Indications

1. Temporary support is instituted when recovery of native heart function is anticipated (as it is for some patients with acute myocarditis or postcardiotomy cardiogenic shock).

2. Among patients who are candidates for heart transplantation but who may not survive the waiting period for a transplant, a ventricular assist device may be used as a “bridge to transplantation.”

3. For patients who are not candidates for transplantation and for whom recovery of cardiac function is not expected, a mechanical device may be used as permanent replacement for the native heart.

Clinical Factors Involved in the Selection of a Ventricular Assist Device

<table>
<thead>
<tr>
<th>Clinical Setting</th>
<th>Requirements</th>
<th>Device Options</th>
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<tr>
<td>Cardiac arrest; acute vessel closure in</td>
<td>Rapid ventricular support without surgery</td>
<td>Percutaneous device</td>
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<tr>
<td>cardiopulmonary bypass</td>
<td></td>
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<tr>
<td>Myocarditis with potential recovery;</td>
<td>Short-term support with or without surgery</td>
<td>Perfusion catheter, extracorporeal pump</td>
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<td>postcardiomyocardial shock</td>
<td></td>
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<tr>
<td>Biventricular failure</td>
<td>Biventricular support</td>
<td>Extracorporeal pump, total</td>
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<td>Small body habitus</td>
<td>Pump with limited implanted volume</td>
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<tr>
<td>Candidate for heart transplantation</td>
<td>Bridge to transplantation allowing</td>
<td>HeartMate; Novacor; axial-</td>
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<tr>
<td>Severe heart failure; not a candidate</td>
<td>long-term device support</td>
<td>flow pump, total artificial</td>
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<tr>
<td>for heart transplantation</td>
<td>(“destination therapy”)</td>
<td>artificial heart</td>
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</tbody>
</table>

1. less familiarity among intensivists than with IABP
2. more difficult to use during transport
3. provides greater control of over cardiac output as well as right & left ventricular output
4. insertion & removal generally requires anaesthesia and surgery

Complications

1. infection
2. bleeding
3. thromboembolism
4. mobility restrictions
5. device failure

Mechanisms of action

- Ventricular assist devices

Issues with use

1. less familiarity among intensivists than with IABP
2. more difficult to use during transport
3. provides greater control of over cardiac output as well as right & left ventricular output
4. insertion & removal generally requires anaesthesia and surgery

Clinical factors in device selection

- Less familiarity among intensivists than with IABP
- More difficult to use during transport
- Provides greater control of over cardiac output as well as right & left ventricular output
- Insertion & removal generally requires anaesthesia and surgery

5. The HeartMate XVE is the only device approved by the Food and Drug Administration for destination therapy. However, approval of other devices for this indication is anticipated.