

of Prosthetic Valves

with the Model 6120 mitral valve procedures. Since then even these rates have been lowered at our institution. What is truly impressive is that the survival rate beyond 8 years after aortic valve replacement was 65 per cent compared with 85 per cent for the general population. Those who survived mitral valve replacement also had an appreciably greater likelihood of surviving 5 years or more postoperatively—a much better prospect than for those who receive only nonsurgical management. Indeed, for patients with mitral impairment, both early and late mortality are likely to be reduced when surgical relief is carried out early in the course of the disease.

Actually, when correction of the aortic or mitral valve malfunction can be achieved early, before advanced disease poses a limit on operative outcome, the surgical risk becomes minimal—no more than about 2 per cent. Furthermore, the long-term results of surgery—even surgery performed years ago with early and less perfected types of substitute valves—are remarkably good in those patients corrected before the onset of devastating secondary effects of the disease process.

Thus, patients who undergo aortic valve replace-

ment before there is significant cardiac enlargement can expect about the same life-span as the general population of the same age and sex. The identical statement applies to mitral valve replacement if the procedure is carried out before the age of 50, and before there is marked enlargement of the left atrium.

When we add up all these pluses and minuses, we can hardly escape the conclusion that the poor results of valve replacement encountered today frequently stem from the fact that surgical correction was delayed beyond the optimal period.

Why is it, then, that few cardiologists recommend the radical step of earlier surgical intervention? For one simple reason: there is still great uncertainty about the long-term function of the substitute valve in comparison to the known long-term function of even a diseased but natural valve at the early stage of the condition.

Although valve replacement is now almost commonplace, we still lack sufficient 5-year-follow-up data on most of the prostheses currently in use. Even those valves based on the traditional models have had some design modification. Unfortunately, as

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	Ball valves	Cloth-covered ball valves	Tilting disc valve	Viable homograft	Heterograft	Autogenous graft (stented)
Durability	+++	++*	++	++	+	0
Hemodynamic characteristics	+	+	++	+++	+++	+++
Thromboembolism	+	++	+	+++	+++	+++
Assurance of function	++	++	++	+	+	+
Availability and choice of size	+++	+++	+++	0	++	++
Ease of insertion	+++	+++	+++	+	+	++
Record of survival	++	+	+	++	+	0
TOTAL SCORE	15	14	14	12	12	11

Symbols: 0 = unfavorable; + = fair; ++ = good; +++ = excellent.

*The durability of the metal ball in this type of valve should be excellent, but the noise created by such a prosthesis is significantly objectionable.