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ANAESTHETIC MANAGEMENT OF A CASE OF CARCINOMA GLOTTIS WITH ATRIAL FIBRILLATION PLANNED FOR DIRECT LARYNGOSCOPIC BIOPSY

ABSTRACT

Atrial fibrillation is one of the most common arrhythmias, which is encountered during the perioperative period. Atrial fibrillation in perioperative period may lead to hemodynamic impairment and thromboembolic events resulting into significant morbidity and mortality. So it is very crucial for an anaesthesiologist to maintain the hemodynamic stability of the patient with atrial fibrillation and prevent further complications associated with it. Here we report a case of 58-year-old male with carcinoma glottis, chronic obstructive pulmonary disease with pre-existing atrial fibrillation status post mitral valve replacement planned for direct laryngoscopic biopsy.

Keywords: Atrial fibrillation, Carcinoma glottis, Direct laryngoscopic biopsy

INTRODUCTION

Atrial fibrillation (AF) is a common arrhythmia frequently seen in patients undergoing surgery. The prevalence of atrial fibrillation is 0.4 % in adults less than 60 years old and 12% in those over 75 years.¹ Surgical patients may present with AF in different ways, which may be pre-existing, new onset or paroxysmal. AF is often associated with structural heart disease, but in many patients it can occur with no detectable disease. Heart failure and thromboembolic events resulting from AF lead to significant morbidity, mortality and increased cost of management.² Perioperatively onset of AF or faster rates of chronic AF may occur due to precipitating factors like acid base disturbances, electrolyte abnormalities (hypokalemia, hypomagnesemia), hypovolemia, myocardial ischemia, hypoxia and surgical manipulation in the thorax.¹ Here we present this case who had a challenging airway along with atrial fibrillation and chronic obstructive pulmonary disease (COPD).

CASE REPORT

A 58 years old male weighing 60kg was posted for direct laryngoscopic biopsy. His chief complain was hoarseness of voice of 2 to 3 months duration. He was a past smoker and non alcoholic. He had history of mitral valve replacement(MVR) done 14 years back. Following MVR he was on tab Warfarin 5 mg, tab Digoxin 0.25 mg, tab Furosemide 20 mg orally once daily each and MDI asthalin as

required for COPD. At pre anesthetic examination, his pulse rate was 88 beats per minute irregularly irregular, heart rate was 92/minute, blood pressure was 130/80 mm Hg, respiratory rate was 14/ minute, SpO₂ was 95% in room air, S₁ S₂ with metallic click on auscultation of heart, bilateral chest clear with reduced air entry. Rest of the systemic and airway examination were normal. His routine hematological and biochemical investigations were within normal limits. ECG: showed atrial fibrillation with ventricular rate of 112/minute. Chest x-ray revealed bilateral hyper inflated lung fields. Echocardiography findings were: status post MVR, prosthetic mitral valve with restricted movement of one of the mitral leaflets, mild TR, dilated LA with no clots, ejection fraction 55%. Nasopharyngo laryngoscopy revealed a proliferative growth on the entire length of right true vocal cord. Patient was advised to stop Warfarin and Inj Exonxaprin 60 mg SC was initiated 5 days prior to surgery (hold 1 day prior to surgery).

In the operating room all standard monitors were attached to the patient (NIBP, SpO₂, EtCO₂, ECG). The right radial artery was used for invasive blood pressure monitoring. An intravenous access was secured with 18G cannula and Ringer lactate was started. Difficult airway cart along with tracheostomy set and emergency drugs including esmolol, verapamil, amiodarone and a defibrillator was kept ready. Ceftriaxone 1 gm was given intravenously for Infective Endocarditis prophylaxis.

Pre induction ECG showed atrial fibrillation with a ventricular rate of 100/min, blood pressure was 130/80 mm Hg, SpO₂ 100% after pre oxygenation. Patient was induced with propofol in titrated dose of 80 mg, fentanyl 125 mcg. After assuring adequate bag and mask ventilation patient was paralyzed with vecuronium 6 mg and intubated with 5 mm internal diameter cuffed microlaryngeal tube in a single attempt.

