act on the parasites in the general circulation. In addition the adrenaline greatly assists the patient's own peripheral circulation because he is suffering in cerebral malaria from hypovolaemia, and this is usually indicated by a very low blood pressure and a very poor pulse volume. A dose in the region of 600 mg, depending on the weight of the patient, is usually sufficient to lower the general parasitaemia and allow the patient to recover consciousness. One can then continue with oral doses of chloroquine by mouth to complete the treatment. In over 50 cases over some ten years on this regimen we never had a death, and recoveries were as dramatic as those obtained in attacks of left ventricular failure by the use of intravenous frusemide.

Some authorities suggest steroids as being useful in cerebral malaria. However, steroids do not have the powerful peripheral vasoconstrictive effect produced by adrenaline, which is now much underused and undervalued in emergencies.

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## Aetiology of appendicitis

SIR,—The geographical distribution of appendicitis indicates that it is a disease associated with modern Western culture.[1] The pathological features suggest that obstruction of the appendix lumen precedes inflammatory change.[2,3] In only a minority of cases can a faecalith be demonstrated as the cause of the obstruction, but it has been postulated that in others the cause may be exaggerated muscular contraction occasioned by the presence of solid faecal matter in the lumen of the appendix. If such muscle contraction associated with viscid small-volume faeces can block the wide lumen of the pelvic colon,[4] it is not difficult to appreciate that it might much more easily do the same to the much narrower lumen of the appendix.

There is some evidence that in communities with low prevalences of appendicitis solid faecal matter is rarely present in the appendix lumen (Rangabashram, personal communication). If the frequency of solid appendicular content could be related to the frequency of appendicitis in various communities a direct relationship could endorse and the absence of relationship would discount the hypothesis that solid appendicular content contributed to the causation of the disease.

One of us (ASM), and some of his colleagues, palpated the appendix during 55 abdominal operations in which the appendix was removed as an incidental procedure and subsequently opened to determine the reliability of external palpation as a means of ascertaining the presence or absence of solid faecal material in the appendix. In 32 cases solid faecal particles were neither detected by palpation during operation nor discovered subsequently in opening the organ. In 22 faecal particles were both detected by palpation and their presence subsequently confirmed. In one case a thin faecalith was found on opening the appendix though it was not palpable at operation. In no case was there evidence of solid faecal particles on palpation that was not subsequently confirmed on opening the appendix. Palpation would therefore appear to be a reliable method of determining the presence of solid faeces within the appendix. In this series solid faecal particles were palpated and present in 40% of appendices examined.

We would be most grateful if surgeons working in communities with high and with low prevalences of appendicitis would palpate the appendix during abdominal operations, record the frequency with which faecal particles can be detected, and report their findings to us. Such findings could make a significant contribution to the understanding of the pathogenesis of this disease and such assistance will be acknowledged in any publication of accumulated experience.

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## A "personalised" human milk bank

SIR,—Soon 50% of medical students will be women. It is reasonable to assume that the majority of women doctors will have children, and many will want to return to work while still breast-feeding. We describe a "personalised" human milk bank that enables a working woman doctor to continue breast-feeding. Using this system while working half-time every day, we have both reared our babies until five months old on a diet of only human milk.

The equipment is a hand breast-pump, a nursery sterilising tank, plastic bottles, and a deep freeze. About 75 ml/day of milk can be obtained easily either by expressing each breast before the morning feed or by applying the pump to one breast during the baby's first feed of the day. A milk bank can thus be deep frozen during the weeks of maternity leave and at weekends when one is back at work. The same procedure for milk collection continues when the mother is working, but each day's fresh milk is supplemented by some of the frozen milk. The combined milk is given to the baby during the mother's absence at work.

We have found this system easy to operate and have encountered no problems. We strongly recommend it to women doctors, who must be sensitive to the writings of the Jelliffes[1] yet want to return to work before the introduction of cows' milk is desirable.

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## Management of refractory oedema

SIR,—The leading article on "Management of refractory oedema" (20 January, p 148) states that diuretic effect relates to peak plasma drug concentration, from which it is adduced that any dose given once daily will be more effective than half dosage given twice daily. This is an area of controversy and in fact there is evidence for an opposing point of view.

It is generally accepted that diuresis depends on the drug concentration within the tubular lumen[1] and there is evidence that natriuresis does not correlate with peak plasma drug concentration.[2,3] Furthermore, there is evidence from pharmacokinetic studies[2,3] that diuresis is most closely correlated with the concentration of drug in a peripheral compartment. If diuretic response relates to peak plasma drug concentration it is very difficult to account for the efficacy of low-dosage infusion in refractory oedema, where plasma drug concentrations are ostensibly subtherapeutic[4] and are certainly much lower than the levels achieved by intravenous bolus dosing. Finally, there is published evidence with frusemide and bumetanide that dividing the dosage enhances the total diuretic effect[5,6] possibly by interrupting homoeostatic recovery.

We would therefore suggest that diuresis does not relate to peak plasma drug concentration, and that there is insufficient evidence for the statement that twice daily administration is less effective than the full dosage given once.

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## Does prazosin induce formation of antinuclear factor?

SIR,—Prazosin, a widely used antihypertensive drug, has never, to my knowledge, been implicated in the development of a positive antinuclear factor (ANF). It was therefore surprising to read the observations of Dr A J Marshall and others (20 January, p 165) describing, for the first time, a high incidence of positive ANF in patients treated with prazosin. My experience with this drug dates from early 1974 and covers treatment of a total of 85 patients.

In the first group of 42 patients ANF tests were done before treatment and checked after long-term treatment. Prazosin was given either as the sole antihypertensive drug or in combination with a beta-blocker. Maintenance doses of prazosin ranged from 1·5 mg to 6 mg daily (average 3·2 mg). In addition to the initial ANF tests, titres were measured again after treatment with prazosin varying from 3 months to 36 months (average 19 months). In all, 113 tests were carried out in these patients. ANF was measured by a routine indirect immunofluorescence technique using frozen sections of monkey kidney and stomach and FITC-labelled anti-IgG antibodies.

The pretreatment test was negative (titre below 8) in all patients except two, in whom titres were 1/16 and 1/8 respectively. On final follow-up, ANF tests were negative in all patients. The patient with a pretreatment titre of 16 six months later had a titre of 1/8. After 12 months procainamide was started owing to ventricular extrasystoles; it was, however, withdrawn two months later owing to the development of troublesome joint pains. The ANF titre was 1/32 when measured one month later. Prazosin treatment was not interrupted and the final ANF test, after three years on a maintenance dose of 6 mg daily, was negative.

Thus in none of the 42 patients did a conversion from negative to positive ANF test occur which was related to long-term