



A Case Report of Complete Heart Block

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Authors' contributions

This work was carried out in collaboration among all authors. All authors read and approved the final manuscript.

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Case Study

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ABSTRACT

Introduction: Complete Heart Block (CHB) occurs when the electrical signals can't pass normally from the atria, the heart's upper chambers, to the ventricles or lower chambers. This condition can develop because of congenital or secondary to cancers, myopathies or heart ischemia, infectious or endocrinological disorders and it needs comprehensive work-up to be excluded.

Background: In the United States, the prevalence of third degree atrioventricular (AV) block that is complete heart block is 0.02 percent. The prevalence of third-degree AV blocks worldwide is 0.04 percent. With advancing age, the rate of AV conduction defects rises, resembling the age-related incidence of ischemic heart disease.

Case Presentation: A case of 68 year old female admitted in cardiac ward on date 11 january 2021 with the chief complaint of breathlessness on exertion, restlessness, chest pain and loss of appetite since 2 month. The patient is a known case of hypertension since 5 year, Ischemic heart disease sine 1 year. after physical examination and other investigation like ECG, electrocardiogram the she diagnosed as a complete heart block with third degree.

Interventions: The patient was treated by placing permanent pacemaker on dated 18 january 2021. After that started the antibiotic like inj. targocid, inj. ceftriaxone, tab. linezolid, tab. orabest, tab. telmed H and taking also the anticoagulant therapy. She also under the care of cardiologists

and monitor by hourly, also monitor the electric activity of pacemaker. Provide health education about healthy diet, life style modification, yoga and exercised, control over blood pressure and regular follow up.

Conclusion: This study mainly focusing on the medical and placement of permanent pacemaker which help the heart to do their normal function and passing a normal electrical signals through the heart rhythm. A good nursing care needed for the patient who have complete heart block and surgical implementation in permanent pacemaker for continue monitored, no any complication can occur during or after pacemaker implantation. the patient response for the treatment was good and she recover rapidly.

Keywords: Complete heart block; ischemic heart disease; hypertension.

1. INTRODUCTION

Complete Heart Block (CHB) occurs when the electrical signals can't pass normally from the atria, the heart's upper chambers, to the ventricles or lower chambers. The Complete heart block (CHB) is known to be one of the risky rhythms as fatal arrhythmias such as ventricular tachycardia may advance. This condition can develop because of congenital or secondary to cancers, myopathies or heart ischemia, infectious or endocrinological disorders and it needs comprehensive work-up to be excluded [1]. In the United States, the prevalence of third degree atrioventricular (AV) block (complete heart block) is 0.02 percent. The prevalence of third-degree AV blocks worldwide is 0.04 percent. With advancing age, the rate of AV conduction defects rises, resembling the age-related incidence of ischemic heart disease [2]. Hypertrophic obstructive cardiomyopathy and infiltrative myopathies including sarcoidosis and amyloidosis are thought to be alternative causes of CHB as a secondary trigger [3]. Third-degree heart block is generally referred to as absolute heart block that is complete heart block. The diagnostic criteria include the occurrence of atrioventricular (AV) which is full dissociation with a higher atrial rate as compared to ventricular rate [4]. A typical clinical manifestation of full heart block is chest pain and breathing difficult. A unusual etiology of CHB that has not gained adequate consideration is systemic sclerosis. It remains inconclusive whether pacemaker implantation is needed, especially when patients have no symptoms or mild CHB symptoms [5]. Some anti-arrhythmic medications modify the electrical impulses in the heart and help discourage erratic or fast heart beats from beginning at abnormal locations. In order to treat sluggish heart beats, all implantable machines or pacemakers function are used. A little instruments inserted below the collarbone under the skin and attached by a vein to a speed

wire mounted within the heart; this provides a tiny electrical impulse to encourage the heart to pump as it goes too sluggish [6].

2. CASE HISTORY

2.1 Patient Information

A case of 68 yearold female admitted in cardiac ward on date 11 january 2021 with the chief complaint of breathlessness on exertion, restlessness, chest pain on radiating towards the back in left side and loss of appetite since 2 month. The patient is a known case of hypertension since 5 year, Ischemic heart disease since1 year.

