standard technique along with others involving higher concentrations. I believe that choice to have been both ethically acceptable and scientifically appropriate. May I, perhaps, quote from our previous report (Crawford et al., 1976): "As only two (0.6%) of the patients in the combined 0.2% series recollected discomfort during the operation, we are reluctant to advise an increase in the depth of anaesthesia to reduce the incidence of these complications." We have now formally investigated the problem and as a result have assuaged our reluctance.

I think it important that there should be discussion—and, if possible, agreement—on the matter of when a previously established procedure should be included in a randomized trial of a proposed advance upon that procedure. My own opinion is that, in the general context of clinical activity, it is necessary to the validity of the investigation that the procedure to be studied should be compared in randomized fashion with that which is currently in use, unless the results of the latter have been truly disastrous, in which circumstance, of course, it should have been discontinued. Yet there is another philosophy which apparently contends that all options remain open. For example, in a study recently reported by a renowned team of obstetric anaesthetists (Abboud et al., 1985), a comparison of several techniques of general anaesthesia for Caesarean section included one in which the agents administered after induction were limited to equal quantities of nitrous oxide and oxygen, with a resultant incidence of 12% awareness. We used a similar technique 15 year ago (Crawford, 1971) and reported an associated incidence of "awareness plus unpleasant dreams" of 26.3%, in a series of elective Caesarean sections.

J. SELwyn CRAWFORD
Birmingham

REFERENCES


ANAESTHESIA FOR SURGERY IN A PATIENT WITH A TRANSPLANTED HEART

Sir,—We were extremely interested in your recent Case Report on Anaesthesia for a Patient with a Transplanted Heart (Bricker and Sugden, 1985). We have had experience in both elective and emergency anaesthesia for the cardiac transplant patient and thought that our recent observations might be of some interest to your readers.

Between January, 1968 and May, 1983, 261 patients underwent cardiac transplantation at Stanford University Hospital. Eighty-five of these patients subsequently underwent 136 anaesthetics for a variety of surgical procedures, both emergency (55%) and elective (45%). Surgery varied from 2 h to 6 yr after transplant. Only 4.4% of these patients received regional anaesthesia. The remainder had general anaesthesia. However, this should not be taken to mean that regional anaesthesia has no place in non-cardiac surgery in the patient with a transplanted heart. Between February, 1976 and October, 1984, 19 total joint replacements for steroid-induced osteonecrosis have been performed on heart transplant patients at Stanford Hospital. These included 17 total hip replacements and two total knee replacements. General anaesthesia was utilized in 16 of these procedures and regional anaesthesia, either subarachnoid or extradural blockade, in the remaining six. There were no intraoperative or postoperative problems related to anaesthesia.

It is clear that, with refined cardiac transplantation techniques, improved criteria for patient selection, cyclosporine immunosuppression, and improved anaesthetic and monitoring techniques, cardiac transplant surgery can return over 80% of recipients to their preoperative state. At present there are at least 25 American Medical Centers which are establishing or have established transplant programmes. The same trend can be seen in the United Kingdom. The number of transplant recipients who develop steroid-induced osteonecrosis or other conditions requiring surgery will continue to increase and these patients may eventually come to surgery.

We feel that, provided the basic principles of fluid management, aseptic technique and appropriate monitoring are carried out, these patients present an acceptable risk for regional anaesthesia.

S. I. Samuels
Stanford, California

REFERENCE