blood concentration during vertebral artery infusion at 32 ng/min (Lowe and Scroop, 1969). Since ablation of the areas postrema abolishes the cardiovascular response to vertebral artery infusions of angiotensin (Joy and Lowe, 1970) it seems likely that the reduction in the pressor response to intravenous infusions is due to abolition of this component and that which remains is principally the response to the direct vasoconstrictor action.

It is concluded that the specific central effect of angiotensin makes a significant contribution to the pressor response to intravenous infusions of the hormone. This finding suggests that the central effect may also be important in the response to endogenously generated angiotensin either following haemorrhage or in renovascular hypertension. Since a specific pressor response after vertebral artery injections of angiotensin has now been described in man (Ueda, Uchida, Ueda, Gondaira, and Katayama, 1969) the results of the present experiments may well have clinical implications, particularly with regard to chronic renal hypertension when a prominent neurogenic component has been described (McCubbin and Page, 1963).

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MEDICAL MEMORANDA

Pregnancy and Mitral Valve Prosthesis

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Several reports have been published of successful pregnancies in patients with prosthetic valves (Ueland, Tatum, and Metcalfe, 1966; Hedstrand and Cullhed, 1968; Turner and Kitchen, 1968) and more recently with a homograft aortic valve (Littler, 1970). The numbers are still comparatively small, however, and a further case is reported in which the outcome was favourable for both mother and fetus.

Case Report

The patient, who was born in 1941, had an attack of rheumatic fever when aged 11 years. Eight years later she developed symptoms due to mitral stenosis, and underwent closed mitral valvotomy in 1961. Thereafter her cardiac state remained satisfactory until 1964, when there was a return of dyspnoea associated with the recent onset of atrial fibrillation. Signs of mitral regurgitation were present, with enlargement of the left ventricle on fluoroscopy (Fig. 1), and hypertension was recorded in both left atrium and pulmonary artery at cardiac catheterization. The recommendation was to proceed with mitral valve replacement, which was accomplished without incident in 1965, using a Starr-Edwards prosthesis with a bare metal cage. Substantial improvement resulted, with decrease in cardiac size (Fig. 2). Long-term anticoagulant therapy with warfarin was started.

The patient had married in 1964, but after valve replacement she was advised initially against pregnancy. She remained very

anxious to have a family and became pregnant in September 1969. During the pregnancy she remained symptom-free, warfarin being continued without any untoward effects. Three weeks from term heparin was substituted for warfarin, which in turn was discontinued at the beginning of labour. This passed without incident, and she delivered spontaneously a full-time healthy infant in May 1970. Warfarin was resumed two days later, and the patient made an excellent recovery. A minor complication was an infected perineal haematoma, which responded to local treatment and antibiotic therapy. When seen six weeks after delivery both mother and child were well.

Comment

Because of the potential hazards associated with the additional burden of pregnancy in a patient with a valve prosthesis and on long-term anticoagulant therapy, we advised strongly against this in our patient for many years. We were

FIG. 1—Preoperative chest x-ray film, showing enlargement of both left atrium and left ventricle with pulmonary congestion.

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FIG. 2—Postoperative x-ray film one year after mitral valve replacement by Starr-Edwards prosthesis.

strengthened in this concept by the experience of Bennet and Oakley (1968), who reported a fatal termination for both mother and child following caesarean section at 30½ weeks in a woman who had undergone mitral valve replacement two and a half years previously. At necropsy the valve was found to be immobilized by thrombus, and they concluded that for the present the insertion of a mitral valve prosthesis precludes future pregnancy. Hedstrand and Cullhed (1968), however, reported a successful outcome for both mother and fetus in three patients with valve prostheses inserted two years previously, the control of anticoagulant therapy and management of the confinement being identical with ours. They reviewed an additional nine successful deliveries in whom five mothers had had aortic and four mitral prostheses.

Encouraged by these more favourable results, we felt it reasonable to recommend pregnancy in our patient, as she was very anxious to embark on this. Four and a half years had elapsed since valve replacement, and there is strong evidence

from several sources (Starr, Herr, and Wood, 1967; Reid, Barclay, Welsh, Stevenson, and McSwan, 1970) that the most dangerous period for thromboembolism is the first 36 months after operation. Hirsh, Cade, and O'Sullivan (1970) described their clinical experience with anticoagulant therapy during pregnancy in 14 patients, three of whom had prosthetic heart valves. The regimen to which they adhered to avoid both maternal and fetal haemorrhage was heparin for the first 12 weeks, oral anticoagulants from the 13th to 37th week, and finally reverting to heparin until term. On further reflection they concluded that it was unnecessary to recommend heparin during the initial trimester as there was no evidence that oral anticoagulants were detrimental to either mother or fetus.

Manifestly the question of pregnancy in women with valve prostheses will remain a subject of controversy for some time. In older and parous women further pregnancy is probably inadvisable. In younger women with no children our contention is that provided a minimum period of three years has elapsed since valve insertion, and on the proviso that strict anticoagulant control is maintained, a single pregnancy is justifiable if the woman appreciates the additional hazards. The administration of prophylactic antibiotic therapy is mandatory in the puerperium to prevent the possibility of endocarditis and valve infection originating from local sepsis in perineal tears or episiotomies (Littler, 1970).

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Renal Failure and Glucocorticoid Therapy

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Renal failure resulting in death may occur in patients with collagen diseases who are being treated with glucocorticoid drugs. In such cases progressive impairment of renal function is usually attributed to involvement of the kidneys by the collagen disease process, and this may be treated by increasing the dose of glucocorticoids.

The following report shows how renal failure complicated the management of a patient with polyarteritis nodosa who was treated with large doses of prednisone. Kidney function

showed a slow but definite improvement when prednisone was gradually withdrawn under cover of immunosuppressive therapy. It is proposed that renal failure complicating collagen diseases may occasionally be related to administration of glucocorticoid drugs. The mechanism of renal failure under these circumstances is discussed.

Case Report

A 20-year-old woman was admitted to the referring hospital with a two-month history of pain and tenderness of the left shin. On examination the tibial area of the left leg was swollen, hot, and tender. Radiographic examination showed incompletely ossified new bone along the anterior border of the left tibia, and bone biopsy of the radiographically abnormal area showed severe inflammation and fibrosis with evidence of vasculitis. Bone pain improved after a course of tetracycline, but one month later it recurred in the left lower leg and the left wrist became swollen and painful.

On examination she was pyrexial and had lost 9 lb (4 kg) in weight. There were firm raised tender skin lesions, 0.5 cm in diameter, involving both legs. The left wrist was swollen and tender. The pulse rate was 120 and there was mild abdominal tenderness.

Investigations.—Hb 11.0 g/100 ml; E.S.R. 60 mm/hour; blood urea 26 mg/100 ml; plasma potassium 3.4 mEq/l; plasma sodium 124 mEq/l; HCO₃ 24 mEq/l; serum aspartate aminotransferase

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