

Abstract

The Impella device is a form of temporary mechanical circulatory support increasingly used in the cardiac catheterization lab to assist patients undergoing high-risk procedures or experiencing severe cardiac dysfunction. This project explores how the Impella functions, when it is to be used, and the role of the radiologic technologist in supporting these procedures. The device is inserted percutaneously, most commonly through the femoral artery, and works by drawing blood from the left ventricle and expelling it into the ascending aorta. Therefore, the device is improving cardiac output and reducing the myocardial workload in total. Careful patient selection, monitoring, and management are essential due to risks such as bleeding, vascular injury, and hemolysis. Radiologic technologists play a critical role in Impella usage by ensuring proper imaging, maintaining radiation safety, assisting with device placement, and supporting overall workflow in the lab. This research emphasizes the importance of teamwork and technical skills in achieving beneficial patient outcomes. As technology continues to advance and use expands in complex cardiac cases, ongoing education and training for imaging professionals becomes increasingly important.

Keywords: Impella device, cardiac catheterization, radiologic technologist, mechanical circulatory support, high-risk PCI, cardiogenic shock