PERDATIN JAYA and FKUI present

15th Indoanesthesia 2018

PRE-CONGRESS WORKSHOP
February 21–23, 2018, Cipto Mangunkusumo General Hospital
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Anesthesia Management in Mitral Valve Replacement: Case Report

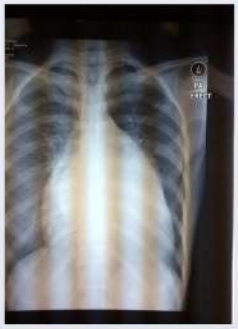
Suparto[1,3], Herdono Poernomo[2], Irvan Tanpomas[3]

1.Fellowship cardiac anesthesia at National Cardiovascular Center
2.Consultant cardiac anesthesia at National Cardiovascular Center
3.Lecturer at Christian Krida Wacana Medical Faculty

Background

Mitral valve replacement is frequently performed surgery in the cardiac surgical institutions. Knowledge of pathophysiology and anesthestic management of this case is important for an anesthesiologist because it will determine the outcome of the surgery.

A female, 22 years old, 31 kg, 160 cm with severe mitral regurgitation caused by mitral valve uncoaptation, scheduled for mitral valve replacement. Induction and anesthesia maintenance done with narcotics, induction agent, muscle relaxant, and gas anesthetics sevoflurane. Support after valve replacement is nitroglycerine and milrinone to give afterload reduction effect and adequate stroke volume maintained. Invasive monitoring and *trans-esophageal echocardiography* (TEE) intraoperative usage become basic needs that must be met.



Ro. Thorax
CTR 70%, infiltrat (-), cardiac waist (-), cardiomegaly (+).

Laboratory Exam Results:
Within normal limits

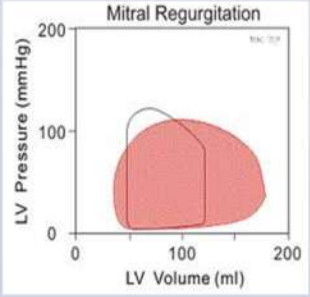
Preparation at operating room:
ECG monitoring : Atrial fibrillation, normo respon
Oxygen saturation 100%. Peripheral Intravenous access, Arterial line.
Premedication midazolam 5mg IV, Induction sufentanil 25 mcg IV, propofol 60 mg IV, vecuronium 3 mg IV and sevoflurane titration at 1-2 vol %. Intubation was done.
Ventilator setting: VC, TV 8 ml/KgBW, RR 12x/minute, FiO2 0.5, PEEP 4 cmH2O.
CVC was done at left subclavia vein and side port no. Fr 7 by right internal jugular vein.
TEE perioperative monitor was done

Method

This a case report done in Harapan Kita National Cardiovascular Center, Jakarta

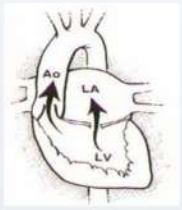
Result

TEE Pre Procedure results:
Severe mitral valve regurgitation ec coaptation disruption ec annulus dilatation with diameter Ø 38 at all segments, AML Ø 32, PML 1.7, (width 0.24), aortic valve within normal limits, mild-moderate tricuspid regurgitation.

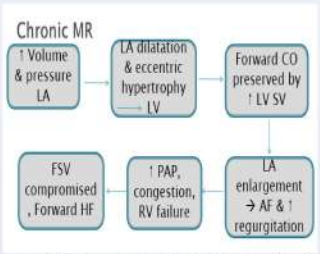


TEE Post Procedure results:
Mitral valve is changed with st. jude mechanic no. 33. Evaluation was done with TEE shown no paravalvular leakage, both mitral valve move freely. Support was given: Milrinone 0.375mcg/kg/hr, Nitroglicerine 1mg/kg/hr, Amiodarone 600mg/24 hr.

Discussion



- Mitral regurgitation is a condition that left ventricular outflow is divided into high pressure/ low compliance passing through arterial and low pressure/ high compliance passing through mitral valve and going back to left atrial causing left atrial and ventrical become dilated.



- Etiology of mitral regurgitation can be caused by defect at leaflet, annular ring, damage at chordae, papilarry muscle, or combination of those things.
- Primary valve dysfunction can be caused by rheumatic fever, bacterial endocarditis, connective tissue disruption, and congenital malformation.
- Mitral valve prolapse or papillary muscle rupture can cause inperfect valve closure or coaptation.
- **LV *preload***: Maintain adequate left ventricle preload
- **HR**: avoid bradycardia,around 80-90x/minute.
- **Kontraktilitas**: Inotropic usage can increase contractility to give adequate stroke volume
- ***Systemic vascular resistance* (SVR)**: SVR reduction is needed to avoid increase
- ***Pulmonary vascular resistance* (PVR)**: Resistensi Vascular Resistance in pulmonal must be lowered by avoiding hypercapnia, hypoxia, and low

Conclusion

- Sedation drugs must be given with cautios because it can cause hypoventilation which can deteriorate Pulmonal Hypertension in this patient
- Milrinone usage as a support aim to decrease afterload and increase contractility
- Induction and anesthesia maintenance must point at peripheral arterial dilatation and ventricel contractility
- TEE usage aim to evaluate and describe ventricle function. After valve replacement, TEE usage is to look wether there is paravalvular leakage and mechanic valve movement

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