tribute to the overall pathological changes induced by smoke in the lung parenchyma leading to emphysema. Drs M J Jarvis and M A H Russell (also 5 April, p 994) comment on the Hunter Committee's second report and rightly plead for advice on control and regulation of all harmful constituents of tobacco smoke. They specifically mention that current cigarette brands have an eightfold variation in delivery of oxides of nitrogen. Surely the industry should be paying as much attention to reducing these fume levels as to reducing tar yields?

The statement that "while emphysema occurs in non-smokers it is usually mild, almost never being of clinical importance" may be true of some communities, but does certainly not apply to foundry workers or coalminers. The incidence of postmortem emphysema in coalminers is much higher than in non-miners,^{7, 8} and there is good evidence that this occurs as the result of the high nitrous fume content of mine air.⁹

Coalminers who smoke and live in polluted urban areas may be exposed to nitrous fumes from three sources and are at special risk. In recent years the Clean Air Act and improved ventilation in mines with less shotfiring have reduced two sources of nitrous fume. However, there are still many miners with a clear history of excessive exposure to fumes who are severely disabled with emphysema yet have difficulty in getting certified as suffering from poisoning by nitrous fumes (prescribed disease No 17) in its currently prescribed form. Ten years ago I advocated in your columns a review and suitable amendment of the prescription of this disease.¹⁰ It is hoped that the Department of Health and Social Security may now do this in the light of the further evidence which has accrued.

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Recurrent abdominal pain in childhood

SIR,—In his letter concerning recurrent abdominal pain in childhood (7 June, p 1377), Professor J S McCormick comments on the lack of objective markers in the closely related disorders of abdominal migraine, periodic syndrome, and cyclical vomiting.

Russell¹ studied a number of these children and found that some had decreased ornithine carbamyl transferase activity. This enzyme catalyses the second of the five steps of the urea cycle. Its complete absence would be incompatible with life. A number of children with very low enzyme activity (about 5% of normal) have also been described, generally presenting in the first few months of life with episodic vomiting, psychomotor retardation, and hyperammonaemia. The identical twin of one such infant was well until the age of 9,

with normal growth and development, when she presented with headache, malaise, and lethargy. The child had mildly elevated fasting blood ammonia levels and a prolonged rise of blood ammonia following protein ingestion or an ammonia load. Her mother and mother's sister, who also had an infant with hyperammonaemia, had high fasting blood ammonia levels and disliked protein-rich food.^{2, 3} Similarly, Levin *et al*⁴ described the mother of a child with hyperammonaemia who had an ornithine carbamyl transferase activity only 50% of normal. Ingestion of protein foods induced nausea and vomiting. Her fasting blood ammonia levels were again elevated with an abnormal rise after a protein load. She was otherwise mentally and physically normal.

Liver biopsy is obviously best avoided in children. Fasting blood ammonia levels, response to a protein load, and urinary glutamine excretion may provide diagnostic clues. Reduced ornithine carbamyl transferase activity has also been found in some patients on biopsy of the jejunal mucosa.³ As the enzyme deficiency is only partial, blood urea levels are, unfortunately, normal and not decreased.

Despite Russell's findings, I am unaware of further similar studies in children with abdominal migraine or cyclical vomiting. Similar studies do not appear to have been undertaken on those young adults with the "irritable bowel syndrome" in whom abdominal pain is prominent and many of whom have a history extending back to childhood or adolescence.

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The liver and halothane—again

SIR,—Your correspondent Dr M E Sinclair rightly points out (28 June, p 1617) that during and after anaesthesia with enflurane less than 3% of the agent is metabolised in the body. He suggests that its breakdown to form potentially toxic fluoride might be induced by other drugs and by previous exposure to the anaesthetic itself. As evidence he cites a paper¹ in which the authors suggest that "enflurane may cause induction of hepatic microsomal enzymes." This work was carried out in six experimental subjects having very prolonged (9.5 MAC (minimum alveolar concentration) hours) anaesthetics, during which extensive investigatory procedures were undertaken. It has not, to my knowledge, been repeated or confirmed.

Your correspondent did not mention a recent prospective study² of the problem in 102 patients, some of whom had more than one exposure to enflurane, and who were submitted to a variety of surgical procedures and were under treatment with a variety of drugs, including phenobarbitone. No evidence of significant increases in serum inorganic fluoride levels due to enzyme induction was found after more than 2 MAC hours of enflurane anaesthesia. Serum inorganic fluoride

levels rose only to a mean level of 17 $\mu\text{mol/l}$ in six hours in this group.

