motor accident, illness, or divorce. I should welcome the views of other doctors as to whether one should yield to the request for sterilization in such young women.—I am, etc.,

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Starvation Therapy in Obesity

SIR,—Total fasting as a treatment for obesity has lately been severely judged and recently referred as "dangerous,"¹ because of serious side-effects such as episodes of sudden death.² Dr. J. Runcie and Dr. T. J. Thomson on the contrary, in their article on prolonged starvation (22 August 1970 p. 432), express a favourable opinion on this therapy. We agree with them. Fasting is a drastic measure indeed, but in our opinion it should keep its own place in the treatment of obesity. We have practised starvation on 19 selected obese patients for periods varying from 7 to 104 days, and have obtained satisfactory results with only minor complications. Glomerular filtration rate (G.F.R.) and daily diuresis were controlled in 13 of these subjects and a decrease of these parameters during fasting with a return to normal values after refeeding were observed in five of them, as has been reported by others.³

In particular, starvation of one patient weighing 128 kg was undertaken, in spite of a persistent microhaematuria consequent to a previously diagnosed glomerulonephritis. He was confined to bed owing to a serious and progressive osteoarthritis of the left big toe with destruction of the phalanges, marked osteoporosis of the neighbouring bones, and oedema of the soft tissues. A striking improvement of the condition resulted, with a loss of 19 kg in 29 days. During the starvation period daily diuresis and G.F.R. decreased, but returned to basal values after refeeding and remained normal afterwards. Another favourable outcome of fasting that we have observed is the lowering of blood pressure in hypertensive patients. Blood pressure did not rise again after refeeding, provided the subjects did not regain the weight lost.

Fasting therapy, if applied to subjects on the basis of their willingness to co-operate and satisfactory conditions, presents some positive features. Once a patient has decided to fast, he usually does so correctly; we have seen many patients either disregard a diet or follow it in a wrong way but very few cheat with fasting. Weight loss is quick and, therefore, encouraging to the patient. Finally, hunger usually causes less discomfort than a diet and, at the refeeding, patients can easily tolerate an 800 calorie regimen.

In conclusion, while it is true that starvation is to be avoided in patients with heart failure, renal, or hepatic insufficiency, it does represent an effective tool for weight reduction and should not be regarded with hostility, since it appears to be no more hazardous than many other therapeutic procedures.—We are, etc.,

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¹ *Lancet*, 1970, 1, 1094.

² Spencer, I. O. B., *Lancet*, 1968, 1, 1288.

³ Edgren, B., and Wester, P. O., *Lancet*, 1970, 1, 613.

Ileorectal Anastomosis for Ulcerative Colitis

SIR,—The leading article "Ileorectal Anastomosis for Ulcerative Colitis" (5 December, p. 572) made a plea for publication of results of ileorectal anastomosis in ulcerative colitis. This procedure has been used in our department during the past 20 years, and the results were summarized at the fourth World Congress of Gastroenterology, Copenhagen 1970. Subtotal colectomy was performed in 127 patients and in 48 an immediate or delayed ileorectal anastomosis was constructed. There was only one early operative death, and two anastomoses failed early because of rectal bleeding. Two patients had a late conversion to ileostomy because of activation of rectal disease, and five were late deaths, one of these from rectal cancer.

Thirty-eight patients still have their anastomosis on an average seven years after the operation. Twenty-six have four or less bowel movements a day. Sigmoidoscopy revealed no sign of activity in 27 cases. Of these 38 patients only three were considered as having an unsatisfactory result, but it was not so bad that the patients wanted the rectum removed.

Most of the ileorectal anastomoses were performed between three months and four years after removal of the colon (37 out of 48). In the interval the rectum was observed for regression of the inflammatory disease, which was occasionally aided by local treatment with steroids or simple irrigation. The anastomosis was performed if there was none or only slight activity on sigmoidoscopy and the rectum was soft and pliable.—We are, etc.,

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Antibacterial Agents in Renal Failure

SIR,—Referring to your leading article "Antibacterial Agents in Renal Failure" (20 March, p. 621), we recently managed a diabetic with renal failure who developed a severe polyneuropathy while being treated with intramuscular colistin which recovered rapidly on withdrawal of the drug.

The patient was a 26-year-old female, who had been an insulin-dependent diabetic for 14 years. She underwent a termination of a two-month pregnancy for hypertension and renal failure. Prior to operation, there was no clinical evidence of a neuropathy; her blood urea was 117 mg. Unfortunately, during evacuation of the uterus the cervix was split and there was a perforation into the pouch of Douglas. Five days postoperatively, she developed a high swinging temperature. Blood cultures were negative but *Pseudomonas pyocyanea* sensitive to colomycin was isolated from the urine. One daily intramuscular injection of 1 mega unit of colistin sulphomethate B.P. was started. The creatinine clearance at this time was 11 ml/minute.

