.³

Furthermore, the terms primary and secondary hyperparathyroidism are defined in a functional sense without regard to the appearances of the parathyroids, and it is logical to define tertiary hyperparathyroidism in the same way. The suggestion that tertiary parathyroidism should be restricted to cases with a histological "adenoma" would merely add confusion because of the uncertainty of the histological diagnosis.

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¹ St Goar, W T, *New England Journal of Medicine*, 1963, **268**, 943.

² Black, W C, and Utley, J R, *American Journal of Clinical Pathology*, 1968, **49**, 761.

³ Kay, S, *Human Pathology*, 1976, **7**, 127.

Propranolol in black hypertensives

SIR,—Ten years have gone by since Humphreys and Delvin¹ published their results of a trial of propranolol in the treatment of hypertension in 18 Jamaicans of negro extraction. They included in the discussion a statement based upon their observations in which they said, "We do not think that there is any justification for using propranolol as a hypertensive agent [in Jamaican patients] at the present time. . ."

I feel that our experience in Jamaica since then makes it timely to refute this point, although I apologise for the fact that I do so a decade later. Since 1968 the drug has been widely used as an antihypertensive agent in the Caribbean and our general opinion is contrary to that of our widely quoted colleagues.

In our unit we have found that, using propranolol alone as an antihypertensive drug, while a response may be achieved at a relatively low dose in some patients, in others only large doses will produce a significant fall in blood pressure. The table shows the mean antihypertensive effect in five patients on propranolol at a dose of 40 mg thrice daily and the mean blood pressure values of four patients on propranolol incrementally increased to a dose of 80 mg thrice daily. These results suggest that in Jamaican patients with hypertension there are two definable groups based on their dose responsiveness to propranolol. We are investigating the role of renin in this phenomenon. In addition, our studies show that by adding a thiazide diuretic to the therapeutic regimen, a procedure not explored

Hypotensive effect of propranolol in two different dosages (mean blood pressure in mm Hg)

Blood pressure	Week of therapy		
	0	8	10
40 mg thrice daily (5 patients)			
Systolic { Supine	162 ± 6	148 ± 9	139 ± 11
Erect	156 ± 4	134 ± 9	130 ± 6*
Diastolic { Supine	102 ± 4	93 ± 5	85 ± 7
Erect	107 ± 2	96 ± 6	90 ± 7†
80 mg thrice daily (4 patients)			
Systolic { Supine	163 ± 10	154 ± 6	173 ± 10
Erect	162 ± 10	139 ± 8	140 ± 7
Diastolic { Supine	106 ± 4	100 ± 2	99 ± 1
Erect	107 ± 3	100 ± 4	96 ± 4

*Significantly different from value at time 0; P < 0.005.

†Significantly different from value at time 0; P < 0.05.

by Humphreys and Delvin in 1968, an improved antihypertensive effect can be produced with propranolol.

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¹ Humphreys, G S, and Delvin, D G, *British Medical Journal*, 1968, **2**, 601.

Water-soluble lumbar myelography

SIR,—Dr R G Grainger (3 June, p 1488) rightly stresses the importance of careful radiological technique in minimising the side effects of water-soluble myelography in the investigation of the lumbago-sciatica syndrome. We have found the overall morbidity of water-soluble myelography to be very low and therefore cannot support Dr A K Clarke and his colleagues (29 April, p 1143) in putting forward lumbar venography as an *alternative* investigation. Lumbar venography is a useful technique in those rare cases in which the appearances on a water-soluble myelogram are thought to be equivocal and surgical treatment is under consideration.

The reports of serious fractures resulting from muscle spasm after the use of meglumine iocarmate (Dimer X)¹⁻³ are very worrying. The particular advantage of metrizamide myelography is that muscle spasm does not seem to occur and therefore these rare but nevertheless disastrous fractures should be completely avoidable. With the availability of metrizamide we can see no place whatsoever for the continued use of meglumine iocarmate in the investigation of low back pain and sciatica.

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¹ Hugander, A, *et al*, *Zeitschrift für Rechtsmedizin*, 1974, **75**, 219.

² Eastwood, J B, *et al*, *British Medical Journal*, 1978, **1**, 692.

³ Motrey, B F, and O'Brien, E T, *Journal of Bone and Joint Surgery*, 1977, **59A**, 1099.

Housing, health, and illness

SIR,—Dr J A Muir Gray (8 July, p 100) has performed a valuable service by drawing attention to the role of the medical adviser to a housing authority. We are interested in his observation that at Oxford the community physician could intervene effectively only by using his powers to take cases to committee.