

Impella CP as a mechanical circulatory support of ventricular septal rupture; pros, cons and case report

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Case report: 64-years-old female was admitted because of subacute myocardial infarction (MI) of inferoposterior wall. Upon admission she was pale, hypotensive, prostrated with loud systolic heart murmur. Due to characteristics of heart murmur, mechanical complication was suspected and echocardiogram showed large (28mm) mid inferoseptal ventricular rupture (VSR). Because of cardiogenic shock with elevated lactates, intraaortic balloon pump (IABP) was inserted, coronary angiography was performed and occluded mid part of right coronary artery was found. With mechanical circulatory support (MCS) by IABP patient was stable with little dose of vasopressors. Cardiac surgeons were consulted and they suggested to postpone the operation. Third day after admission patient deteriorated so we decide to upgrade MCS and switched IABP to Impella CP3.5 with great circulatory improvement. Patient needed no inotropes or vasopressors to maintain mean arterial blood pressure, serum lactate was within normal range and she had no clinical and radiographic signs of pulmonary congestion. Tenth day by admission, surgery was performed. VSR was fixed by huge patch. After surgery, she was getting better but unfortunately died of septic, gram negative, shock.

Discussion: Current guidelines recommends MCS, dominantly IABP in mechanical complications of acute MI. There are no recommendations for Impella CP usage. Ventricular septal defect is considered as relative contraindication for Impella insertion due to possibility of left-right shunt reversal^{1,2}. With careful and precise placement of Impella in left ventricle (LV) and watchful hemodynamic monitoring it can be avoided. We suggest Impella implantation in VSR if the right ventricular function is normal as Impella reduces afterload, pulmonary capillary pressure, unloads LV and reduces wall stress of both ventricles while maintain cardiac output. Possible, but real, negative side of it, would be reversal of shunt to right/left and suction of necrotic myocardial tissue with peripheral embolization.

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LITERATURE

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