50% narrowing has not been tested in the present study, such a 'mild' degree of stenosis has probably an independent predictive value: the odds ratio of cardiac events with luminal narrowing >25% (vs <25%) is 20, whereas the odds ratio of cardiac events with luminal narrowing >50% (vs <50%) is 3.5.

Barbir et al. do not discuss their contradictory findings: why is a left ventricular ejection fraction less than 60% at echocardiography a strong predictor of cardiac events, whereas it is not so with the same cut-off at radionuclide angiography? The authors do not give the correlation between the two techniques in their institution. Radionuclide angiography usually gives lower values than echocardiography. The most probable explanation for this discrepancy is that radionuclide angiography is usually performed at 70° and 45° anterior oblique projections. These projections are unsuitable for heart transplant recipients as the new heart is in a different position to that of the non-transplanted patient (the apex is more posterior).

Finally, there is the therapeutic issue. Preliminary findings with diltiazem and pravastatin need to be confirmed. Because of their anatomical characteristics and diffuseness, coronary lesions in the heart transplant patient are often not amenable to revascularization (percutaneous transluminal coronary angioplasty, or coronary artery bypass grafting), and the only possibility is re-transplantation.

We have made progress in knowledge about accelerated coronary artery disease, but a lot remains unknown, and there is considerable work in front of us.

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References


The DA and the case of the plug

See page 625 for the article to which this Editorial refers

Plugging the ductus arteriosus (DA) (the addition of the adjective 'patent' is redundant) by a non-surgical approach is a method that has been in use for almost 30 years. The device most extensively used in the last decade is the Rashkind double-disc occluder; over 80 articles have been published in English language journals. An alternative and cheaper method, coil occlusion of the ductus arteriosus using thinner catheters, is enjoying increasing popularity. In a recent publication the use of coils in the ductus arteriosus is reviewed[1]. In this issue Galal and co-workers[2] report their experience with the use of Gianturco coils for transcatheter occlusion of the ductus arteriosus. The pros and cons of this technique have to be compared to those of surgery and of the Rashkind occluder. In order to be brief, issues involved are presented in a simplified manner in Table 1.

Some points in the Table deserve additional comment. Residual shunts after catheter occlusion of the ductus arteriosus have been extensively investigated by Doppler colour flow mapping. It became apparent that small shunts after placement of an
occluder do not necessarily produce the typical continuous murmur of a ductus arteriosus and sometimes have no murmur at all. Post-surgical patients have not been investigated in the same painstaking manner. Therefore, the true incidence of small residual shunts after ductus arteriosus ligation is not known. The issue whether or not such a small shunt should be closed as the ultimate preventive measure against infective endarteritis, has not been settled. Neither is there consensus on the use of prophylactic antibiotics in patients with a silent ductus arteriosus or a non-specific murmur only.

Device embolization seems to occur more often when using coils than with the Rashkind occluder. Coils are usually retrievable without much difficulty. However, the fluoroscopy time is lengthened, sometimes considerably so. Coils with a release control mechanism should be used to prevent dislodgement, especially in multiple coil procedures. Gianturco coils have no inherent release control but can be converted into such by using a snare or a biopomP.

Moreover, other coils with release control, although more expensive, are commercially available and recently a new coil of this type has been tested in animal experiments. In the article by Galal et al., a patient is described in whom seven coils have been implanted in a single procedure. It may have been more appropriate to treat this patient with a Rashkind occluder.

The cost of an operation vs a catheter procedure should rightly be of considerable importance, especially in countries where the availability of health care facilities are not equally distributed among the poor and affluent. Galal et al. quote an article (their reference) in which it is concluded that surgery was more effective and less costly than the catheter method with the Rashkind occluder. In an accompanying editorial, Tynan cautions against premature acceptance of these results because of flaws in the study. In a subsequent report by Human et al., the costs of surgical ligation and use of the Rashkind occluder were not different, whereas the effectiveness of surgical ligation seemed better but was not as thoroughly investigated as in the non-surgical group. The one patient from this last group who did not receive a Rashkind occluder because his ductus arteriosus at catheterization was deemed too large, was subsequently operated on, and at 19 months follow-up had a residual echodoppler leak similar to those seen in the non-surgical group.

From the data available, it seems that for many patients and their parents the last three items in the Table, all favour a catheter procedure, and outweigh the main benefit of surgery: its probable effectiveness. Children with a narrow ductus arteriosus, up to 3 mm at its narrowest point, should be candidates for coil occlusion. For those with a ductus arteriosus between 3 and 8 mm, a Rashkind occluder is probably more appropriate. Larger ducts should be operated on or treated with two Rashkind devices simultaneously. Children who weigh under 6 kg...
with a ductus arteriosus of over 4 mm should be considered candidates for surgery.

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Does change in serum cholesterol of a population influence coronary heart disease mortality?

See page 566 for the article to which this Editorial refers

Serum total cholesterol levels predict the outcome of future coronary heart disease in individuals independently of other risk factors. This has been shown in many prospective epidemiological studies in countries with high and low incidence of coronary heart disease[1,2]. Several primary and secondary prevention randomized trials have demonstrated that a reduction in total cholesterol is followed by a significant decrease in coronary heart disease mortality in men. The order of magnitude is an approximately 2% reduction in mortality for a 1% reduction in serum cholesterol.[3,4] Law et al.[4] estimated that the benefit of coronary heart disease reduction with cholesterol lowering decreases with age. A 0.6 mmol.1−1 reduction in cholesterol produces a reduction in coronary heart disease from 50% at age 40 years, down to 20% at age 70 years. Angiographic studies in coronary patients have also shown slower progression of coronary atherosclerosis following lipid reduction[5].

The frequency of coronary heart disease differs among developed countries. Where average total serum cholesterol is lower than 5·2 mmol.1−1 there are no high mortality rates from coronary heart disease[6]. Strong evidence for this came from the Seven Countries study led by Ancel Keys. In this multinational study, 16 small cohorts of 12 763 men aged 40-59 years from U.S.A., Finland, The Netherlands, Italy, Greece, Japan and the former Yugoslavia (i.e. Croatia and Serbia), were examined and followed up for 25 years. Baseline mean serum cholesterol levels during the 1950s ranged from 4·2 mmol.1−1 in Serbia and Japan to 6·9 mmol.1−1 in East Finland. Both median serum total cholesterol and the average percent of energy intake from saturated fatty acids in the diet were highly and significantly correlated (r = 0·80 and 0·84) with 10 year coronary heart disease mortality, in a between-cohort (ecological) analysis[7]. These results were confirmed recently using 25-year mortality follow-up and adjusting for smoking, blood pressure, body mass index and physical activity at work[8]. These correlations were close to those found by Law and Wald[9] for men of the same age, with data from surveys from 17 countries, and to those found in other studies[10-13]. The international Atherosclerosis Project collected and analysed data on 21 302 autopsies from 14 countries. It showed that the ranking of atherosclerotic lesions