In patients with advanced heart failure, elevated pulmonary vascular resistance as a consequence of a chronic elevation in left atrial pressure is a significant risk for early mortality after heart transplantation [1]. Heart failure patients with elevated pulmonary vascular resistance can be extremely challenging to manage, and medical options to reduce pulmonary vascular resistance so that the patient becomes an acceptable transplant candidate are limited. In some, intensive therapies including inotropes may be of benefit, though even if successful, they will need to stay on these therapies until the time that a suitable donor heart can be found. Heart lung transplantation and heterotopic heart transplantation are alternative transplant options that are now rarely performed. Ventricular assist devices, however, can reduce pulmonary vascular resistance effectively after a period of

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support so that the patient then becomes an acceptable transplant candidate [2, 3].

In the current issue, Kutty et al. [4] show how third-generation centrifugal left ventricular assist devices can reduce pulmonary vascular resistance in a group of patients who were implanted with the ultimate aim of transplantation. As they state in the article, with pulsatile and axial flow devices, reduction in pulmonary vascular resistance has been documented [2, 3], and the new information in this paper shows the same effect with third-generation devices. In this paper, 29 patients had centrifugal left ventricular assist devices implanted, of which 17 were ineligible for transplantation because of elevated pulmonary vascular resistance. Pulmonary vascular resistance fell from \( 5 \pm 1.5 \) to \( 2.1 \pm 0.5 \) Wood units (\( P < 0.05 \)), and by 3 months of support, the average pulmonary vascular resistance was well within the transplantable range. The authors acknowledge that, as a single-centre study, the numbers are small in this study, though it is with these types of studies that we learn a greater amount of detail than with large multicentre studies. That said, the authors have missed the opportunity to provide additional information about these patients that would be very useful to clinicians who use these devices. Data on left and right ventricular function with echocardiography would be extremely informative, as would medications used after the ventricular assist device implant. In particular, we are not told whether phosphodiesterase Type 5 inhibitors were used. Nevertheless, the data are clear: pulmonary vascular resistance reduces with third-generation centrifugal left ventricular assist devices so that these patients can then become transplant candidates. These data now add to an increasing number of publications demonstrating the clinical efficacy of these newer devices [5, 6].

It is with some degree of irony that, despite this paper originating from the Papworth Hospital in the UK, the UK Department of Health has recently decided that a left ventricular assist device can only be implanted in patients who are already on the transplant list. This means that the very patients who are the subject of this paper would today be considered ineligible for a left ventricular assist device because of elevated pulmonary vascular resistance—even though, the evidence shows that, after a period of time, they will become transplant candidates. Economies throughout the world are struggling, with the consequence that health budgets are being squeezed. Nevertheless, it is still reasonable to expect that where cuts in medical services are to be enforced, they should be for therapies without proven benefit, as opposed to any arbitrary decision.

Furthermore, rather than restricting access to life-saving therapies, there is a need for greater access to left ventricular assist devices for advanced heart failure. Heart transplant numbers are inadequate for the number of heart failure patients and will always be so [7]. Randomized-controlled trials have shown the benefits of ventricular assist devices as destination therapy [8], and this is now recommended in the European Society of Cardiology guidelines [9]. Data about ventricular assist devices throughout the world are difficult to find. Whereas, in the USA, there are large numbers of ventricular assist devices implanted as destination therapy, in many other developed countries, this is still not sanctioned. Cost is a limiting factor, but other factors are also important—the lack of patient awareness and the lack of physician awareness and/or expertise in managing these patients. With respect to cost, the real issue is cost-effectiveness, and cost effectiveness studies, to date, have been flawed, with inappropriate assumptions and comparison groups [10]. Furthermore, it is very difficult to translate costs from one health system to another. Properly designed, cost effectiveness studies are necessary. The lack of patient and physician awareness is a problem that seems particular to heart failure. It is hard to imagine cancer sufferers and their doctors being so reticent about a life-saving treatment. Perhaps, the onus is on those who treat advanced heart failure to ensure that our patients and referring physicians understand that there are options for these patients utilizing ventricular assist devices—with or without transplantation.

REFERENCES