2.2 Medical History

The patient had developed the problem of hypertension before 5 year and she was continue taking medication for hypertension is Tab. Telma 40 mg on OD. Patient also develop Ischemic heart disease since 1 year. After investigation like ECG, blood test, Echo and angiography she diagnosed as a complete heart block in third degree. Presently she showing the breathlessness on exertion, restlessness and chest pain. Patient was undergone the procedure placement of permanent pacemaker on dated 18 january 2021 after procedure patient not showing any complication and the device work properly as per patient ECG findings. No any past surgical history and patient was remains in the emergency room is presented with previous medical records.

2.3 Social History

She maintain good interpersonal relationships with family member, neighbors, friends and relatives. She believe in god and follow the religious beliefs.

2.4 Environmental History

Patient home surround with good environment. There is a facility of a closed drainage system and proper disposal of waste. proper ventilation and all needy facilities available in her house.

2.5 Physical Examination

2.5.1 General parameter

Height: 150 cm, weight: 45 kg, body mass index (BMI): 20
Vital sign: temperature: 98°F, pulse: 68 beat / min, respiration: 16 breath/min, blood pressure: 150/100mmof Hg, SpO2: 99%.

2.5.2 Mental status

She was conscious and aware about time place and person.

2.5.3 Pulmonary/cardiovascular

S1 and S2 sound is heard and normal heart sound is heard. Normal respiration and blood pressure is high. No pleural effusion present.

2.5.4 Integumentary

no any skin lesions and dry skin.

2.5.5 Musculoskeletal system

She was normal to walk, range of joint movement is present. Active and passive movement is present. Periphery edema in lower extremities is absent.

2.5.6 Speech

Speech is coherent.

2.6 Diagnosis Assessment

Blood investigation : In complete blood count (CBC): Hemoglobin is 12.2 mg/dl(11-13mg/dl) , mean corpuscular hemoglobin concentration is 32.6 g/dl , Mean corpuscular volume (MCV) is 90 fl (78-98 fl) , total RBC count is 4.52 m/ul, WBC is 10200 (4500-11,500 k/ul) ,platelet count is 239,000/ml (150,000 to 450,000) , Hematocrit (Hct) Levels is 35.7 % (37 %-47 %) , monocytes is 04 %(00-15%) , Granulocytes is 74 % and Lymphocytes is 30 %(20%-40%) , red cell distribution width (RDW) is 12.9 (11.6-14.8) ,

Eosinophils is 04% (1-5 %) and basophils is 00 % (0-1 %).

2.7 In Kidney Fuction Test (KFT)

urea is 18.2 (9.81 – 20.1 mg/dl) , creatinine is 0.9 mg/dl (0.7-1.4 mg/dl) ,sodium is 135meq/l (135-145meq/l) , potassium 4.5(3.5-5.5 meq/l) .

2.8 In liver Fuction Test (LFT)

alkaline phosphates is 40 (32-45g/l), Alanine transaminase (ALT) is 44 IU/L (0-50IU/L), aspartate aminotransferase,(AST) is 35 IU/L (10-40 IU/L) ,total protein ia 6.5 (23-38 g/dl) ,total bilirubin is 1.0 g/dl (1-1 g/dl) ,conjugated bilirubin is 0.2 mg/dl (0-0.25 mg/dl) ,unconjugated bilirubin is 0.8 mg/dl (0.2-0.7mg/dl) , globulin is 2.8.

2.9 In Electrocardiogram (ECG)

An ECG may reveal abnormalities in heart rhythm seen in the ECG before permanat pacemaker and after placement of permanat pacemaker the ECG shows normal findings.

3. ECHOCARDIOGRAPHY

3.1 Therapeutic Intervention

General measures: To check the vital sign (Temperature pulse respiration and BP) and airway. Continue observation and record a heart's electrical function. Prevention of complications like infection, swelling, collapse lung and bruising or bleeding at the generator site. Health management includes healthy diet, lifestyle modification, regular activity and proper medication.

