

SIR,—The report of a stone fish “bite” by Drs T Llewellyn and A Fraser-Moodie¹ illustrates the result of having been “bitten” by a stone fish and makes recommendations for treatment.

The stone fish, genus *synancejidae*, does not bite but injects its venom by way of an adapted dorsal fin² into the flesh of unwary bathers. The advice given that “the affected part should be immersed in hot water at up to 50°C to denature the venom” is a dangerous suggestion, as not only the venom but also the affected part will be denatured.

Moritz and Henriques showed that water at 47°C caused full thickness burns in humans after 18 minutes and that the process was without discomfort in some cases; water at 50°C caused full thickness burns after five minutes.³ Between 44°C and 51°C the time required to produce irreversible tissue damage is halved for each one degree rise in temperature (from 180 minutes to under two minutes). We think that the advice of Drs Llewellyn and Fraser-Moodie, although given for treatment of a potentially fatal injury, is incorrect and could well result in serious tissue destruction.

D J GORDON
R MILLAR

Burns Unit,
Royal Victoria Hospital,
Belfast BT12 6BA

- 1 Llewellyn T, Fraser-Moodie A. Stone fish bite. *Br Med J* 1990;300:134. (13 January.)
- 2 Anonymous. *Encyclopaedia Britannica*. 15th ed. Chicago: Encyclopaedia Britannica, 1988.
- 3 Moritz AR, Henriques FC. Studies of thermal injury II. *Am J Pathol* 1947;23:695-720.

Single dose prophylaxis in colonic surgery

SIR,—What a pity that the large, potentially valuable trial by Mr D C Rowe-Jones and others¹ should have been compromised by the need to obtain funding from a pharmaceutical company.

Many hospitals use the standard three dose regimen of cefuroxime plus metronidazole for prophylaxis against wound infection after colorectal surgery. The obvious question is whether a single dose would be as effective. Why complicate matters by substituting the more expensive cefotaxime for cefuroxime? The authors' explanation that they restricted the protocol to the two prophylactic regimens of principal interest sounds lame. Whose interest? Perhaps that of the manufacturers of cefotaxime, who presumably funded the trial.

The authors' intention to reduce costs is admirable, but they could have achieved an even greater saving if a single dose of cefuroxime plus metronidazole had been shown to be as good as three doses. If one of the principal aims of trials such as this is to reduce NHS costs then perhaps the NHS should fund them. Only then can we run the trials that we would like to see performed, rather than those the pharmaceutical companies are willing to finance.

JONATHAN D BEARD

Department of Surgery,
Leicester Royal Infirmary,
Leicester LE2 7LX

- 1 Rowe-Jones DC, Peel ALG, Kingston RD, Shaw JFL, Teasdale C, Cole DS. Single dose cefotaxime plus metronidazole versus three dose cefuroxime plus metronidazole as prophylaxis against wound infection in colorectal surgery: multicentre prospective randomised study. *Br Med J* 1990;300:18-22. (6 January.)

AUTHOR'S REPLY,—I cannot accept that clinical research sponsored by a pharmaceutical company is by definition “compromised.” It scarcely needs me to point out that a large proportion of clinical trials are funded directly or indirectly by the pharmaceutical industry as part of clinical development programmes or as academic research. The

fact that such work is industry funded does not imply that its quality is necessarily to be questioned. Indeed, the skill of medical departments in the pharmaceutical industry in coordinating large, multicentre trials, supported by professional statistical advice and electronic data processing capacity, can be expected to enhance, rather than compromise, the quality of work done.

It is naive to imagine in the present financial climate that the NHS would fund antibiotic trials or that it is necessarily right that it should do so. In district general hospitals it is unusual to experience the luxury of research assistants and the like to help run clinical trials and it seems entirely appropriate to seek support from the pharmaceutical industry when, as in our case, the design and objective of the trial were determined by the principal clinicians concerned.

Our trial has shown that a single dose of cefotaxime and metronidazole is as effective for prophylaxis against wound infection after colorectal surgery as the standard three dose regimen of cefuroxime and metronidazole. I accept that it now remains to be shown which single dose regimen is the most effective; such a trial would need to be performed with the same high degree of statistical power as ours to allow comparison of the results with those we obtained and to avoid type II error.

Finally, I agree that cost is important but we deliberately avoided cost comparisons because of variations in hospital contract prices for antibiotics. Nevertheless, the current issue of *MIMS* shows an equivalent dose of cefotaxime (1 g) to be less expensive than that of cefuroxime (1.5 g).

