Preferences in Antibiotic Prescribing

SIR,—It is always flattering to have one's paper[1] discussed in a leading article of your periodical, but I should like to protest against some of the implications of your piece on 26 June, (p. 725).

To begin with, we are not at all "defeatist" about the failure of in vitro sensitivity tests to correlate with clinical data. We hope to pursue this on a research level and to try to ameliorate this situation.

Second, I should like to reassure your anonymous commentator. We colonials on this side of the ocean are indeed aware of the fact that ampicillin is not a "super-penicillin." I regret that your writer has been temporarily disillusioned, but I hope that this reassurance will correct his frame of mind. The experts we consulted at the Johns Hopkins Hospital are highly knowledgable individuals who know that ampicillin is not effective against penicillinase-producing organisms. Why they chose not to discuss this particular aspect of the survey we conducted is unclear to me, although my guess is that these busy individuals were somewhat overwhelmed by the masses of tables that we sent them and they merely picked out a few points which interested them particularly.

My own role in the business was simply to print in full their letters of response. We did not comment on their opinions, nor on the discrepancy between house staff prescribing and the views of these experts. This was not the purpose of our paper. Instead, we merely wished to point out discrepancies when they existed. We had no illusion then, and have none now, as to the possibility that these brief responses by the three experts in question cover all of the discrepancies that exist.

Finally, I wish to point out that anyone who believes that drug usage is free of error in any first-rate teaching hospital in the world is naive. This is not true for any hospital that I know of in the United States, and I submit that it might not even be true for those in the British Isles.—I am, etc.,

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1 Macaraeg, P. V. J., Lasagna, L., and Bianchine, J. R., *Clinical Pharmacology and Therapeutics*, 1971, 12, 1.

Fractured Femur and Fat Embolism

SIR,—A recent paper by Dr. G. A. Gresham and others (12 June, p. 617) and correspondence on fat embolism following the use of acrylic cement in the surgery of the hip joint from Mr. P. A. Ring and Mr. N. H. Harris (3 July, p. 46) prompts us to some remarks.

A number of letters have also appeared both in the *Lancet* and the *British Medical Journal* during the last nine months suggesting that circulatory collapse and pulmonary embolism are not infrequent sequelae to using acrylic cement. Because this is not our experience we have made a quick review of the incidence of all early postoperative complications in the 621 hip arthroplasties performed here in the six months between January and the end of June this year. We have used our memories of these recent events supplemented by questioning our ward sisters and a registrar who has been with us during the whole of this time. We have examined the recovery room report book, where the state of the patient is recorded when about to return to the wards between 13 and 24 hours after the operation, and in those cases where there was any comment on abnormal recovery we have examined the full case records.

We found only one case of fat embolism (0·1%). This was diagnosed by petechiae in the skin over the neck and shoulders combined with mental confusion. The patient at no time was seriously ill or gave rise to any particular worry and made a complete recovery in 36 hours. Two patients died before 9.0 a.m. of the following day (0·2%). These patients were 81 and 87 years of age and at postmortem had massive myocardial infarction. There was no evidence of fat embolism or pulmonary embolism which was looked for specifically. There were no other cases in which two or more symptoms or signs occurred which by combination could establish a diagnosis, but isolated symptoms or signs, which could, of course, have been produced by fat embolism or pulmonary embolism, occurred as follows.

Mental confusion (which cleared up within two days) occurred in three patients, two of whom were 75 and 78 years of age. Respiratory distress was present in three patients, but could be explained in one case by the patient being an asthmatic on steroid therapy, by another having a clear history of ischaemic heart disease, and in the third, who had been passed as fit for surgery only after considerable discussion, by a history of bronchitis. Cardiac arrhythmia developed in eight patients, of whom one had a myocardial infarction diagnosed by E.C.G. Hyperpyrexia (105°F; 37·8°C) occurred in one patient and was thought to be due to transfusion, which was stopped, and the temperature returned to normal within a few hours. It is to be emphasized that all these patients recovered uneventfully.

