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Regional Anaesthetic Approach In A Patient With Wolff-Parkinson-White (WPW) Syndrome For Hysterectomy: A Case Report.

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Abstract

Wolff-Parkinson-White (WPW) Syndrome is an uncommon electrophysiological disorder of heart. In this there is an aberrant pathway between atria and ventricle. The anaesthetic management in these patients is quite challenging due to variety of peri- operative complications like arrhythmias and cardiac arrest. Regional anaethesia like combined spinal-epidural is better choice than general anaesthesia as this is cost effective, safe and also avoids multiple drug exposure. We report a successful anaesthetic management of a female admitted for hysterectomy under combined spinal-epidural anaesthesia.

Keywords: Arrhythmia, Combined spinal-epidural anaesthesia, WPW Syndrome

Introduction

Wolff-Parkinson-White (WPW) Syndrome is a rare disorder, in which there is an extra electrical pathway known as bundle of Kent, between atria and ventricle bypassing atrio- ventricular node that causes disruption of heart's normal rhythm. In general population the incidence ranges from 0.9% to3% .[1] Symptoms of WPW syndrome may range from mild chest discomfort, palpitation, hypotension to severe complications like atrial fibrillations (AF), paroxysmal supra ventricular tachycardia (PSVT) and syncope .[2] Diagnosis is made by history and electrocardiography (ECG). The common ECG changes are short PR interval(<120 ms), wide QRS complex (>110 ms) and delta wave .[1,3] Anaesthetic management of these patients can be challenging as there can be life threatening complications perioperatively. Regional anaesthesia is a better and cost effective alternative to general anaesthesia to avoid multiple drug exposure. Here we report a successful anaesthetic management of WPW syndrome, in a patient admitted for elective hysterectomy under combined spinal- epidural anaesthesia.

Case Report

A 43 year old female, presented with history of polymenorrhea and dysmenorrhea since 10-15 days, for which abdominal hysterectomy was planned. Patient had history of palpitation and discomfort since 4-6 months for which she had not done any cardiac work up and was not on any cardiac medication. At present patient was asymptomatic with good exercise tolerance. The general

and systemic examination was within normal limits with regular pulse rate of 82/ min and BP of 122/77 mm Hg. Routine investigations were in normal ranges. Electrocardiograph (ECG) showed decreased PR interval (<120 ms), delta waves (slurred upstroke of QRS), wide QRS and associated ST and T wave changes. The 2D-echocardiography (ECHO) showed normal valvular and ventricular functions with ejection fraction 55%.

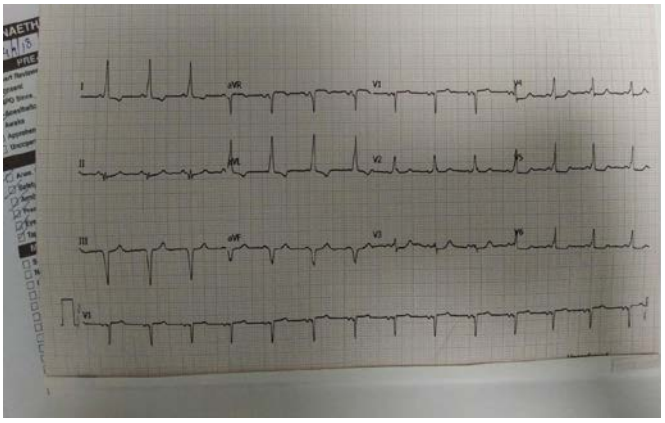

Figure: 1

Patient was adequately counseled and reassured. Premedication with tab alprazolam 0.25 mg and tab ranitidine 150 mg was given in the night before and morning of surgery.

In the operation theatre, patient was attached to 12 lead ECG along with other routine monitoring. Drugs which were kept ready for emergency included lignocaine, diltiazem, adenosine, procainamide, esmolol, phenylephrine, and amiodarone, inotropes and equipments such as infusion pumps and defibrillator.

It was decided to use a combined spinal-epidural technique. She was preloaded with 500 ml of Ringer lactate solution. An 18G epidural Tuohy needle was passed in the L2-L3 epidural space by loss of resistance to air. An epidural catheter was passed and fixed at 10 cm on the skin. After lumbar puncture in the L3-L4 space with a 26G Quincke needle, 1.8 ml of 0.5% hyperbaric bupivacaine with 15 micro gm fentanyl was injected.

Level of sensory block achieved was T8. O_2 was administered with Hudson's mask at 6 L/min. After 1 hour, epidural bolus was started with 0.5 % bupivacaine 8 ml with 2 μg/ml fentanyl, and then 5 ml/hour infusion for the maintenance. The total duration of surgery was 2 hours. Patient was haemodynamically stable throughout the surgery. Meanwhile, the patient received 1.5 L of Ringer's lactate. Total blood loss and urine output were 150 and 450 ml, respectively. Postoperative analgesia was maintained by using 0.125% bupivacaine with 2 μg/ml fentanyl at 6 ml/hour continuous infusion rate. After 5 days of uneventful hospital stay, the patient was discharged.

Discussion

In WPW syndrome there is an eccentric pathway between atria and ventricle known as “bundle of kent”, which may lead to reentrant tachycardia and sudden cardiac arrest. [3] Patients with WPW syndrome may remain asymptomatic throughout life, but such patients are always at a risk of life threatening tachyarrhythmias such as paroxysmal supra-ventricular tachycardia, atrial fibrillation, ventricular tachycardia, and ventricular fibrillation.

Diagnosis can be made by thorough history along with ECG changes which include delta wave, a shortened PR interval, and a wide QRS complex. These ECG changes are the result of sodium dependent faster, aberrant pathway impulse as compared to normal calcium dependent AV nodal pathway. This causes the short PR interval and slurring of the QRS complex. When the normal pathway impulse catches up, the ventricular muscle is usually depolarized which results in a widened QRS complex. [4, 5]

The aim of perioperative management of anesthesia was to avoid any increase in sympathetic activity such as fear, anxiety, pain, anesthesia of lighter depth, stress response caused by laryngoscopy, intubation or extubation and to avoid anticholinergic premedication drugs.[6,7] To avoid multiple drug exposure regional anaesthesia is usually a better choice than general anaesthesia. [6, 7]

To ensure stable hemodynamics with reliable, rapid onset, prolonged duration of anaesthesia as well as better postoperative pain management, we opted for combined spinal epidural anaesthesia for our patient. Anti arrhythmic drugs like lignocaine, procainamide, diltiazem, adenosine and defibrillator, were kept ready for any emergency. Postoperatively, epidural infusion was given for patient comfort, analgesia and early ambulation.

Adequate fluid preloading was done to prevent hypotension, tachycardia and arrhythmia. [8] Phenylephrine may be used to treat hypotension during regional anaesthesia . [9] It is an alpha 1 adrenergic agonist that causes vasoconstriction, increase blood pressure and reflex bradycardia therefore reduces the incidence of PSVT. [9]

Complications of WPW Syndrome, like PSVT can be treated with carotid sinus massage, adenosine, beta blockers or calcium channel blockers (CCB). Patients developing AF should be treated with anti arrhythmic drugs like beta blockers, amiodarone etc. Haemodynamically unstable patients should be treated by cardio version with 50-200 Joules. [5, 10, 11]

To conclude, combined spinal epidural anaesthesia is preferred management choice because of better haemodynamic stability and post-operative analgesia. Patients with WPW syndrome may develop complications like perioperative tachyarrhythmias and hypotension leading to major cardiac events, that's why anti-arrhythmic drugs and defibrillator must be kept ready. Vigilant perioperative monitoring is essential.

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