D C ROWE-JONES

Poole General Hospital,
Poole BH15 2JB

SIR,—Mr D C Rowe-Jones and others imply that the improved pharmacokinetic profile of cefotaxime as a single preoperative dose explains its equal efficiency to three doses of cefuroxime in preventing wound infection after colorectal surgery.¹ The alternative explanation is that both antibiotics are equally effective but that the doses of cefuroxime given at the eighth and sixteenth hours after operation have no effect and are unnecessary. The experimental work by Burke would support the latter explanation.²

K T FISHWICK
R S CROTON

Surgical Unit,
Warrington District General Hospital,
Warrington WA5 1QG

- 1 Rowe-Jones DC, Peel ALG, Kingston RD, Shaw JFL, Teasdale C, Cole DS. Single dose cefotaxime plus metronidazole versus three dose cefuroxime plus metronidazole as prophylaxis against wound infection in colorectal surgery: multicentre prospective randomised study. *Br Med J* 1990;300:18-22. (6 January.)
- 2 Burke JF. The effective period of preventive antibiotic action in experimental incision and dermal lesions. *Surgery* 1961;50:161-8.

Ovarian failure after total body irradiation

SIR,—The article by Dr M P Cust and colleagues on ovarian failure after total body irradiation¹ prompts us to report a successful pregnancy after this treatment.

A 19 year old woman with chronic myeloid leukaemia received an allogeneic bone marrow transplant from a matched related donor after conditioning with high doses of cyclophosphamide and 7.5 Gy of unfractionated total body irradiation in March 1983. She achieved a complete haematological remission and in 1989 delivered a healthy baby after a normal pregnancy.

This is unusual but not unique. In 1988 Sanders

et al reported the results on ovarian function in 187 women after bone marrow transplantation.² In 144 patients with leukaemia treated with total body irradiation (9.2-10.0 Gy unfractionated or 12.0-15.8 Gy fractionated over seven days) amenorrhoea was present for the first three years after transplantation. Subsequently, nine women, all aged less than 25 years at transplantation, had recovery of ovarian function between three and seven years (median four years) after transplantation. Three pregnancies were reported: one was terminated electively and the other two resulted in spontaneous abortion. Pregnancy after bone marrow transplantation conditioning with cyclophosphamide alone is not uncommon,^{3,4} and in younger women (<25 years) recovery of ovarian function is to be expected.

Our patient was the first bone marrow transplant recipient in Cardiff and received a lower dose total body irradiation than that used in most centres; we currently use 12.5 Gy fractionated irradiation. Nevertheless, recovery of ovarian function and successful pregnancy can occur after total body irradiation.

We have also seen many women who have developed psychosexual problems after bone marrow transplantation and we strongly support the need for counselling and advice on hormone replacement therapy after this treatment.

PETER M CUMBER
J A WHITTAKER

University Hospital of Wales,
Cardiff CF4 4XN

- 1 Cust MP, Whitehead MI, Powles R, Hunter M, Milliken S. Consequences and treatment of ovarian failure after total body irradiation for leukaemia. *Br Med J* 1989;299:1494-7. (16 December.)
- 2 Sanders JE, Buckner CD, Amos E, *et al*. Ovarian function following marrow transplantation for aplastic anaemia or leukaemia. *J Clin Oncol* 1988;6:813-8.
- 3 Schmidt H, Ehninger G, Dopfer R, Waller HD. Pregnancy after bone marrow transplantation for severe aplastic anaemia. *Bone Marrow Transplantation* 1987;2:329-32.

Organs for transplantation

SIR,—We thank correspondents for many interesting observations on the confidential audit of all deaths in intensive care units, for which results for phase 2 of the study (1 April-30 June 1989) closely parallel those for phase 1 (1 January-31 March 1989).¹ This was what we expected from the narrow confidence intervals in our first report.

Dr J N Payne and colleagues² ask about data validation. In all, 30% of audit forms in phase 1 and 20% in phase 2 failed logical checks and were returned to intensive care units for resolution of queries. The checking program also identifies when the audit serial number is out of sequence with date of death and the unit concerned is asked to verify that all deaths have been reported. This check does not work as well as intended, however, because many intensive care units complete audit forms in order of admission date rather than date of death. Because the admission date is not recorded on the audit form no programmatic check is possible. External checks through patient information systems—as reported in Trent—or by required referral of all people who die in intensive care units to transplantation coordinators—as practised in South East Thames Regional Health Authority—are to be encouraged. Regional liaison officers have responsibility for identifying the number of deaths in all intensive care units in their authority; an indirect check on the completeness of identification comes from interregional comparison of numbers of reported deaths in intensive care units per million residents. The high number of such deaths in South East Thames region could reflect comprehensive reporting.

