

Case study

CASE REPORT ON: COMPLETE HEART BLOCK

Abstract

A Case Report On Complete Heart Block When the electrical signal normally does not travel from the atria, the upper chambers of the heart, to the ventricles, or lower chambers, full heart block occurs. During surgery, the atrio ventricular (AV) node is weakened and complete heart block can result. Often, complete heart block occurs naturally without surgery.¹ **Patient History**

Heart block is an irregular heart rhythm where the heart (bradycardia) beats too slowly. In this condition, between the upper chamber (atria) and the lower chamber (ventricles), the electrical signals that tell the heart to contract are partially or completely blocked. Present history- The patient 71-year old male who was admitted to hospital on date 25/11/2019 with the chief complaint was severe chest pain, breathlessness, excessive palpitation, vertigo, and profused sweating since in 4 months. **CONCLUSION** The patient was admitted in the hospital with the chief complaint of ever chest pain, breathlessness, excessive palpitation, vertigo and profused sweating since in 4 months and his condition was very critical and the patient was admitted in AVBR Hospital and immediate treatment was started.

KEY WORDS

Complete Heart Block, Chest Pain, Breathlessness, Excessive Palpitation.

Introduction

Third-grade block heart is generally referred as whole block of heart (CHB). The tests for diagnosis incorporate the presence of a total dissociation of the atrioventricular (AV) in the a greater atrial rate than the ventricular. Most patients with CHB have strong bradycardia symptoms. Class I sign for all CHB symptom clients, whether congenital or obtain, involves implanting a permanent pacemaker (PM). Some portions of congenital complete heart block patients are the nonetheless asymptotic. A healing dilemma make an appearance in the absence of criteria for obtaining the maximum benefits from the therapy with preventive. We have a case of asymptotic congenital CHB with an get away rhythm that raises heart rates with physical activity and leads to a diagnostic challenge and a therapeutic approach.¹

More than 80% of these patients live in developed countries and there is no care for most of them. There were 140,000 new cases in India (50,000 in India) and less than 20 percent received care in each country. Implantation of a cardiac pacemaker is the only successful treatment for CHB.²

Objective

1. To know general idea regarding disease condition.
2. To explore knowledge regarding pharmacology, medical and nursing management.

Patient Information

Patient History

The male patient 71-year old who was admitted to AVBRH on date 25/11/2019 with the chief complaint of ever chest pain, breathlessness, excessive palpitation, vertigo, and profused sweating since in 4 months. After admitted in the cardiac ward. all investigations done like X-ray, ECG, 2 Day echo, CBC, Lipid profile, coronary angiography, PT or PT-INR Test, and permanent pacemaker done then implantation procedure was done on 27/11/2019.

Past History

The patient was having a history of hypertension for 3 years. He is a known case of hypertension so, patient take **Tablet-** Amlodipine He came with a complaint of chest pain in the hospital in 2009, so that time his ECG was normal.

Causes:

Primary risk factors includes- hypertension, diabetes, cigarette smoking, obesity, and high serum cholesterol. Secondary risk factors includes - ordinary cardiac production (CO) control mechanisms, co depend on preload, afterload, myocardial contractility, heart rate and metabolic state of the individual. Major cause are coronary artery, hypertension, rheumatic heart disease, congenital heart disease, cardiomyopathy, anaemia, bacterial endocarditis, valvular disorders, acute myocardial infarction, dysrhythmias, pulmonary embolic, thyrotoxicosis, hypertension crisis, ventricular septal defect and myocarditis.³

Classification of Heart Block

First degree heart block (first degree AV block)

- Second degree heart block (second degree AV block)

- Third degree heart block is otherwise called as complete heart block.

Clinical Finding

Fainting (syncope), Dizziness, Light-headedness, Chest pain, Shortness of breath, Dyspnea, cough, pulmonary crackles, and weakness.³

Diagnosis Evaluation.

1. **History collection-** He is a known case of hypertension.
2. **Physical examination-** 3 gallop present abnormal heart rate, rhythm and volume).
3. **Ultrasound scan-** Abnormal scan present.
4. **Electrocardiography (ECG)-** Abnormal rate rhythm.
5. **Echo cardiogram-** Abnormal EF%
6. **Chest X-ray-** The presence of a permanent pacemaker in the right intra clavicular region.
7. **Coronary angiography-** This is a kind of x-ray that reveals coronary arteries using a dye. It will indicate whether the heart is narrowed or blocked .
8. **Tilt table test-** Involves the patient lying on a table that is then tilted with the patient's heart rate rhythm and at various points blood pressure is taken.
9. **Cardiac stress test-** This is when the patient has an ECG while the patient is working under pressure to show that the heart is working.
10. **PT or PT-INR- Done** (2.0 to 3.0)
11. **Holter and Event Monitors-** Abnormal heart rhythm.

