Neither this nor A.C.T.H. had ever previously been given to this patient. Twelve weekly injections were tolerated without incident and with marked improvement in her eczema. A few minutes after the thirteenth injection, however, she developed a severe widespread urticaria associated with nausea, dizziness, and exhaustion. She was treated with intramuscular chlorpheniramine and 1:1,000 adrenaline. One hour prior to injection the following week she was given chlorpheniramine 12 mg., but despite this proceeded to develop widespread urticaria with trembling and irritation, again requiring adrenaline.

At this point the patient was referred back to hospital for further investigation. Sensitivity to pure tetracosactrin rather than to the zinc phosphate also present in the depot preparation was shown by the immediate reaction to 0.005 mg. (0.5 I.U.) given subcutaneously. A vivid erythema, 5 cm. in diameter, appeared at the site of injection and a red flare spread up the arm to the shoulder. There was a transient widespread irritation. There was no reaction at the site of a control injection of a similar volume, 0.1 ml., of 0.9% saline. An equivalent dose of A.C.T.H., 0.5 I.U., manufactured from hog pituitary, was later given subcutaneously. An area of erythema 2 cm. in diameter appeared at the injection site with subjective itching. A control injection of 0.9% saline again showed no reaction.

She was finally tested with 0.1 ml. of a preparation identical to Synacthen Depot but minus tetracosactrin, kindly supplied by Ciba Laboratories Ltd. No abnormal response was observed to this or to a control. It is therefore evident that the patient is sensitive to both tetracosactrin and natural hog A.C.T.H.

We are most grateful to Dr. Robert Keay, the patient's general practitioner, for referring the case and also for the excellent notes.

—We are, etc.,

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Pin or Prosthesis?

SIR,—In your leading article on pin or prosthesis (26 April, p. 201) the opinion is expressed that prosthetic replacement for intracapsular fractures of the femoral neck is less satisfactory than internal fixation. Although this opinion is contrary to that held by many orthopaedic surgeons I have no doubt that it is correct.

The results of arthroplasty using the Moore or Thompson prosthesis leave much to be desired, and, although there can be no complacency with the results of internal fixation by whatever method, they can be improved if due attention is paid to two factors. In those cases where an accurate reduction of the fracture can be achieved by closed methods low-angle nailing achieves the double objective of early weight bearing without an increase in the rate of failure. In those cases where an accurate reduction cannot be achieved by closed methods open reduction by an anterolateral extension of the incision

is not unduly difficult or hazardous, even to the elderly patient. Further damage to the capital blood supply is unlikely if the capsule is opened in the line of the femoral neck and the dissection is carried out gently. In the event of failure, arthroplasty of the Moore or Thompson type is still possible, though the Charnley low friction arthroplasty is preferable both functionally and economically.—I am, etc.,

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Neuropathy and Diet

SIR,—I am grateful to Dr. A. F. Tuboku-Metzger (26 April, p. 249) for the reminder about factors influencing the cyanide and cyanogen content of various foods of which my colleagues and I are well aware and have acknowledged elsewhere. While it is true that the methods of preparation of cassava reduce the cyanogen and hydrocyanic acid content, it is questionable whether or not these levels can be considered "safe." Moreover, the hydrolysis of glycoside in the gastrointestinal tract may be a very important factor contributing to the release of cyanide in vivo.

It is our argument (1 March, p. 247) that these residual quantities, although small in comparison with the original amounts, may nevertheless in the long term have an insidiously damaging effect in malnourished subjects.—I am, etc.,

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Clotting and Dialysis

SIR,—I read with interest the paper on clotting problems with the Teflon-Silastic arteriovenous shunt in patients on regular haemodialysis by Dr. M. Papadimitriou and others (5 April, p. 15), and I should like to make a few comments based on my own experience as a patient on maintenance haemodialysis for over six years. During this period I have been dialysed exclusively by a two-layer modified Kiil dialyser, initially on a twice-weekly schedule in hospital and more recently three times weekly, overnight, and in my home. The dialysate supply and monitoring unit which I am currently using is the Dylade System B. Access to my vascular bed has always been with a Teflon-Silastic arteriovenous shunt which was formerly of the type first developed by Scribner and his colleagues,¹ and which incorporated a detachable Teflon U-tube with a "double-break" system, but has since been modified to include only a "single-break" joint.² In six years I have had three arterial cannula revisions and four venous cannula revisions.

There are various interesting points which Dr. Papadimitriou and colleagues mentioned in their report, but I feel that they have omitted to discuss certain important factors which concern the viability of a shunt. My first comment refers to postoperative management, with special regard to the two-week period immediately following a cannulation. I believe that it is advisable to exercise the cannulated limb as infrequently as is practicable during this period, thereby

making allowance for the early formation of granulation tissue in the subcutaneous tunnel, with minimum disturbance. It is quite obvious that excessive movement of the wrist joint, as well as pronation and supination of the forearm, will affect the stability of the subcutaneous segment of forearm cannulae, especially in the early stages. Likewise, movement of the ankle joint and weight bearing on the cannulated leg may have the same adverse effect. Personally, I use a light-weight removable back-slab, which can be conveniently attached to the cannulated forearm and give adequate immobilization of the wrist joint.

My second comment concerns the assessment of blood flow through the shunt. At present there is no inexpensive reliable method of measuring blood flow which is easily used and generally available. The introduction of an air-bubble with a "race-track" on the arterial blood line and the monitoring of the "venous pressure" (or, more correctly, the pressure in the bubble-trap) give only limited information, and these techniques cannot be used between dialyses. What is needed is an efficient method of assessing the flow between dialyses, especially after a declogging procedure. I have found that a simple and useful technique is to auscultate the bruit, which usually can be heard best over the venous cannula tip. By becoming familiar with the intensity and quality of the sound produced when the blood flow is good it is often quite easy to recognize changes signifying a poor flow. I contend that it is not essential to have medical training in auscultatory methods to become reasonably expert in this technique. Another trick which may help to detect early signs of clotting is to transilluminate the shunt and look for small specks of white platelet thrombi, which tend to stick to the inside wall, especially at the joints.

Thirdly, my experience of long-term oral anticoagulation is limited, but frequently I have found it helpful to anticoagulate with subcutaneous heparin (0.5 ml. 6–8 hourly with a solution of 25,000 units per ml.). A fine-bore needle is used, and so far I have suffered no complications except from an occasional minor haematoma. Rapid anticoagulation is of course better via the intravenous route.

Fourthly, I believe that successful declogging of the shunt depends mainly on two factors. The first is that a clot should be removed as soon as possible after clotting, and the second is that the declogging procedure should be carried out only by a person suitably familiar with it. For these reasons I think that, where possible, patients or their relatives should be trained in the technique, and that they should take with them a portable declogging set, especially when travelling. The early removal of a clot, in particular from the venous side, may critically affect the prognosis of a shunt's life.

My fifth and final point is to advise that the shunt is handled as little as possible. Many intravenous drugs (for example, antibiotics) tend to cause irritation and may lead to phlebitis. Therefore it is preferable to inject these drugs, when necessary, into an alternative vein rather than through the venous cannula.—I am, etc.,

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