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Use of impella ventricular assist device in patients with severe coronary artery disease presenting with cardiac arrest

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Background: Impella is a percutaneously inserted ventricular assist device (VAD). It has been increasingly used in patients with severe heart failure, cardiogenic shock and high risk percutaneous intervention (PCI). However, the use and efficacy of Impella in patients with severe coronary artery disease (CAD) presenting with cardiac arrest has rarely been reported.

Objective: To report our center experience in using Impella VAD in CAD patients presenting with cardiac arrest.

Case Reports: From December 2010 to March 2011, three patients with severe CAD presented to our center with cardiac arrest underwent PCI with Impella support (Table 1).

Summary: We reported 3 cases of severe CAD presenting with cardiac arrest successfully treated with PCI and Impella support. Our experience demonstrated that Impella VAD may play an adjunctive role in obtaining hemodynamic stability in these high risk patients undergoing PCI. One of the patients was supported to LVAD implantation and the other two had excellent neurological and functional recovery. Our reports suggest an important role of Impella in cardiac arrest population. Earlier Impella implantation after cardiac arrest might provide cardiac support and tissue perfusion until recovery or high risk PCI.

	Case 1	Case 2	Case 3
Age (years)	70	75	70
Gender	Male	Female	Female
CAD	Yes	Yes	Yes
STEMI	No	No	Yes
LVEF (%)	15-20	20-25	30-35
CPR time (min)	22	10	5
Anoxic brain injury	No	Yes	No
CPR to Impella time	17 hours	13 days	10 hours
Duration of Impella support	3 days	1 day	2 days
High risk PCI	Yes	Yes	Yes
Outcome	Bridged until Heartmate II VAD implantation	Excellent recovery	Excellent recovery

CPR=Cardiopulmonary resuscitation

VAD=ventricular assist device

PCI=percutaneous coronary intervention

Biography

Qiangjun Cai MD is a cardiologist in University of Texas Medical Branch. He received medical degree in China and finished internal medicine residency and cardiology fellowship training in the United States. He is interested in both basic science and clinical cardiology research.

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