The patient with "renal failure" mentioned by Dr Sinclair had oliguria on the second, third, and fourth days following a six-hour operation for the creation of an ileal loop bladder for bladder carcinoma under enflurane anaesthesia.³ A single high inorganic fluoride level was found in the second postoperative day's blood specimen; the third and subsequent day's blood fluoride levels were relatively low. The characteristic presentation of fluoride-induced disorder is a high-output polyuric syndrome, due to a tubular rather than a glomerular nephropathy. The exposure to enflurane during the preliminary cystoscopy and biopsy undertaken in this patient was presumably brief and occurred six weeks prior to the main anaesthetic. The suggestion that subsequent biodegradation of the anaesthetic was induced by this exposure is purely speculative. A prospective human study found no evidence that this occurs in practice following repeated exposure after one week.⁴ It is not unknown for transient periods of oliguria to occur postoperatively following abdominal surgery of the length and gravity discussed in Eichhorn's paper—particularly for a procedure involving the urinary tract and in a patient with heart disease, in whom fluid replacement on the operation day was understandably conservative. Retained fluoride was rapidly cleared when diuresis commenced; and this single case, in which rapid and full recovery occurred, can hardly be regarded as sufficient to merit Dr Sinclair's concern about repeated enflurane anaesthesia.

Although there is clinical evidence confirming that enflurane anaesthesia and the small increases in serum inorganic fluoride levels it usually produces are not harmful to patients with glomerular or tubular renal disease⁵ further confirmation from good prospective clinical studies is greatly needed. Until this work has been satisfactorily carried out, Abbott Laboratories Ltd will continue to recommend caution in the choice of this agent for anaesthesia for such cases.

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Graduated compression stockings

SIR,—It is with interest that we have read the articles on graduated compression stockings (22 March, p 818 and 820). These stockings have been available to us from an American source for two years now and while they have been advertised for use in deep venous insufficiency and are by implication useful in preventing limb ulcers, our main use has been in patients with postural hypotension.

The standard elastic stocking is seldom long enough and not specific in size for the individual patient. It is essential that some abdominal compression be applied to help with control of postural hypotension as well as in the legs. Venous pooling is prevented

and blood return to the heart increased. The graduated compression stocking in the style of pantyhose (tights) provides this. May I commend this use in the elderly patient with postural hypotension?

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Lactic acidosis and beta-adrenergic agents

SIR,—In a recent article (17 May, p 1221) Mr M I Whitehead and others found cardiac failure, metabolic acidosis, and hypokalaemia after infusion of salbutamol. They suggested that the metabolic alterations preceded depressed myocardial function. Increased blood lactate concentration probably caused the metabolic acidosis.

Lactic acidosis has earlier been reported after epinephrine intoxication,¹ but to our knowledge not after the β -adrenergic agents salbutamol or terbutaline. β -Sympathomimetic drugs have been associated with increased plasma concentrations of lactate² and glucose^{2,3} and with hypokalaemia.³

We have seen a patient with lactic acidosis, high glucose values, and hypokalaemia after intoxication with terbutaline. The patient was a 28-year-old woman who had taken an overdose of 225 mg terbutaline together with 1750 mg clomipramine, 150 mg oxazepam, 5 g chloral hydrate, and wine. On arrival she was in a coma and needed artificial respiration. Gastric lavage was performed. There was hypotension with systolic blood pressure 85–105 mm Hg. There were no signs of cardiac failure, shock or oliguria. The electrocardiogram showed sinus tachycardia of 140 beats/min. Metabolic acidosis was present with pH 7.23 and bicarbonate 17 mmol (mEq)/l. Lactate was raised to 12.4 mmol/l (112 mg/100 ml) (normal range 0.66–2.44 mmol/l (5.9–22 mg/100 ml)) two hours after arrival and 6.6 mmol/l (59 mg/100 ml) four hours later. PO_2 measured after intubation was normal. The plasma concentration of potassium was 2.4 mmol (mEq)/l, blood glucose 14.4 mmol/l (259 mg/100 ml), and ethanol 40 mmol/l (184 mg/100 ml). She was treated with sodium bicarbonate, low-dose insulin infusion, glucose, and potassium.

Six hours after arrival she was somnolent and extubation was performed.

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¹ Kolendorf K, Möller Broch B. *Acta Med Scand* 1974; **196**:465–6.

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³ Leitch AG, et al. *Br Med J* 1976;**ii**:356–67.

Comparison of proprietary elemental and whole-protein diets in unconscious patients with head injury

SIR,—The Newcastle authors D C Jones and others (21 June, p 1493) are rightly cautious in drawing firm conclusions from their comparison of five different nasogastric tube feeds in small groups of eight patients after head injury. They themselves point out that the amounts of each feed actually given are not comparable in total energy or nitrogen, in energy to nitrogen ratio, or in the relative proportion of fat and carbohydrate. The assumption is made that the groups containing only eight patients in each are comparable

metabolically because injury scores are similar. This might be true of large groups but is not necessarily so in this study, particularly in the early stage after injury, where the contribution of extravasated blood and dead tissue to nitrogen excretion is both large and difficult to quantify.