Post induction heart rate was 104/minute, blood pressure was 110/70 mm Hg, SpO₂ 100%, and EtCO₂ between 31-36mmHg. Anaesthesia was maintained with O₂, isoflurane, vecuronium. Two episodes of tachycardia with hypertension (maximum heart rate; 120/min, blood pressure ; 150/90mmHg) during surgical manipulation was managed by increasing depth of anaesthesia. After completion of surgery patient was extubated at deep plane of anesthesia after reversal with neostigmine and glycopyrrolate and was monitored until fully awake.

Patient remained hemodynamically stable in postoperative period with continuous monitoring. Anticoagulation (low molecular weight heparin) was started postoperatively after cardiologist's advise and patient was discharged after resuming the previous oral medications on 2nd postoperative day.

DISCUSSION

Atrial fibrillation is one of the supraventricular arrhythmias characterized by complete absence of coordinated atrial contractions. The most common cause for AF in developing countries is rheumatic valvular disease, coronary artery disease and systemic hypertension.² The perioperative clinical consequences of AF include loss of atrial component to diastole which may lead to decreased cardiac output and reduction in blood pressure by up to 50%, excessively fast ventricular rate (FVR) which may lead to impairment of left ventricular function, systemic thromboembolism and significant risk of stroke and patient discomfort due to palpitations.

Based on current evidence and guidelines, there are four main principles of management of AF; restoration of sinus rhythm by pharmacological or electrical means, control of ventricular rate during paroxysmal or persistent AF, and chronically

in those with permanent AF, prevention of recurrence of paroxysmal or persistent AF following successful restoration of sinus rhythm and revention of thromboembolic phenomena.³

To prevent from thromboembolism and ischemic stroke, antithrombotic therapy (aspirin, warfarin) must be considered in chronic hypertension, age >65 year, diabetes mellitus, previous ischemic stroke, ventricular dysfunction and co-existent ischemic or valvular heart disease. Anticoagulation can be interrupted for a period of up to 1 week for surgical and diagnostic procedures that carry a risk of bleeding. However, bridging with heparin must be done if they are at high risk of thromboembolism or have mechanical prosthetic valves.² Similarly our patient was receiving warfarin, which was bridged with low molecular weight heparin and later resumed in the postoperative period.

Atrial fibrillation with FVR should be treated with synchronized cardioversion in hemodynamically unstable patient while rate control with β blockers (Metoprolol, Esmolol), calcium channel blockers (Diltiazam, Verapamil), digitalis can be done in stable patients. Amiodarone is useful in rate control in patients with accessory pathway and preexcitation.

Recent evidence from randomised trials (AFFIRM,⁴ PIAF,⁵ RACE,⁶ STAF⁷) has shown that rate control is at least as effective as rhythm control in improving symptoms and functional capacity, particularly in those over 65 years of age. Heart rate should neither be too high (leads to tachycardia induced cardiomyopathy) or too low (facilitates heart failure); it is considered to be controlled when the ventricular rate is 60–80 bpm at rest and 90–115 bpm during exercise. Our patient was taking digoxin 0.25mg preoperative and had heart rate of 92/min. The maximum heart rate increased in the intraoperative period was 120/min with blood pressure of 150/90mmHg which did not require any active intervention except for increasing the depth of anaesthesia as it was thought due to surgical airway manipulation. All the precipitating factors of AF like hypoxia, hypercarbia, electrolyte abnormalities, hypovolemia were taken care of except we had limitation of doing arterial blood gas analysis.

CONCLUSION

Although our case didn't have any hemodynamic compromise, the aim of reporting this case was to bring into highlight that preparedness with defibrillators, β blockers, calcium channel blockers and amiodarone with invasive monitoring and perioperative anticoagulation is necessary while anesthetizing a patient with atrial fibrillation though it was a minor surgery of short duration.

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