

Trans-septal Septostomy And Balloon Septoplasty Of The Atrial Septum For Decompression Of The Left Atrium In Patients Supported With Extracorporeal Membrane Oxygenation

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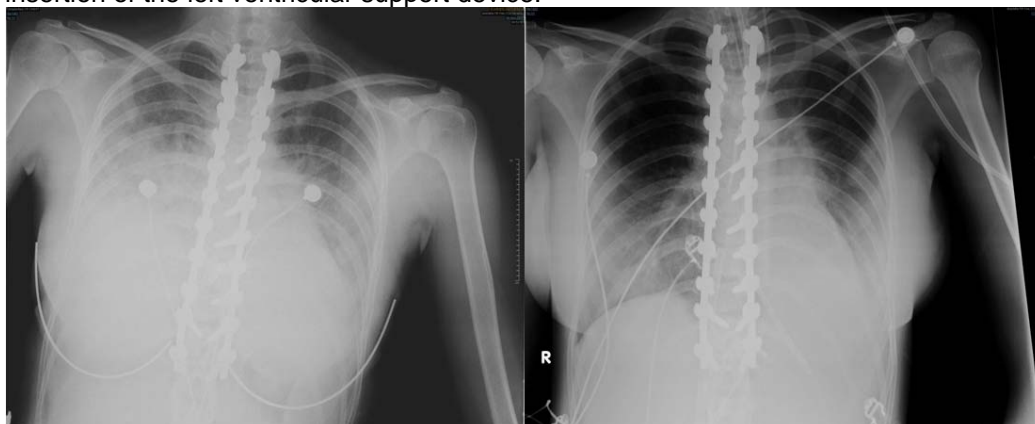
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Introduction: Venoarterial extracorporeal membrane oxygenation (VA-ECMO) has been used in myocardial failure to provide immediate cardiac and respiratory support. Rarely left heart hypertension leads to pulmonary edema can detected due to veno arterial ECMO support in patients. Left atrial (LA) decompression in this setting is very important. The experience in pediatric age group is limited. We aimed to evaluate the feasibility of percutaneous trans-septal LA decompression in pediatric patients. We described that the use of trans-septal septostomy and balloon septoplasty of the atrial septum with transesophageal echocardiographic guidance has effectively decompressed of pulmonary venous hypertension.

Methods: We retrospectively analyzed 5 VA-ECMO patients with 6 months to 17 years age children have pulmonary edema from April 2017 to November 2017. Mean left ventricular ejection fraction of the patients was 16%. Cardiogenic shocks were due to dilated cardiomyopathy in 3 of the patient and myocarditis in 2 of the patient .The procedures were performed 1-5 days after ECMO. Trans-septal atrial septostomy and balloon atrial septoplasty were successfully performed in 5 patients on veno-arterial ECMO. Average procedure time was 45 min (range, 15–75 min). There were no procedure-related complications. After 12 hours from the procedure, it is seen that pulmonary edema showed improvement radiologically.(Figure) and it was also seen that patient's respiratory support requirements decreased. Two patients were successfully weaned from mechanical ventilator and removed from ECMO.Heart transplantation was required only in one patient.

	Weight (Kg)	Age (Year)	Gender (M/F)	Balloon Size (mm)	Procedur Time (Minute)	EF (%)	LA Pressure (mmHg)
Patient 1	6	1/2	M	13	25	12	44-21
Patient 2	15	5	M	16	65	15	40-14
Patient 3	38	13	M	18	75	20	28-20
Patient 4	50	16	F	16	45	13	22-13
Patient 5	60	16	F	16	15	20	9-2

Conclusions: Transseptal atrial septostomy and balloon atrial septoplasty can be an effective and safe method for decompression of the LA pressure in the children with ECMO. LA decompression procedure, is a time-saving way for patients in VA-ECMO and it allows heart transplantation and insertion of the left ventricular support device.



Figure