On the fourth day of therapy, she developed a flaccid paralysis of the lower limbs; all reflexes and all modalities of sensation were absent. The power and sensation in the upper limbs were normal but the reflexes were depressed. The diabetes at this stage was well controlled. The blood

colistin level on the fifth day of treatment was markedly elevated at 160 µg/ml. Colistin injections were, therefore, stopped. A day later the blood colistin level was 40 µg/ml, and the day after this the level had dropped to 20 µg/ml. All evidence of infection had cleared by this time. Four days after the cessation of colistin therapy the legs were still areflexic, but there was some slight movement. At seven days there was improvement in all forms of sensation except for vibration. Within three weeks she could walk with help. Three months later she was able to walk quite well by herself, and sensation was normal. The ankle jerks were, however, impaired.

Colistin has been reported as causing apnoea, perioral paraesthesia, ataxia, muscular hypotonia and hallucinations.¹⁻³ These effects improved after the drug had been stopped. The respiratory paralysis causing apnoea was thought to be a curare-like effect of the drug and reversible by neostigmine.

Although the patient was a diabetic, there is strong incriminating evidence that the drug was responsible for the neuropathy, in that there was no clinical evidence of a neuropathy before this episode, its development coincided with high blood levels of colistin, and recovery took place on withdrawal of the drug. It would seem that even with small doses of the drug in renal failure and in the presence of other debilitating illnesses we should be wary of the possible neurotoxic effects of colistin.—We are, etc.,

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S. M. ROSEN

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¹ Perkins, R. L., *Journal of the American Medical Association*, 1964, 190, 421.

² Fekety, F. R., Norman, P. S., and Cluff, L. E., *Annals of Internal Medicine*, 1962, 57, 214.

³ Wolinsky, F., and Hines, J. D., *New England Journal of Medicine*, 1962, 266, 759.

Bacteriuria Again

SIR,—In the leading article "Bacteriuria Again" (13 February, p. 361) gentamicin is described as being notoriously toxic to the eighth nerve. While this toxic effect is undisputed, the notoriety may be due to over-dosage or inadequate control of treatment.

Ototoxicity has been shown to occur in animals treated with gentamicin^{1,2} and is greater than that produced by streptomycin or kanamycin³ on a dose/weight ratio.

Few controlled studies have been carried out in man defining the incidence of ototoxicity, but most workers have related this to reduced renal function.⁴⁻⁷ However Wright⁸ has shown in guinea pigs that the cochlear toxicity is independent of the level of blood urea. The significant ototoxicity reported by Arcieri *et al.*⁷ following original work by Jackson⁹ in two studies involving 1,327 patients was 2.3%. The second study showed a fall in toxicity that was not statistically significant but was associated with an increase in dosage. More recently Meyers¹⁰ reports that 10 of 40 patients treated with gentamicin developed ototoxicity but eight of these may have had serum levels of over 10 µg/ml and a similar number had a raised blood urea. Arcieri *et al.*⁷ found that only 13 of the 31 recorded cases of ototoxicity had had serum levels carried out and eight of these had levels of 10 µg/ml or more. Bulger *et al.*⁴ in reporting one case of severe vestibular dysfunction found only one of the six

serum assays performed to be over 10 µg/ml.

Gentamicin is the most active broad-spectrum antibiotic available for the treatment of infections due to resistant organisms and as such has an important role to play, especially in specialized units. It is vital that its toxicity is balanced against its therapeutic value. It should probably be reserved for the treatment of severe infections in life-saving situations and in these cases the ototoxicity is of secondary importance. However, there are patients with infections due to resistant bacteria such as *Pseudomonas aeruginosa* where it is the only effective antibiotic. In these cases and especially where the infection is asymptomatic the ototoxicity is an important factor against its use and the control of treatment is paramount. This control should include serum assays especially where the patient is old or has proved renal impairment and the blood level should be kept under 10 µg/ml. As shown by Bulger *et al.*⁴ isolated serum assays may not be sufficient as a single high level may cause damage to the eighth nerve. In the cases described by Cattell *et al.*¹¹ which were treated with gentamicin, local bladder irrigations might have been more effective than parenteral therapy and would overcome the dangers of toxicity. This form of treatment, however, is impossible on an outpatient basis. It could also be argued that *Pseudomonas aeruginosa* is a rare cause of pyelonephritis and is usually associated with disease of the lower urinary tract. Even where pre-existing renal disease of a non-obstructive type is present the development of a cystitis due to *Pseudomonas aeruginosa* is not associated with spread of the organism to involve the renal parenchyma.

