

CRITERIA FOR IMPLANTATION OF VENTRICULAR ASSIST DEVICE AT ST PAUL'S HOSPITAL, VANCOUVER

PREAMBLE

Ventricular assist devices (VADs) have been approved in the US for 3 purposes.

1. **Bridge to Transplant.** For people accepted onto a transplant waiting list who have a high risk of dying before a suitable donor becomes available
2. **Bridge to Recovery.** A small percentage of patients achieve significant myocardial recovery and are able to have the device weaned and removed without the need for transplant
3. **Destination Therapy.** As a result of the findings in the REMATCH trial, the US FDA has approved the device to be used as a permanent support for people with severe, end-stage heart disease who are not suitable for transplant. (Rose, Gelijns et al. 2001)

The only indication for VAD use is as a bridge to transplant.

In routine cases, the decision to implant a VAD is a team decision. The transplant team, consisting of surgeons, physicians, and members of nursing and allied health staff working in transplantation discuss each case in detail. A full medical and psychosocial evaluation is completed prior to transplant listing to determine potential VAD suitability.

In emergent situations – at least 3 members of the team – 1 surgeon, 1 physician and VAD coordinator (or proxy) are to make the decision as to potential transplant suitability in the first instance and then VAD suitability.

Psychosocial issues

The following should be completed where possible:

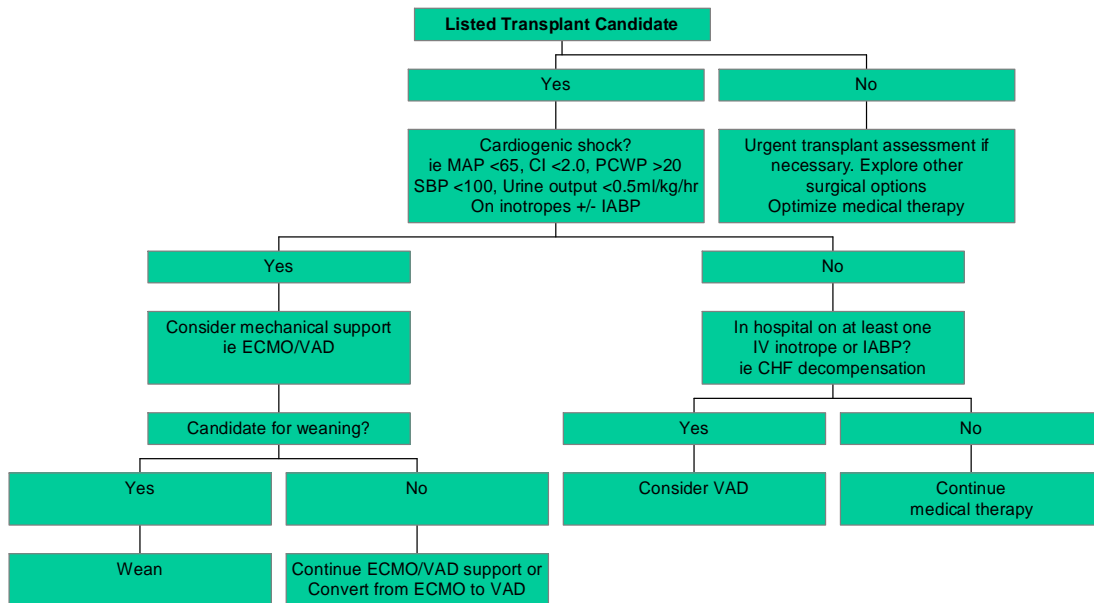
- Psychiatric/psychology review pre-implant
- Determination of social support people
 - If family/social support tenuous, a contingency plan to be agreed upon by the team

If there is doubt about the patient's ability to cope with VAD support, alternative strategies such as inotropes, IABP or ECMO to be considered until suitability is ascertained.

PATIENT SELECTION

Appropriate patient selection and timing of implant are crucial. St Paul's Hospital Heart Transplant team currently uses the following as a guide for patient selection

VENTRICULAR ASSIST DEVICE (VAD) IMPLANT



Considerations:

1. Patient ventilated (relative risk 5.3)
2. Postcardiotomy (relative risk 3.3)
3. Renal function (creat >??500 or BUN >20 or U/O <20-30 ml/hr for 8 hrs)
4. CVP > 20 on maximal therapy (consider RVAD support)
5. Infection (WCC>15000 or temp >37.5)
6. Hepatic Function
7. Coagulation Status
8. Reoperation within 30 days
9. Nutritional status
10. Psychosocial support – not well defined in the literature
11. Aortic valvular disease/ mechanical AV/Mitral stenosis
12. Intracardiac shunts

(Shapiro, Levin et al. 1996; Rose, Gelijns et al. 2001; Miller 2003; Rao, Oz et al. 2003)

Miller, L. (2003). "Patient selection for the use of ventricular assist devices as a bridge to transplantation." The Annals of Thoracic Surgery **75**(6): S66-71.

Rao, V., M. Oz, et al. (2003). "Revised screening scale to predict survival after insertion of a left ventricular assist device." The Journal of Thoracic and Cardiovascular Surgery **125**(4): 855-862.

Rose, E., A. Gelijns, et al. (2001). "Long-term use of a left ventricular assist device for end-stage heart failure." The New England Journal of Medicine **345**: 1435-1443.

Shapiro, P., H. Levin, et al. (1996). "Left Ventricular Assist Devices: Psychosocial burden and implications for heart transplant programs." General Hospital Psychiatry **18**: 30S-35S.