IMPELLA ASSIST DEVICE IN HIGH RISK CARDIAC PATIENTS

Prof. Dr Fawzia A. Aboul Fetouh
Cairo University

The introduction of easily manageable percutaneous LVADs constitutes an important advance in the practice of interventional cardiology. It provides a new armamentarium in the management of patients with severe left ventricular dysfunction and cardiogenic shock and may serve as bridge to recovery or heart transplantation in carefully selected patients. In addition, it may provide a safety net during high risk surgical or percutaneous coronary intervention in patients undergoing revascularization of lesions subtending a large area at risk.

Left ventricular assist devices (LVAD) are able to maintain partial or total circulatory support in case of severe left ventricular failure. While the intraaortic balloon pump (IABP) solely decreases preload and afterload, LVADs actively increase cardiac output and may even completely replace left ventricular function. As opposed to the traditional extracorporeal circulation pumps, LVADs aspirate freshly oxygenated blood from the left atrium or ventricle, thus circumventing the need of an oxygenator.

The use of percutaneous assist is mainly:
To restore normal haemodynamics and endorgan perfusion in case of insufficient intrinsic left ventricular function.
To ameliorate left ventricular remodeling by unloading of the left ventricle and improved microvascular perfusion.

The microaxial pump rotates the impeller at high speed and thereby aspirates blood through the blood inlet positioned in the LV, from where it is directed through the hollow, nitinol tube and ejected past the impeller into the ascending aorta. Thus, the Impella Recover LP 2.5 system is capable of providing LV unloading and at the same time up to 2.5 l/min blood flow against physiologic afterload.