Although gentamicin is more ototoxic in animals than the other aminoglycosides, in man it is considerably more active against the commonly isolated pathogenic bacteria and therefore a smaller dose is required to give effective blood concentrations. Synergy between gentamicin and other antibiotics has been shown to occur¹² and it is possible to reduce the dose of gentamicin without losing antibacterial activity.

The report of Arcieri *et al.*⁷ suggests that the incidence of ototoxicity of gentamicin is falling and this may be owing to a greater understanding and control of therapy. In a life-saving situation an incidence of possible ototoxicity of up to 5% is acceptable, and it would be a pity if a statement in a widely read leading article were to curtail its use.—I am, etc.,

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Malaria in Southern Europe

SIR,—The case of *P. vivax* malaria described by Drs. R. P. Britt and R. M. Hutchinson (24 April, p. 206) is of interest for a number of reasons. Firstly, it indicates once more the possibility of acquiring malaria on holidays on the shores of the Mediterranean. The importance of this apparently first case of malaria reported in this country during the last decade after a visit to southern Europe should not be misinterpreted. It certainly does not imply that the malaria eradication programme of Corsica has not been successful and that special precautions are needed.

Reliable information received through the W.H.O. indicates that autochthonous malaria in southern Europe is a thing of the past. However, this does not exclude the likelihood of sporadic cases of malaria being brought from elsewhere into areas where the disease has been eradicated and infecting local anophelae which may secondarily transmit the disease to some visitors (10 April, pp. 91, 93, and 95). Such episodes have been described before in the United States near the military camps in Georgia (Fort Benning, Fort Stewart) occupied by Army units that returned from the Far East.¹ The fact that the French Foreign Legion has now its base in Corsica may be of interest in this respect and should stimulate an epidemiological study by the local medical authorities.

It seems that about nine days elapsed from the time of the first symptoms of the patient to his admission to the hospital where the correct diagnosis was made. This does not matter a great deal in the case of vivax malaria, but the story might have been different with *P. falciparum* infection, which may develop rapidly with serious consequences. The possibility of malaria in any febrile patient who has been on holiday in any subtropical or tropical area should always be kept in mind, as emphasized by Maegraith.² *Indocti discant et ament meminisse periti!*—I am, etc.,

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New Spinal Manometer

SIR,—The general introduction of prepacked trays from a central sterile supply department has brought problems in the provision of an adequate spinal manometer. The older glass manometer, designed for use with Greenfield's needle, is relatively expensive, difficult to clean, easily broken, and too long to be included satisfactorily in a standard pack. The recent interim report of the steering committee on standardization of supplies for central sterile supply departments has specified, in its addendum on pack content, that a disposable manometer and tubing be included in a lumbar puncture set.

With these points in mind, a sectional plastic manometer has been developed at this hospital which meets all the above objections. The manometer, made of clear autoclavable plastic, comes in two 200 mm

sections calibrated from 30-200 and 201-400 mm. These fit together by a standard Luer connexion and may in turn be fitted to a three way tap, again with Luer fittings. The whole may then be used with any standard lumbar puncture needle, whether disposable—as recommended by the steering committee—or reusable. The unit may be sterilized by autoclaving and can thus be included in a standard pack, or may be supplied pre-sterilized by irradiation, in a separate double wrap pack. A further advantage of the device is that pressures in excess of 400 mm may simply be measured by adding one or more units to the standard pair; an application which may prove useful in the measurement of central venous pressure. The unit, which has for some months been included in the lumbar puncture packs in use at this hospital, has proved entirely satisfactory.

My thanks are due to Mr. Meredith of Rocket Ltd. for his help in the development of the manometer. The unit complete with three way tap is available from Rocket of London Ltd., Imperial Way, Watford, Herts, price about 25p.—I am, etc.,

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Wound Dehiscence after Caesarean Section

SIR,—I read with interest the article by Dr. James Mowat and Dr. John Bonnar (1 May, p. 256). Few would dispute the more efficacious healing of the transverse as opposed to the vertical abdominal incision. The former, however, has one disadvantage; its performance is time consuming. To obviate this demerit and yet provide a sound scar I have over several years of general surgical and gynaecological practice (including many caesarean sections) used a mid-line incision with repair of peritoneum and rectus sheath with monofilamentous nylon (or Mersilk). The subcutaneous layer is coated with a continuous 00 catgut suture; to avoid fat necrosis, small tissue bites are taken. The skin is closed with a continuous eversion mattress suture and a small tissue "flag drain" placed at the lower end and left in situ for 24 hours (the "flag" ensures non-disappearance). Before closure haemostasis has been obtained by the application of pressure forceps, which are left in situ for several minutes; diathermy and multiple buried catgut knots are avoided.

With this method I find wound dehiscence rare.—I am, etc.,

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SIR,—In the article "Abdominal Wound Dehiscence after Caesarean Section" (1 May, p. 256), it would seem highly significant that 21 patients out of the 50 patients whose