3.2 In Pharmacological Management

3.2.1 Antibiotics drugs

Inj. Targocid 400mg is an antibiotic used in the reatment of severe bacterial infection, it is effective to stopping the growth of bacteria. it is narrow spectrum antibiotic that only covers the gram positive type of bacteria. It gives OD intravenously.

Inj. Ceftriaxone – 1 gm IV. Ceftriaxone is the third-generation antibiotic from the family of the antibiotic.

Inj. Linzolid 600mg BD

3.2.2 Hypertensive drug

Tab. Telma 40 mg is used to treat high blood pressure and heart failure. lowering blood pressure helps to prevent future heart attack and stroke. This medication is not given the patient with kidney and liver problem.

3.2.3 Antiemetic agent

Inj emeset 4 mg IV. Decreases nausea and vomiting.

Tab. Orcibest 10 mg contain orciprenaline as its active medicine. it is useful in treating patients with breathing difficulty due to the narrowing of airway as asthma. also treat breathing difficulties.

3.2.4 Proton pump inhibitors (PPIs)

Inj. pantoprazole 40 mg IV. Pantoprazole is more effective than H₂receptor blockers in reducing gastric acid secretion.

3.2.5 Oxygen therapy

oxygen administration 4 liters/min through a nasal catheter if needed.

3.3 Nursing Management

First of all makes nursing assessment with the help of observation to check the consciousness, Electrical activity of heart by taking ECG, vital sign, electrolyte and body temperature. To make the client lie comfortably in bed. After checking vital signs ensure patient activity are normal. elevate head end of the bed to 30° and railing bed is provided and also monitor BP 6 hourly.

3.4 Nursing Diagnosis

1. Acute pain related to decreased myocardial blood flow.
Goal:- Reduce pain and make patient vitally stable.
Intervention: - Administer analgesic as per doctor order.
2. Ineffective breathing pattern related to disease condition.
Goal:- To improve the breathing pattern
Intervention: Assess the respiratory function and administer medication to maintain a patent airway and to improve breathing pattern. To give the prop up position.
3. Impaired nutrition due to loss of appetite.

3.5 Therapeutic Diet Plan

Required the low sodium diet provides 2-3 gm sodium 1600- 1800 calories which give adequate nutrition given. carbohydrate 200gm, protein 60gm and fat 40 gm.

4. DISCUSSION

Patients are those very young and it's not often a straight forward choice to insert a permanent pacemaker. Early intervention are very necessary for the recovery of the patients, also the reducing the multiple generators and risk for developing infection with the help of early intervention. Those are having a vascular complication for that permanent implantation is remain a subject for the further investigation.

She already diagnosis as a ischemic heart disease before one year and hypertension is the secondary diagnosis. A report of ECG, Echocardiography and Angiography showing the complete heart block in third degree. The patient going through placement of permanent pacemaker after that patient not develop any complication and patient response is positive for the treatment. The patient had further investigations to find out the cause of complete heart block.

The patient reacted well to medication therapy, but more approaches may be used in the future to help in further changes. healthy diet and lifestyle modification help the patient to recover early and reduce further health problems.

4.1 Prognosis

In elderly patients with symptomatic high-degree atrioventricular (AV) block, permanent pacing can prevent repeated symptoms and decrease mortality. Even so, long-term longevity has not been clearly established with respect to similar control subjects [7].

Prognosis of patient it was good, patient give positive response to treatment and placing of permanent pacemaker and occurring any complication during treatment. Because of rapid recovery of patient doctor plan to discharge patient.

5. CONCLUSION

Hypertension and ischemic heart disease related the complete heart block is a common incident; It

is a major cause of mortality and morbidity in the elderly patient with complete heart block. She fully depends on her family. So health talk taught them the importance of healthy diet and life style modification at home after discharge and its usefulness in maintaining healthy life.

Being a health worker it's an opportunity and responsibility to assist the patient and caregiver in the transition through acute hospitalization, long-term care, procedure complication, rehabilitation, health education and family requires continuous nursing evaluation and intervention adaptation in response to evolving needs to maximise.

CONSENT

While preparing case report and for publication patient's informed consent has been taken.

ETHICAL APPROVAL

As per international standard or university standard written ethical approval has been collected and preserved by the author(s).

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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