The third audit report for deaths up to 31 December 1989 (phase 3) will analyse regional

variation in the number of possible brain stem deaths; formal testing of brain stem function when brain stem death is a possible diagnosis; general medical contraindications in patients with confirmed brain stem death; and relatives' consent to organ donation. The United Kingdom Transplant Service holds information on all cadaveric organ donors, not just those in intensive care units. Its annual report on rates of donation in different health regions is uniquely valuable not only because it is comprehensive but also because it links donor hospitals to the retrieving renal transplant unit. Audit confidentiality constrains our reports to regional health authority boundaries.

In collaboration with the United Kingdom Transplant Service, as reported, it was possible¹ without breach of patient or donor hospital identity (neither is given in the audit form) to match audit donors by date of death or transplantation, sex, age, and organs donated with cadaveric organ donors identified to the United Kingdom Transplant Service. From 1 January to 31 March 1989 intensive care units contributed an estimated 98% of solid organ donors in England.¹ From 1 April to 30 June 1989 the contribution was estimated at 85%.

What other sources of solid organ donors are there? Dr Chas Newstead suggests that greater effort be made in obtaining cadaveric kidneys from donors whose hearts have stopped beating.² Dr Charles Collins reports on 18 months' use of a successful protocol to identify and manage patients who had suffered a terminal cerebrovascular incident and who were potential organ donors.³ Previously they were lost to the transplant programme by being admitted to general medical wards rather than to the intensive care unit. Dr J F Searle, however, draws attention to the inadequate provision of intensive care services in the United Kingdom.⁴

Dr Andrew T Cohen⁵ misrepresents the audit: its declared aim—to establish the potential of organ procurement from intensive care units in England—is more modest than he would like. Detailed retrospective surveys—as described by Drs Newstead and Collins—or prospective surveys—as conducted in Wales⁶—are a more appropriate method than basic audit to assess the potential for organ procurement from patients outwith intensive care units. Rightly, Dr Cohen advocates attention to corneal donation by those working outside intensive care units. Donors of solid organs in intensive care units are, however, an important source of corneal tissue that has been HLA typed, which is needed for high risk recipients with vascularised corneas or those awaiting re-grafting.

Drs Bryan Jennett and Douglas Gentleman⁷ request audit data on cause of death in patients with possible brain stem death (and confirmed brain stem death) without general medical contraindications to organ donation. These data, based on 439 (263) patients, are as follows: cerebrovascular accident 34% (41%), head injury 31% (39%), brain tumour 4% (3%), other intracranial cause 14% (11%), and extracranial cause 17% (6%).

SHEILA M GORE
ANNABEL J HOLLAND

Medical Research Council,
Biostatistics Unit,
Cambridge CB2 2BW

CHARLES J HINDS

Intensive Care Unit,
St Bartholomew's Hospital,
London EC1A 7BE

1 Gore SM, Hinds CJ, Rutherford AJ. Organ donation from intensive care units in England. *Br Med J* 1989;299:1193-7. (11 November.)

2 Payne JN, Bowns IR, Lyon C. Organs for transplantation. *Br Med J* 1989;299:1463. (9 December.)

3 Newstead C. Organs for transplantation. *Br Med J* 1989;299:1463. (9 December.)

4 Collins C. Organs for transplantation. *Br Med J* 1989;299:1463. (9 December.)

5 Searle JF. Organs for transplantation. *Br Med J* 1989;299:1464. (9 December.)

6 Cohen AT. Organs for transplantation. *Br Med J* 1989;299:1463. (9 December.)

7 Anonymous. Organ donors in the UK—getting the numbers right [Editorial]. *Lancet* 1990;ii:80-2.

8 Jennett B, Gentleman D. Brain stem death and organ donation. *Br Med J* 1989;299:1398-9. (2 December.)

Why are the Japanese living longer?

SIR,—Japan's diet of rice, which seems inevitably wedded to its annual monsoon, must be a main factor in the incidence of low cardiovascular and cerebrovascular atheroma and, therefore, low incidence of coronary and cerebral thrombosis in Japan. But the liking of Japanese people for oily fish, which is not mentioned in Professor M G Malmot's and Dr George Davey Smith's paper,¹ by adding 0.9 g eicosapentaenoic acid to the daily intake in farming villages and 2.6 g in fishing villages (A Hirai *et al.* Proceedings of the American College of Osteopathic Surgeons' conference on polyunsaturated fatty acids and eicosanoids, 1987), reduces platelet thrombosis but confers a tendency for bleeding. This may be more provocative of cerebral haemorrhage in Westerners with previously healthy atheromatous vessels than in those with previously unhealthy ones and, added to Japan's salt based hypertension problem, may account for its high incidence of haemorrhagic stroke.^{2,3}

Controlling excessive smoking and salt intake in Japan could prove easier than reducing the saturated fat and increasing the oily fish content of the Western diet, and this may account for the recent comparative increase in longevity in Japan to which Professor Marmot and Dr Smith refer.

