



ANAESTHETIC MANAGEMENT OF CHRONIC RENAL FAILURE WITH DILATED CARDIOMYOPATHY POSTED FOR ROBOTIC RENAL TRANSPLANT

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ABSTRACT

INTRODUCTION: Dilated Cardiomyopathy is defined by presence of Ejection fraction <45% ,Myocardial shortening <25%, Left ventricular dilatation and systolic dysfunction, In ESRD, dilated cardiomyopathy occur due to increased intravascular volume aspatient are oligouric or anuric.

CASE REPORT: A 41 Y/F weighting 59kg having chronic renal failure on MHD 2/wk with Hypertension(2017) and dilated cardiomyopathy on regular medication.Her 2D Echo shows:- EF=40%, RVSP=45mmHg, Global LV hypokinesia, severe MR, dilated LV, mild LV dysfunction, mild PAH.Premedication was with Inj. Glycopyrrolate 0.2mg and Inj. Fentanyl 100ug.The patient was maintained intra-operatively with infusions of Atracurium.Patient was connected to circle system and maintained with Air : O2 – 2:2 and sevoflurane – 0.8% – 1.5%. 20 min after induction :- BP- 80/50mmHg Arrythmia:- on ECG –ventricular bigeminy- inj.Lignocaine2% given,Inj. Amiodarone 150mg i.v stat given – normal rhythm achieved. Systemic and pulmonary B.P managed by iv NTG Inj. Paracetamol 1gm and tramadol for pain management Urine output established after clamp release.

CONCLUSION: Anaesthesiologists should be aware of the Optimal understanding of pathophysiology of CKD with DCM coupled with effects of pneumoperitoneum and steep trendelenburg position can enable successful management of such high risk patients.

KEYWORDS : Dilated Cardiomyopathy, Robotic kidney transplant, sevoflurane

INTRODUCTION:

Patients with ESKD are at extreme cardiovascular risk. At least half of all patients starting dialysis therapy have overt cardiovascular disease such as new onset heart failure, peripheral vascular disease, ischemic heart disease and stroke¹. Cardiovascular disease accounts for over 40% of deaths in ESKD patients.² Most ESRD patients are anuric or oliguric. Chronically increased intravascular volume may lead to concentric hypertrophy or dilated cardiomyopathy. Dilated cardiomyopathy (DCM) is defined by the presence of (a) fractional myocardial shortening <25% and/or ejection fraction <45% and (b) left ventricular end diastolic diameter >117% excluding any known cause of myocardial disease. Management of patients with severe cardiomyopathies and left ventricular dysfunction is associated with a high morbidity and mortality. LV ejection fraction of ≤35% is considered to be an optimal predictor of postoperative cardiac events ¹³. Reduced kidney function is an independent risk factor for adverse postoperative cardiovascular outcomes including myocardial infarction, stroke, and progression of heart failure. We describe successful conduction of Robotic renal transplant surgery in ESRD patients with DCM.

CASE REPORT:

41 Y/F weighting 59kg having chronic renal failure on MHD 2/wk with Hypertension(2017) on regular medication (T. Amlodipine 5mg,T. Metoprolol 50mg) diagnosed Dilated cardiomyopathy (T. Isolazine started.)

ON EXAMINATION:-

pallor present
Pulse- 78/min, BP- 138/82mmHg
CVS- S1,S2 present.
Respiratory system - BLAE+ clear

Hb	8.7%
Total count	7550

Pletlet count	1,49,000
S.Creatinine	10.36
S.Na	135.7
S.K+	4.6
ECG	T inversion in Anterior Leads

2D ECHO:- EF=40%, RVSP=45mmHg, Global LV hypokinesia, severe MR, dilated

LV, mild LV dysfunction, mild PAH CAG:- normal epicardial coronaries

CAG:- normal epicardial coronaries

Intraoperative events:

Balanced general anaesthesia given. Cardiac drugs kept ready.Pre medication ,Induction, Intubated & kept on ventilation (Drager Primus) Maintained by 0.8 – 1.5% sevoflurane, O2+ air (50:50), Inj. Atracurium.

Right IJV canulated & FLOW TRAC attached for CO and PVR .Right radial artery canulated for IBP.Nasogastric tube inserted to evacuate air or fluid retained in stomach.

20 min after induction :- BP- 80/50mmHg

Arrythmia:- on ECG –ventricular bigeminy- inj. Lignocaine2% given
Inj. Amiodarone 150mg i.v stat given – normal rhythm achieved

Docking of robot done, Pneumoperitoneum intoduction of ports,trendelenburg position with 30 – 40 degree steep head down tilt ,CO guided fluid given < 4 litre to avoid hypervolemia, hypovolemia & dyselectrolytemia. Systemic and pulmonary B.P managed by iv NTG ,Inj. Paracetamol 1gm and tramadol for pain management Urine output established after clamp release.

Table 1: ABGA REPORTS AT DIFFERENT TIMINGS:

Parameters	induction	During arrythmia	10 min after arrythmia	pneumoperitoneum	Clamp release	extubation
pH	7.45	7.29	7.3	7.39	7.33	7.31
PaO2	250.6	260.7	264.2	270	268.6	228.8
PaCo2	32	38.3	33.2	42.5	41.8	42.2
BE	-1.8	-8.0	-5.0	-4.2	-5.4	-6.4

HCO3	22.5	18	20	24.8	22.6	20.6
Na+	134	136.9	146	142	138	137.4
K+	4.4	5.02	4.4	4.2	3.8	3.6

CONCLUSION:**Intra operative goals for anaesthetic management:**

- Prevention and treatment of events that decrease CO
- Maintain adequate preload while preventing fluid overload
- Avoid tachycardia
- Maintain adequate mean arterial pressure for renal perfusion
- Avoid nephrotoxic drugs
- Avoid drug induced myocardial depression

Optimal understanding of pathophysiology of CKD with DCM coupled with effects of pneumoperitoneum and steep trendelenburg position can enable successful management of such high risk patients.

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ABBREVIATION LIST:

CKD-Chronic Kidney Disease

DCM-Dilated Cardiomyopathy

ESRD- End Stage Renal Disease.

PCV- Packed cell volume

EF-Ejection Fraction

RVSP: Right Ventricular Systolic Pressure

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