

Ventricular Assist Devices: A Lifesaving Treatment for Advanced Heart Failure

Heart failure is a serious condition in which the heart is unable to pump enough blood to meet the body's needs. Advanced heart failure is a severe form of the condition that can be life-threatening. Ventricular assist devices (VADs) are implantable devices used to support the pumping function of the heart in patients with advanced heart failure. VADs can be used as a bridge to heart transplantation, or as a long-term therapy for patients who are not eligible for or who refuse transplantation.

Types of VADs

There are two main types of VADs: left ventricular assist devices (LVADs) and right ventricular assist devices (RVADs). LVADs are used to support the pumping function of the left ventricle, which is the main pumping chamber of the heart. RVADs are used to support the pumping function of the right ventricle, which pumps blood to the lungs.



Ventricular Assist Devices in Advanced-Stage Heart

Failure by Raphaël Guillard

★★★★★ 5 out of 5

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Enhanced typesetting : Enabled
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There are also two main designs of VADs: continuous-flow VADs and pulsatile-flow VADs. Continuous-flow VADs provide continuous support to the heart, while pulsatile-flow VADs mimic the natural beating of the heart.

Indications and Contraindications

VADs are indicated for patients with advanced heart failure who are at high risk of death or who have symptoms that are not controlled by medical therapy. VADs can also be used as a bridge to heart transplantation for patients who are waiting for a donor heart.

VADs are contraindicated for patients who have a life expectancy of less than six months, who have severe comorbidities, or who are not willing to undergo the surgery and long-term follow-up required for VAD therapy.

Pre-operative Evaluation and Preparation

Patients who are being considered for VAD therapy undergo a thorough pre-operative evaluation. This evaluation includes a physical examination, a review of the medical history, blood tests, imaging tests, and a psychological evaluation. The purpose of the evaluation is to assess the patient's overall health and to determine whether they are a good candidate for VAD therapy.

Once the patient has been approved for VAD therapy, they will undergo a series of preoperative preparations. These preparations include:

- * Stopping all blood thinners
- * Getting a dental checkup
- * Getting a flu shot
- * Losing weight if overweight or obese
- * Quitting smoking
- * Starting a cardiac rehabilitation program

Surgical Technique

VADs are implanted in a surgical procedure that typically takes several hours. The surgical technique varies depending on the type of VAD being implanted. However, the general steps of the procedure are as follows:

1. The patient is placed on cardiopulmonary bypass.
2. The surgeon makes an incision in the chest and opens the pericardium.
3. The surgeon attaches the VAD to the heart and to the blood vessels.
4. The surgeon closes the pericardium and the incision.
5. The patient is weaned off cardiopulmonary bypass and taken to the intensive care unit.

Post-operative Care and Management

Patients who have undergone VAD implantation require close monitoring and follow-up care. The immediate post-operative period is typically spent in the intensive care unit, where the patient is monitored for complications and the VAD is adjusted.

Once the patient has been stabilized, they will be transferred to a regular hospital ward or to a rehabilitation facility. The patient will continue to require close monitoring and follow-up care for the rest of their life.

The post-operative care and management of patients with VADs includes:

- * Monitoring the patient's vital signs and overall health
- * Adjusting the VAD settings
- * Preventing and treating complications
- * Providing support and education to the patient and their family

Ventricular assist devices are a lifesaving treatment for patients with advanced heart failure. VADs can improve the quality of life and survival of

patients with this debilitating condition. However, VAD therapy is a complex treatment and requires a lifelong commitment from the patient and their family.

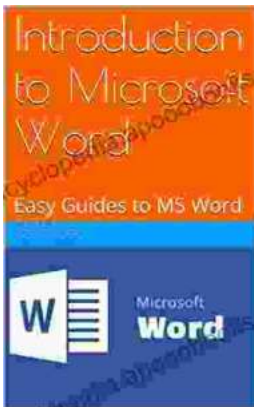


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