TREATMENT

- Injection- Angiotensin-Converting Enzyme Inhibitors.
- Injection- Angiotensin II Receptor Blockers (ARBs).
- Injection- Hydralazine and Isosorbide Dinitrate.
- Injection- Beta-Blockers.
- Injection- Diuretics.
- Injection- Digitalis.
- Injection- Calcium Channel Blockers.
- Injection- Anticoagulants⁵

Medical Management

- Tablet- Atorin 10mg, Orally, BD.
- Tablet- Alprax 0.25 mg, Orally. OD

- Tablet- Telma 20mg, Orally. BD
- Tablet- Chymoral forte 1mg, Orally. BD
- Injection- Ceftrazone 1gm, Intravenous, BD.
- Injection- Amikacin 500mg-2ml, Intravenous, OD.

The General Measures for management of Complete Heart block

- Disease nature explanation, therapy and self-help strategies.
- Healthy overall diet and heavy weight loss.
- Moderate consumption of alcohol.
- Prevention of salt and highsalt foods, particularly for patients with hard congestive failure.
- Stoppage of smoking.
- Exercises regular moderate.⁴

Nutritional Therapy

It is usually recommended that you eat low sodium (paste 2-3 g / day) and avoid exaggerated amounts of liquid. This suggestion decreases fluid reservation and the symptom of peripheral and pulmonary swelling, though it has not shown to affect mortality rates. The aim of sodium limitation is to reduce the volume that circulates, which decreases the heart's pumping capacity for this amount. The patient's ability to change his diet and the number of medications prescribed must be balanced. Any changes in diet must be made with regard to good nutrition and liking, dislikes and cultural patterns of the patient.⁵

Surgical management

- Permanent pace maker
- Implantable cardiac defibrillators then, resynchronization therapy
- Revascularization
- Heart transplantation
- Ventricular assist devices.⁴

Nursing Management

The nurse will administer the medicine and evaluate the beneficial and harmful effects of the medicine on the patient. The type and dose of pharmacological therapy are determined by the balance of these effects. The following include care measures for the evaluation of therapeutic efficacy:

- Maintain a negative balance intake and output record.
- Weigh the patient regularly simultaneously and same weight, usually the morning after urination; track a 2- to 3-lb rise regularly, or 5-lb increments weekly;
- Able to detect a rise or a decrease in pulmonary crackles at least regularly.
- JVD degree determination.
- Determination and assessment of dependent edema severity.
- Pulse and blood pressure monitoring, and postural hypotension monitoring to ensure the patient is not completely dehydrated.
- Symptoms of dehydration are tested for skin turgor and mucous membranes.
- Evaluation and evaluation of fluid overload symptoms (e.g. orthopedic, nocturnal paroxysmal dyspnoea and tension dyspnea)⁵

Monitoring With Managing Potential Complications

Hypokalemia (i.e. potassium depletion) could result in proliferation and repetitive diuresis. Signs are faint heart pulse, feeble heart sounds, hypotension, flabby muscles, decreased deep tendon reflections, and widespread weakness. Since hypokalemia greatly weakens the heart contraction, HF brings new complications to the patient. Hypokalemia can lead to digital toxicity in patients who receive digoxin. The risks of dangerous dysrhythmias increased due to digitalis toxicity and hypokalemia (see map 30-3). Low potassium levels can also display a low magnesium level that can raise the risk of dysrhythmias. Hyperkalemia may also occur, particularly when spironolactone or ACE-Is are used.

Nursing Diagnosis

The key diagnosis for HF patients may include the following on the basis of the assessment data:

1. Impaired cardiac tissue perfusion related to heart failure.
2. Intolerance (or risk to intolerance of activity) of activity related to decrease in CO between the supply of oxygen and demand.
3. Anxiety related to dyspnoea, breathlessness.

4. Impotence related to incapacity for chronic illness and hospitalization to play roles
5. Lack of knowledge related to disease process.⁵

Collaborative Problems/ Potential Complications

On the basis of the evaluation results, the following may be possible complications:

- Cardiogenic shock
- Dysrhythmias
- Thromboembolism
- Pericardial effusion and cardiac tamponade

Continuing Care

For a patient who is hospitalised according to the physical condition of the patient and the availability of family support, a home referral might be suggested. Patients with older adults and people with long-standing cardiovascular diseases with impaired physics often need help during an acute episode of HF after hospitalization. Suggestions are necessary to adapt the home environment to the behaviour limitations of the patient. If the steps are the problem, the patient may plan the day to minimize escalation. The caregiver works with the patient and family to optimize their benefits. The health care professional also reinforces and clarifies information on changes in the diet and fluids, symptoms and everyday body weights, and how important it is to obtain healthcare follow-up. Assistance can also be given in the preparation and management of appointments. The patient is advised to step up self-care and the duty to execute the therapy.⁵

