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ANESTHETIC MANAGEMENT OF FOURNIER GANGRENE PATIENT WITH SECOND DEGREE HEART BLOCK: A CASE REPORT

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ABSTRACT Fournier gangrene is a life-threatening necrotizing fasciitis that primarily affects the perineal and genital regions. It is characterized by rapid tissue destruction and can quickly lead to sepsis, necessitating urgent surgical intervention . When managing a patient with Fournier gangrene, particularly one with comorbid conditions such as second-degree heart block, the anesthetic approach becomes critical. Major perioperative concern in AV conduction abnormality is progression to complete AV block intraoperatively .

KEYWORDS : Fournier gangrene , Second-degree heart block , AV conduction abnormality, Complete AV block , Hemodynamic management

INTRODUCTION

Atrioventricular (AV) conduction is assessed by the relationship between the P and QRS complex. Conduction blocks are classified into first degree, second degree and third-degree AV blocks. Second-degree AV blocks are further classified into type Mobitz type I and Mobitz type II

Major Perioperative concern in AV conduction abnormality is progression to complete AV block intraoperatively. Administration of atropine may subside type 1 block but worsens the scenario in type 2 block especially if it's associated with bundle branch. In higher degree cardiac conduction abnormalities like type 2 AV block, there is a higher perioperative risk for Brady arrhythmias.

CASE REPORT:

A 65-year-old male patient presented with pain and swelling in the genital region since one month. During the pre-anesthetic evaluation, he was found to be a non-smoker and non-alcoholic, with no reported cardiac symptoms such as dizziness, syncope, or chest pain. However, a routine 12-lead ECG revealed a type 2 AV block accompanied by a left bundle branch block, indicating a significant cardiac concern.

Prior to surgery, we counseled the patient's relatives regarding the potential risks associated with his condition, emphasizing the heightened risk of progression to complete AV block in the absence of a temporary pacemaker insertion. After discussing the options, the patient consented to proceed with surgery without the placement of a temporary pacemaker.

The patient was transferred to the operating room, where all standard monitors were connected. His ECG continued to display the second-degree AV block and left bundle branch block observed preoperatively. Vital parameters indicated a heart rate of 32 bpm, a blood pressure of 100/60 mmHg, SpO2 of 98% on room air, and a perfusion index (PI) of 0.93. We secured two 20-gauge cannulas in both forearms prior to induction. Pre-medications included intravenous Ondansetron 4 mg, Glycopyrrolate 0.2 mg, and Midazolam 1 mg. After preoxygenating the patient for three minutes, general anesthesia was induced with 10 mg of Etomidate and 75 mg of succinylcholine. I-GEL size 4 was inserted and connected to an open circuit (Bains circuit), followed by intravenous administration of 900 mg of paracetamol and 8 mg of dexamethasone.

During the intraoperative phase, anesthesia was maintained with 100% oxygen and Sevoflurane as the inhalational agent. Immediately after induction, the patient's heart rate dropped to 28-30 bpm, prompting the administration of 0.6 mg of atropine. When this did not result in an improvement, 0.04 mg of Isoprenaline was given, leading to an increase in heart rate to 54-56 bpm. (FIG 1A and 1B) For ongoing =[[-maintenance, Isoprenaline was administered every five minutes, totaling 0.44 mg intravenously. Throughout the procedure, the patient remained hemodynamically stable, without significant events, and emerged smoothly from anesthesia.

Postoperatively, the patient was transferred to the intensive care unit. Unfortunately, his septic manifestations recurred intermittently over the next week of hospitalization, ultimately culminating in cardiorespiratory collapse and death.

FIG1A

FIG 1B

(Intraoperative vital parameters of the patient. The tracing of lead II shows the second-degree atrioventricular block with LBBB. Every P wave is followed by QRS with sudden dissociation of P from the QRS complex within normal limits)

DISCUSSION:

The risk of developing complete AV block remains a significant concern for patients with cardiac conduction abnormalities, and our patient exhibited multiple preoperative risk factors for such

progression. While AV node block typically has a benign prognosis, infranodal block carries a heightened risk of advancing to complete heart block. Electrocardiographic indicators, such as wide QRS complexes, often suggest infranodal block, which may necessitate the insertion of a temporary pacemaker due to the increased likelihood of progression. Although electrophysiological studies could pinpoint the precise location of the AV block, the invasive nature of these procedures, combined with the patient's asymptomatic status and reluctance for further intervention, led us to proceed with surgery.

Preoperative use of anticholinergic medications to mitigate bradycardia has not demonstrated significant benefits regarding mortality and morbidity. In our case, the patient developed bradycardia post-induction, potentially attributable to factors such as hypoxia, hypercarbia, or the anesthetic agents employed. However, hypoxia and hypercarbia were unlikely contributors, given the patient's adequate preoxygenation and ventilation. While the anesthetic agents used could have played a role in inducing bradycardia, they cannot be solely blamed in a patient with an existing AV block. Some clinical studies indicate that, when administered at appropriate doses, anesthetic agents are less likely to produce a negative dromotropic effect on AV conduction, underscoring the complexity of managing such patients.

CONCLUSION:

In conclusion, Patients with higher-degree AV block (such as Mobitz type 2 and third-degree AV block) often experience significant damage to the conduction system, increasing the risk of asystole, ventricular tachycardia, and sudden cardiac death. In this case, we highlight that the use of a prophylactic pacemaker for type 2 AV block can serve as a valuable precaution. However, when this is not feasible, general anesthesia can still be safely administered in such patients.

Effective management of such patients requires careful preoperative assessment and vigilant intraoperative monitoring to mitigate risks of cardiac instability. A proactive approach, including timely interventions and clear communication among the medical team, is essential to ensure patient safety and optimize surgical outcomes.

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