Transplantation of the Liver

The incidence of fatal liver disease differs throughout the world. In Europe it is much less common than in the Far East, where the incidence is particularly high. But even in Britain there are between 200 and 300 deaths each year in people under the age of 50. Transplantation would seem an obvious way of treating some types of otherwise fatal liver disease (such as progressive non-malignant cirrhosis or primary cancer of the liver parenchyma or bile ducts); but for several reasons progress in this field has been relatively slow. The first reason has been our inability to make the patient fit enough for major surgery. Whereas dialysis will usually enable a uremic patient to be made fit enough for a kidney graft, there is no comparable method of restoring the condition of a patient with hepatic failure, though limited improvement can be produced by methods such as exchange transfusion, cross circulation, and perfusion through an animal liver.

Another reason for the delay is the difficulty of carrying out the transplantation itself. The liver is exquisitely sensitive to ischaemic damage, and if more than a quarter of an hour elapses after the donor's death before the liver is cooled severe liver necrosis occurs, and transplantation of such a liver is unlikely to benefit the recipient. Simple cooling makes it possible to keep a liver for two to three hours without appreciable deterioration, but preservation beyond this time requires some method of continuous perfusion. Again, the operative procedure in transplantation of the liver is considerably more complicated than in that of the kidney. Malignant disease of the liver first entails hepatectomy in the recipient and then inserting the transplant in the normal anatomical situation (orthotopic transplantation). In the treatment of cirrhosis it is theoretically possible to place the liver in an abnormal situation (heterotopic transplantation), but there may be difficulty in finding space for the graft. It is particularly desirable to restore both the portal and arterial inflow to the liver, and the multiple anastomoses which have to be performed may not be easy to arrange in an abnormal anatomical situation.

T. E. Starzl and his colleagues have recently reviewed their preliminary experience with new techniques in liver transplantation, done in patients who were suffering from either primary liver cell carcinoma or extrahepatic biliary atresia. Before July 1967 they had transplanted seven livers orthotopically, the longest survival after operation being only 23 days. Between July and October 1967 four more orthotopic transplants were performed, all in children between 13 months and 20 months of age.

More recently Starzl and his colleagues have reported another six cases, and at the present time a total of 17 transplants have been performed in 16 patients since July 1967 at Denver, in Colorado. Seven of these patients are still surviving, one patient having received a second liver graft after rejecting the first. The longest survival was for more than a year, a patient who had suffered from a primary hepatoma eventually dying from secondary growth. These more encouraging results are due
Systolic Murmurs in the Elderly

Systolic murmurs are common in elderly people. Phonocardiographic surveys have put their frequency at 60% or more, while some clinical observers have recorded even higher figures. The principles underlying the diagnosis of these murmurs are the same as those applicable to younger patients, but there are problems peculiar to the elderly which may make the assessment more difficult. The most important of these are the effects of kyphoscoliotic chest deformity on the anatomical position of the heart and the inability of many elderly people to co-operate fully in the respiratory manoeuvres needed for the elucidation of the finer points of cardiac auscultation.

Systolic murmurs in the elderly are of three main kinds: ejection murmurs arising from the aortic valve and regurgitant murmurs arising from either the mitral or the tricuspid valve. Ejection murmurs from the pulmonary valve are very rare, or at least very rarely diagnosed. The distinction between ejection and regurgitant murmurs is made in the same way as in younger people. In practice it is useful to pay careful attention to late systole, when ejection murmurs are diminishing in intensity and regurgitant murmurs are of undiminished or increasing intensity.

Aortic ejection murmurs may be loudest not in the right second interspace but at the apex, while mitral regurgitation murmurs may be well heard at the base of the heart. Tricuspid regurgitant murmurs are almost always associated with a rise in the venous pressure, and can usually be shown to be louder on inspiration than expiration. The site where a murmur is best heard is thus much less important than its other characteristics.

Once the nature of a murmur has been identified it remains to determine its significance. Detailed investigation by cardiac catheterization is not possible in the elderly, and any assessment must therefore be entirely clinical. In the case of aortic ejection murmurs the problem is to decide whether or not there is true stenosis of the valve or minor sclerotic changes giving rise to a murmur but not to obstruction to ejection. In aortic stenosis the murmur is usually loud, and the second heart sound reduced in intensity or absent, and there may be the diastolic murmur of aortic incompetence. There is evidence of left ventricular hypertrophy and, in severe cases, the classical plateau pulse and low pulse pressure. If there is no obstruction to ejection, the murmur is usually soft, and the other features are absent.

Mitral regurgitation murmurs are often due to rheumatic mitral incompetence, which is not rare in old age. They may be diagnosed with confidence if the diastolic murmur of mitral stenosis is also present. If it is not, then the mitral lesion may still be rheumatic in origin, but it is now apparent that there are other conditions which can give rise to mitral incompetence and are not infrequent in the elderly. The commonest is probably disordered function of the papillary muscles resulting from cardiac ischaemia. Damage to these