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KEY WORDS:

ANESTHETIC MANAGEMENT OF PATIENT WITH DILATED CARDIOMYOPATHY POSTED FOR NON-CARDIAC SURGERY

Dr. Chirag Ramubhai Chaudhary* Post Graduate [MD Anaesthesiology] Department Of Anaesthesiology, IKDRC, BJMC, Civil Hospital Ahmedabad. *Corresponding Author

Dr. Vidya Shree Post Graduate [MD Anaesthesiology] Department Of Anaesthesiology, IKDRC, BJMC, Civil Hospital Ahmedabad.

Dr. Mitul Shambhubhai Kedaria Post Graduate [MD Anaesthesiology] Department Of Anaesthesiology, IKDRC, BJMC, Civil Hospital Ahmedabad.

ABSTRACT

Idiopathic dilated cardiomyopathy is a primary myocardial disease of unknown etiology characterized by left ventricular or biventricular dilation and impaired contractility. Reported annual incidence varies between 5 and 8 cases per 100,000 populations. Dilated cardiomyopathy defined by presence of fractional myocardial shortening and/or ejection fraction less than 45% and Left Ventricular End Diastolic Diameter (LVEDD) greater than 117% excluding any known cause of myocardial disease. peri operative management of patient with DCM undergoing non cardiac surgery is always a challenge to the anaesthesiologists because it is commonly associated with Congestive heart failure, Malignant arrhythmias and Low Ejection Fraction.. We report the anesthetic management of a patient with dilated cardiomyopathy undergoing TURP.

INTRODUCTION

Cardiomyopathy is myocardial disorder in which heart muscle is structurally and functionally abnormal. Which could be Primary or secondary. Primary causes are either genetic, mixed or acquired. Secondary causes are toxins, storage disease or endocrine disease. Dilated cardiomyopathy is characterized by left ventricular or biventricular enlargement and impairment of systolic function. Prevalence is 36/100000 population which In India it is 6/100000 population. Most common type is non-ischemic cardiomyopathy which is 3rd most common cause of congestive heart failure leads to the most common indication for cardiac transplantation. peri operative management of patient with DCM undergoing non cardiac surgery is always a challenge to the anaesthesiologists because it is commonly associated with Congestive heart failure, Malignant arrhythmias and Low Ejection Fraction.

CASE REPORT

A 55-year-old male known case of DCM with severe LV dysfunction since 2014 on T. Carvedilol (3.125) BD, T. Furosemide (40mg) BD T. Aspirin (75mg) OD, T. Atorvastatin (20) OD, T. Clopidogrel (75) OD, T. Telmisartan (40) OD for cardiomyopathy, has multiple time hospital admission for CHF symptoms, last admission was 2 months back known case of diabetes mellites for 2 years on OHA, Irregular medication and Chronic Alcoholic came to IKDRC with chief complains of dribbling urine, increased frequency and urgency . on findings USG KUB prostate was 42 cc in size. Diagnosed as having benign prostatic hyperplasia, posted for transurethral resection of prostate.

In pre anaesthetic assessment, On General Examination patient had Dyspnoea on sitting position, Raised JVP and Ankle oedema. Vitals were Pulse 112/min (3-4 missed beats/min), BP 90/60 mmHg. Systemic examination respiratory examination had B/L basal crepitations. CVS examination NAD. Investigations were Hb - 12 gm%, Platelet and Coagulation profile – Normal, FBS/PPBS – 103/208 mg/dL, S. creatinine – 1.52 mg/dL, S. Na+ - 134 mEq/L, S. K+ - 4.1 mEq/L, ECG – VPCs, CXR Cardiomegaly. 2D echo findings were EF 15-20% and RVSP 46 mmHg, Severe LV dysfunction, Global LV hypokinesia, Moderate MR and mild PAH, RA, RV, PA Dilated, Reduced LV compliance. Cardiologist reference was done and advised to take Metoprolol (25mg BD) Spironolactone + Torsemide (20mg+50mg). Patient was advised to continue above Rx for 1 week Advised to stop antiplatelet 5 days before surgery Fitness with high risk of peri operative LV events in view of severe LV dysfunction. On General examination there was no pedal oedema and no raised JVP. Vitals were Pulse – 72/min (no VPCs) and BP – 110/70 mmHg. Systemic examination was not significant.

Morning Investigations S. electrolyte and FBS were normal. Written & Informed high risk consent taken. Morning Medications Spironolactone, Torsemide, Metoprolol, Carvedilol taken. Avoided OHA.

Spinal anaesthesia administered in L4-L5 space I. Bupivacaine heavy 2.2 ml (0.5%) + I. Fentanyl 25 mcg given. T10 sensory level achieved. All emergency and anti arrhythmic drugs & DF kept ready. Non Invasive EV1000 monitor attached to evaluate CO, SV, SVV and to guide the IV fluids. Large bore IV canula was secured and Normal Saline infusion started. Intraoperative vitals were stable. At the end of surgery patient was comfortable and pain free. Post op S. electrolytes were advised.

DISCUSSION

Dilated Cardiomyopathy affects the Structure, function and electrical system of the heart. Although it is not a curable condition but signs and symptoms can usually medically managed successfully. Patients can have good life expectancy. The hallmark pathophysiologic feature of dilated cardiomyopathy is systolic dysfunction. Several pathogenetic mechanisms appear to be operative. These include increased hemodynamic overload, ventricular remodelling, excessive neurohumoral stimulation, abnormal myocyte calcium cycling, excessive or inadequate proliferation of the extracellular matrix, accelerated apoptosis, and genetic mutations. It is difficult to decide the optimal time for surgery but the medical control of heart failure for >1 week is desirable.

Goals of anaesthetic management consist of 1) Myocardial depression should be avoided 2) normovolemia should be maintained 3) Avoid overdose of drugs during induction as

circulation time is slow. 4) Ventricular after load is avoided 5) avoid sudden hypotension when regional anaesthesia is a choice.

Anaesthetic management needs to be customized for those with left ventricular ejection fraction below 45%. The main determinants of oxygen carrying capacity are cardiac output and haemoglobin. Therefore, haemoglobin should be maintained at higher level and 13-14gm/100ml has been recommended. To improve cardiac output inotropes, biventricular synchronized pacing or an intra-aortic balloon pump may be required. Arrhythmias occur when potassium and magnesium levels are decreased (as these patients are usually on diuretic therapy). These electrolytes should be assessed preoperatively and corrected as necessary. The acceptable limit of decrease in blood pressure and heart rate for a patient depends upon underlying medical condition. It is recommended that fluid therapy and pharmacological management be guided by the use of pulmonary artery catheterization and the determination of cardiac filling pressure. Continuous monitoring of myocardial performance by cardiac output measurement is useful. We optimized the cardiac status of the patient before surgery with prior planning we preferred spinal anaesthesia over general anaesthesia. We used opioid (fentanyl) as adjuvant with local anaesthetic in spinal anaesthesia to enhance local anaesthetic effect and it reduce the total dose of LA (haemodynamic stability). We used EV 1000 monitor which help to assess the cardiac parameters during intra operative period.

CONCLUSION

Patients with dilated cardiomyopathy are a challenge to the attending anesthesiologist. These patients can be well managed by thorough preoperative assessment and medical management, formulating the good anesthetic plans and prompt diagnosis and management of complications. Low dose spinal anaesthesia with opioid as adjuvant is beneficial for BPH patient with DCM undergoing TURP.

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