GEOFFREY P WALSH

Blackburn,
Lancashire

1 Malmot MG, Smith GD. Why are the Japanese living longer? *Br Med J* 1989;299:1547-51. (23-30 December.)

2 Walsh GP. Epidemic rise of coronary heart disease. *Lancet* 1987;ii:562.

3 Walsh GP. Dietary change and coronary heart disease. *Medical Hypotheses* (in press).

Shortage of therapists

SIR,—Although Professor Roger Dyson's assessment of the scale of the predicted growth of the professions allied to medicine is broadly accurate,¹ I disagree with his criticisms of the roles of the professional bodies. He is obviously critical of the recent recommendations of these organisations to the pay review body for rises in rates of pay and benefits to aid retention but does not mention that at present about 46% of qualified therapists are not working in the NHS as therapists because of the poor rates of pay and low morale. Even more worrying is the recent phenomenon of therapists qualifying and not taking employment in the profession in which they have been trained. This indicates that it is the relatively poor pay rather than the professions manipulating the labour supply that has been responsible for artificially worsening the staffing prospects. Surely this loss of a valuable resource should be of great concern to planners.

The criticism of the increased minimum entrance qualifications to accommodate the new degree courses that will eventually replace the diploma courses is not valid if one accepts, as indeed Professor Dyson does, that the role of these professionals is going to change in the 1990s. With the continued need to review our professional practice we will require highly trained people to conduct the audits and the research to change our

less efficient treatment regimens, as should all professions. The increased use of support workers, which is accepted as inevitable by all the remedial professions, will result in qualified staff carrying out more of the detailed patient assessment and technical work and will require them to be able to train support workers in the less technical tasks. This changing role will require the calibre of person produced by graduate training to degree level.

Over the past few years the professions allied to medicine have been active in finding ways to meet this imminent staffing crisis. Access courses are being set up to help those without formal qualifications to gain entry to training. Some professions are looking at how therapy aides can gain training in post to full graduate status, and distance learning packages are being developed for those unable to attend institutions full time. A rethink is needed, and the remedial professions are working hard to find solutions; but the fact remains that we still require a highly trained group of professionals to give the patients—the taxpayers—the high quality of treatment they expect.

PAUL J WATSON

Physiotherapy Department,
Countess of Chester Hospital,
Chester CH2 1BQ

1 Dyson R. Shortage of therapists. *Br Med J* 1990;300:4. (6 January.)

SIR,—In his editorial Professor Roger Dyson¹ criticises our recent report on the wider labour market context for the professions allied to medicine² in that it “recommends no changes in skills mix.”

It is surprising that Professor Dyson cites this as a “shortcoming” as a detailed examination of skills mix was not an objective of the report. Indeed, the report emphasises that a prerequisite of any such examination would be the existence of more detailed data than are currently available on workload and staffing levels. The Institute of Manpower Studies, among others, is currently working to this end.

The point that more resources will be required to be devoted to labour costs for the professions allied to medicine was made by the review body—the government appointed independent body with the responsibility of assessing recruitment and retention of these professions within the context of affordability and labour market pressures. Though we do not disagree with the review body, we do not claim that more money is the solution. The report reviews the various policy options open to NHS management and the professions. The options that we examined included enhancing pay rates (which we suggest could lead to wage inflationary pressures and point out is problematical in the NHS because of limited flexibility compared with the private sector) and undertaking a detailed consideration of current skills mix, with “the wide variation in the extent of the use of helper grades” (which we examined and commented on) meriting attention. We also stress that widening the entry gate to training “is an issue which requires detailed consideration and evaluation by the relevant authorities and professional bodies.” As such, Professor Dyson's points on skills mix and the use of helpers were covered in our report.

We are also surprised that Professor Dyson regards it as “both predictable and disappointing” that we recommend switching to non-traditional sources of labour supply and working to improve retention. In increasingly competitive labour markets successful organisations will be those that spread their recruitment net widely (while promoting equal opportunities) and treat their employees with due consideration. This may be predictable, but we fail to see why it is disappointing.

We do not believe that our report supports or refutes any “wage claim”; it is an independent