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Serial echocardiography and nursing care in the management of recurrent post-infarction ventricular septal defect: a case report

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Introduction: Ventricular septal defect (VSD) is a severe mechanical complication of myocardial infarction (MI), occurring in approximately 0.2–0.4% of patients and associated with high mortality.[1,2] Treatment is predominantly surgical, while recurrent VSD following surgical repair represents a significant diagnostic and therapeutic challenge. Serial echocardiography and timely nursing care are important for the early recognition of hemodynamic deterioration and the safe performance of diagnostic procedures.

Case report: 66-year-old patient was treated for subacute inferior-wall MI. Percutaneous coronary intervention of the right coronary artery with implantation of one stent was performed, after which cardiogenic shock and pulmonary oedema developed. Transthoracic echocardiography (TTE) demonstrated a 36-38 mm VSD with left-to-right shunting, subsequently confirmed by computed tomography (CT). Due to hemodynamic instability, an intra-aortic balloon pump and veno-arterial extracorporeal membrane oxygenation (VA-ECMO) were initiated. On the fourth day, surgical VSD repair using a double-patch technique was performed, followed by surgical revision due to bleeding. Postoperative TTE showed a left ventricular ejection fraction of 45%, preserved right ventricular function, and no residual shunt. Five months later, the patient was rehospitalized due to acute heart failure. TTE and transesophageal echocardiography (TEE) revealed recurrent VSD at the site of the previous repair with significant left-to-right shunting, accompanied by moderate mitral regurgitation and pulmonary hypertension. CT confirmed a basal inferoseptal defect measuring up to 25 mm with a 7 × 6 cm pseudoaneurysm. Right heart catheterization demonstrated a Qp/Qs >2, pulmonary vascular resistance of 0.8 WU, and a cardiac index of 2.0 L/min/m². Due to the extremely high risk of repeat surgical repair, the patient was listed for heart transplantation. Nursing care included monitoring of vital signs, early recognition of hemodynamic and respiratory deterioration, patient preparation and positioning, and assistance during serial TTE and TEE examinations.

Conclusion: Serial TTE and TEE enabled timely recognition of recurrent VSD and played an important role in determining further treatment strategy. Within the multidisciplinary team, nurses contribute to patient safety, the quality of echocardiographic examinations, and the early recognition of clinical deterioration.

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