Hypotension developed in the recovery room in five patients after the patient was received from the theatre in a satisfactory condition. There appeared to be no reason to invoke acrylic cement as the cause. Two patients were diabetics on insulin; two had been myxoedematous but were on appropriate therapy for some time before surgery; one was a rheumatoid patient on steroids. In the six months of this review increasing numbers of our patients were being operated on with hypotensive anaesthesia, despite the fact that acrylic cement is known to cause transient depression of blood pressure in some cases. Under hypotensive anaesthesia this does not appear to happen and we feel that it is most noticeable in patients whose blood pressure is high while under the anaesthetic.

Forty-two of the patients in this series had bilateral total hip implants at the same operation, which involved four doses of C.M.W. acrylic cement. Sixty-eight of these operations presented more than ordinary technical difficulty as a result of being for failed previous surgery. About 10% of the operations in this series were for patients with rheumatoid arthritis, all those on corticosteroids being routinely supported by cortisone supplements, and this appears to be so satisfactory that we do not associate surgery in rheumatoid arthritis with any special surgical risk.

There were no cases of cardiac arrest. The only cardiac arrest occurring in the period of this review was in a case of pseudarthrosis of the hip joint where cement had not been used. The incident occurred in the plaster room when the wound was being dressed after the operation, and the heart was easily restarted.

We cannot offer any explanation of the apparently high incidence of fat embolism which other workers have encountered in using cement in treatment of fresh fractures of the upper end of the femur. In the elective surgery of arthrosis of the hip and allied conditions we attribute our freedom from postoperative complications to the emphasis in this unit on the preoperative medical assessment of our patients. Our Wednesday morning clinical conference is the culmination of a day and a half of medical investigation of the new input of patients, and its primary object is to assess the medical status and fitness for surgery in the presence of the senior surgical and medical consultant staff. This routine is different from the situation existing when the consultant surgeons leave the resident staff to assemble an operating list and frequently do not themselves scrutinize the medical fitness of the patients. Our system at Wrightington is very different from that in many orthopaedic units where the consultant staff in clinical conferences is concerned with deciding the type of operation for a particular patient and the technical details in the manner in which it should be performed. At Wrightington we only perform one type of operation and it is carried out always in exactly the same way; this means that the clinical conference centres on deciding whether the patient is medically fit for the operation or whether the operation has reached a status of scientific development to be fit for a particular patient.—We are, etc.,

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SIR,—Dr. G. A. Gresham and others have produced evidence that fat embolism may be a significant cause of death following replacement arthroplasty for transcervical fractures of the femur (12 June, p. 617). That methyl methacrylate cement is probably not responsible is confirmed by our experience in Exeter, where Mr. F. C. Durbin and others (17 October 1970, p. 176) have shown similar one month mortality figures for cemented Thompson and non-cemented Moore prostheses. Moreover, we have been unable to show a correlation between weight of cement used and the subsequent fall in mean blood pressure. During procedures using cement there is often hypotension to a variable extent. In 40 doses of cement during total hip replacements at this hospital the mean blood pressure fell in 36 instances. These measurements were made with an intra-arterial cannula and a Devices M2 recorder. The largest fall was 37%. The falls were greater after implantation into the femur (9·8% ± S.D. 10·5) than after inserting the cement into the acetabulum (6·4% ± S.D. 5·0). The large standard deviations reveal the variable extent of the hypotension. There is considerable instability of the cardiovascular system during such major operations as femoral head or total hip replacements, and this must be reflected in the big variations in mean blood pressures that we have found.

Dr. Gresham and colleagues comment on the frequency of hypotensive episodes in the acetabular and femoral phases of cement implantation. There is presumably a misprint in their article as the latter phase produces more hypotension. This is implied in their subsequent comment on pressure in the femoral medulla being responsible for hypotension. This may well cause the release of pharmacologically active substances into the circulation. The monomer is known to be very reactive at this time.