This problem might have been overcome if some attempt had been made to validate the comparability of the groups by measuring nitrogen excretion during a "run in" period of a few days before feeding began. It would be quite possible to interpret the results presented as showing that the Trisorbon group had intrinsically the least nitrogen catabolism and the Clinifeed group the largest, irrespective of the feeds given. The same nitrogen input will then produce inevitably a more positive nitrogen balance in those who start with a lower nitrogen excretion. A further assumption is also made that nitrogen losses in the stool were negligible. Is it fair to talk about nitrogen balance unless these are measured and included in the calculation?

I wonder whether the authors meant to state that, "The patients who received Clinifeed had the largest mean nitrogen intake and hence might be expected to have had the smallest nitrogen excretion, since obligatory protein breakdown and gluconeogenesis should have been more nearly balanced by this large intake." The opposite is true. Metabolic status and energy intake being equal, nitrogen excretion rises as the nitrogen input is increased.

The authors' point is well made that the elemental diets were less well tolerated and for this reason better "nitrogen balance" was obtained using the whole-protein feeds. There was no significant difference between the "nitrogen balances" obtained from the two whole-protein feeds, Trisorbon and Clinifeed 400. Both of these have inadequate energy to nitrogen ratios for most patients, and it is surprising that the authors did not adjust this by the addition of Caloreen or some other energy source as is common practice elsewhere.

Any final conclusions as to the relative nutritional merits of the feeds used in this study must await the use of a protocol, which conclusively excludes metabolic differences between study groups and substantial quantitative differences between feeding regimens.

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Thought for the silly season

SIR,—Once more returned from two months of work overseas I face a journal mountain at whose base are the *BMJ*s delayed by the printing problems of the spring. This will just be demolished when the annual vacation spawns another literary burial mound. The heart-sinking sight of so much to get through, even if just to make sure that it is not essential reading, is an annual penance faced by most physicians.

Might I suggest, Sir, that your admirable staff close up shop, go off fishing, for two, three, or four weeks each year, retire into cloistered silence? Suppose there were to be no *BMJ* published in August, an idea copied soon by jealous competitors. Imagine returning to the office to sort letters into priorities and consign the advertisements to oblivion. Picture that eager first day, desk already tidy by

evening. The accumulated vigour of the holiday is poured into constructive work rather than dissipated in late night journal orgies.

Not to publish in August would benefit the early vacationer by allowing the journal mountain to be worked into without discouraging additions. The autumn vacationers would have to be content with a tranquil summer. To foresee objections, how much of the information published in a conventional journal is really urgent? Advertisers of jobs vacant can plan around a predictable gap. The seekers of those positions could enjoy their vacation free of the nagging thought that something ideal has just come on to the market and they will find out too late.

Alas, I foresee that my letter, if published, will be dealt with by the tireless journal staff busy, when they should be on vacation, filling August pages. It will be hurried over by word weary autumn eyes and the failure of any support for my idea will only prove that I am right.

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Physicians for Social Responsibility

SIR,—In the United States in March of this year some 700 doctors signed a full-page statement that appeared in the *New York Times*. It was sponsored by 18 eminent members of the profession who head the American organisation known as Physicians for Social Responsibility. The statement, which was also sent to President Carter and Mr Brezhnev, drew attention to the organisation's conviction that there is no realistic prospect for mankind's survival in the event of a nuclear war, in which an overkill of modern nuclear warheads would be employed, and that prevention is our only hope.

Growing numbers of doctors in this country see their responsibility increasingly clearly as extending into this urgent area of preventive medicine. Would those who share our concern and would wish to participate in setting up a Physicians for Social Responsibility group in the UK as part of an international organisation please write to me.

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Is the emergency ambulance service abused?

SIR,—With reference to the recent article "Is the emergency ambulance service abused?" by Mr D L Morris and A B Cross (12 July, p 121) if inappropriate use of the emergency ambulance service is to be curtailed the public must be re-educated as to its proper role and function. To do this, however, more research attention must be paid to why the public perceive many medical conditions or symptoms as emergencies. In 1976 I carried out research on attitudes of the public to health emergencies resulting in 999 calls for ambulance assistance, and although some of the calls were patently frivolous most calls were prompted by genuine anxiety concerning the patient.

From this experience I believe people in general have no idea of what constitutes an injury requiring professional medical treatment and what can be adequately treated by