respond to metoclopramide, domperidone, ranitidine, amantadine, levodopa, carbamazepine, clonidine, prazosin, haloperidol, methysergide, or metoprolol. He improved slightly with the application of scopolamine patches, which had to be stopped because of side-effects. Intramuscular chlorpromazine (25 mg) would sometimes prevent attacks for up to a week. He was prescribed baclofen 10 mg, three times daily, after which his hiccups ceased for five days. When they recurred, baclofen dose was increased to 20 mg three times daily which has been successful, with only an occasional solitary hiccup. When he ran out of tablets for two days, the hiccups returned with their former ferocity. He has now remained under control on this medication for three months, has gained weight, and is feeling well for the first time in 30 years. The family history suggests transmission by an autosomal dominant gene.

Department of Neurology,
Prince Henry Hospital,
Sydney, NSW 2036, Australia — JAMES W. LANCE

Richmond, NSW — GERALD T. BASSIL

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TETRACYCLINES FOR DYSTROPHIC EPIDERMOLYSIS BULLOSA

SIR,—Dr White (April 29, p 966) reports the beneficial effects of minocycline in the treatment of dystrophic epidermolysis bullosa. Evidence that tetracyclines may inhibit excessive collagenase activity in skin from conventional and germ-free rats[1] suggests new therapeutic possibilities for these drugs, especially in cutaneous conditions such as recessive dystrophic epidermolysis bullosa, where collagenase activity is increased. To assess the activity of tetracycline on the dermal-epidermal junction, we investigated the effects of tetracycline chlorhydrate in hairless rats[2] with the suction blister method.[3] Our results indicated that tetracycline may play an important part in increasing the cohesion of the epidermis to the dermis. Tetracyclines may thus prove useful in treating bullous skin diseases with a high collagenase activity.

P. HUMBERT
A. RENAUD
R. LAURENT
P. AGACHE

Department of Dermatology,
Centre Hospitalier Universitaire,
25030 Besancon, France

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SURAMIN FOR TREATMENT OF ADRENOCORTICAL CARCINOMA

SIR,—Dr Vierhapper and colleagues (May 27, p 1207) report the beneficial effect of suramin in adrenocortical carcinoma. However, their patient had shown a reduction of metastases during administration of mitotane, and an additional effect of suramin remains uncertain.

We have now used suramin in three male and two female patients (aged 23–62 years) with metastatic adrenal carcinoma not responding to mitotane. Suramin was given in a dose of 1·0–1·5 mg intravenously at weekly intervals. Plasma suramin concentrations were monitored by high pressure liquid chromatography. In three patients no response to suramin was seen. One patient showed a transient disease stabilisation, and one had complete resolution of multiple pulmonary metastases for 5 months.[1] In none of the non-responders did suramin reach the target concentration of 200 μg/ml,[2] whereas in the patient with tumour regression concentrations above 300 μg/ml were noted. Thus close monitoring of drug levels may be important in these patients. Although Vierhapper and colleagues did not report suramin concentrations, a total dose of 5 g is unlikely to be sufficient to induce suramin concentrations above 200 μg/ml. It may therefore be possible that less suramin is required for an additional beneficial action in mitotane responders.

Suramin is active not only against adrenocortical carcinoma but also against various other malignancies.[2] On the other hand numerous side-effects have been reported during treatment with high doses of suramin, including proteinuria, thrombocytopenia, coagulopathy, liver test abnormalities, vortex keratopathy, and reversible acute demyelinating polyneuropathy.[1-3] We therefore believe that the use of suramin for malignant diseases should be restricted to carefully planned studies, and we invite others to participate in our phase II trial investigating the effect of suramin in adrenocortical carcinoma not responding to conventional therapy.

B. ALLOLIO
M. REINCKE
W. ARLT
U. DEUSS
W. WINKELMANN

Medicine Clinic II and Polyclinic,
University of Cologne,
5000 Cologne 41, West Germany

Department of Clinical Biochemistry,
University of Bonn — L. SIEKMANN

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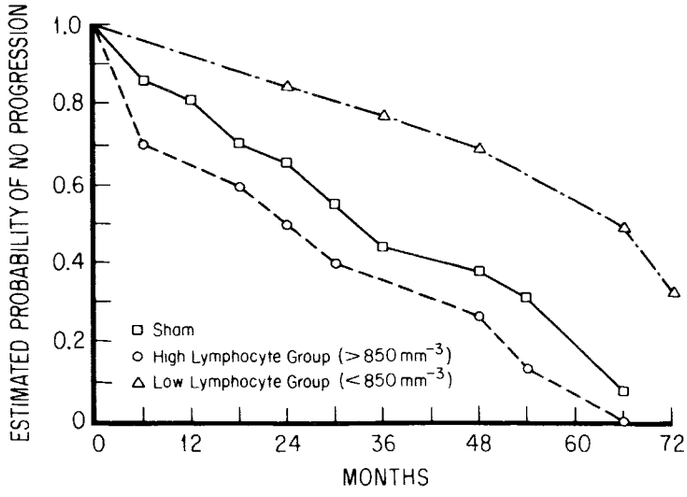
DEATHS AFTER TOTAL LYMPHOID IRRADIATION FOR MULTIPLE SCLEROSIS

SIR,—In a double-blind randomised prospective trial we observed transient functional stabilisation of patients with chronic progressive multiple sclerosis (MS) after total lymphoid irradiation (TLI) at 1980 cGy, limited to patients with mean lymphocyte counts below 850–900/μl during the 3 month period post-therapy.[1-3] Beneficial effects in this subgroup of patients persisted for up to 6 years post-therapy, as compared with chronic progressive patients with higher lymphocyte counts post-TLI or with sham-irradiated patients (figure).

54 patients have been treated with TLI—24 as part of our double-blind study, the remainder in an open pilot study in which most also received low-dose prednisone (30 mg per day or less). 30 patients have been followed up for 2 years or longer. Although side-effects of TLI have generally not been severe, 5 patients who



Kaplan-Meier curves comparing MS patients with low mean blood counts during 3 months post-TLI with patients with higher counts, and sham irradiated patients.

△ *vs* ○ (p = 0·0035); △ *vs* □ (p = 0·008); ○ *vs* □ (NS).
End-point is time to two-point deterioration in Troiano functional status scale after TLI or sham TLI.