Expected Patient Outcomes

1. Demonstrates tolerance for increased activity

1. Stops all activities which cause intolerance symptoms
2. Keeps vital signs within target range (pulse, blood, breathing rate and pulse oximetry).
3. Identifies and measures to prevent factors that contribute to activities intolerance
4. Set priorities for activities
5. Plans activities for energy conservation and fatigue and dyspnea reduction

2. Maintains fluid balance

1. Peripheral and sacred edema decreased in exhibits
2. Demonstrates methods in preventing edema

3. Is less worried

- a. stop unpleasant circumstances
- b. Sleeps at night comfortably.⁵⁻⁷

Discussion

CHB occurs when atrial and ventral contractions are not coordinated at their own rate with each other to have a detrimental effect on the function of the heart. In AV node, for former sites, CHB may occur. Almost always, intranodal or Hisian blocks are marked by get away rhythms with small QRS complexes, while infra-Hisian blocks often have broad QRS complex leaks. A number of articles related to cardiovascular health and risk factors are available⁸⁻¹⁰. Effect of Alirocumab was studied and reviewed by Bittner et al¹¹ on lipoprotein(a) and cardiovascular risk after acute coronary syndrome; by Goodman et al¹² on cardiovascular events after coronary bypass surgery and by Jukema et al¹³ on recent acute coronary syndrome. Ray et al studied the Impact of alirocumab on cardiovascular and metabolic outcomes of acute coronary syndrome in patients with or without diabetes¹⁴. Similar studies were reported by Steg et al¹⁵ and White et al¹⁶.

Strength

Patient was 71 year male patient tolerate all the medication and well response within seven days to the therapeutic treatment of the hospital which was given as a treatment.

Informed Consent

Before taking this case, information was given to the patients and their relatives and Informed consent was obtained from patient as well as relatives.

Conclusion

The patient was admitted to hospital with the chief complaint was severe chest pain, breathlessness, excessive palpitation, vertigo and profused sweating since in 4 months and his condition was very critical and the patient was admitted in AVBR Hospital, immediate treatment was started by health team member and all possible treatment were given and now the patient condition is satisfactory.

COMPETING INTERESTS DISCLAIMER:

Authors have declared that no competing interests exist. The products used for this research are commonly and predominantly use products in our area of research and country. There is absolutely no conflict of interest between the authors and producers of the products because we do not intend to use these products as an avenue for any litigation but for the advancement of knowledge. Also, the research was not funded by the producing company rather it was funded by personal efforts of the authors.

References

- [1] Ying Chi Yang, Rama KanthPata, Thein Tun Aung. A Case of Complete Heart Block With Diagnostic Challenge and Therapeutic Dilemma. *Journal of Investigative Medicine High Impact Case*. 2018; 6: 1–4; DOI: 10.1177/2324709618788110 journals.sagepub.com/home/hic.
- [2] Akanksha Agrawal, July 05 2018. Third degree atrioventricular block (complete heart block) available in medscape- <http://emedicine.medscape.com/article/151597-overview>.
- [3] Lewis's. 2011 Elsevier. *Medical surgical nursing, assessment and management of clinical problem*.
- [4] P Hariprasatha, 2016. *Textbook of cardiovascular and thoracic nursing. First edition-1st* 2016. Jaypee brothers medical publishers (p) Ltd. [website:www.jaypeebrothers.com](http://www.jaypeebrothers.com).
- [5] Brunner and Suddarth's, 2001. *Textbook of medical surgical nursing. Vol 1 & Vol 2"* 13th Edition. *Textbook-Medical-Surgical-Sudarth's*/dp/1451146663.
- [6] Harrison's, 2018. *principles of internal medicine. 19th edition. Volume- 1 & 2.* <https://booksdoctor.blogspot.com/2018/03/medical-surgical-nursing-made-incredibly-easy.html>.
- [7] Brunwald's, 2008. *Heart disease of cardiovascular medicine. Published by Elsevier. Eighth edition. Web site- www.elsevier.com*.
- [8] Khatib, M.N., R. Kirubakaran, S. Gaidhane, A.H. Shankar, and Z. Quazi Syed. "Yoga for Improving Functional Capacity, Quality of Life and Cardiovascular Outcomes in People with Heart Failure." *Cochrane Database of Systematic Reviews* 2017, no. 7 (2017). <https://doi.org/10.1002/14651858.CD012015.pub2>.

- [9] Choudhari, M.S., M.I. Sonkusale, and R.A. Deshpande. "Sudden Cardiac Arrest on 5 Th Day after Coronary Artery Bypass Graft Surgery: Diagnostic Dilemma." *Annals of Cardiac Anaesthesia* 21, no. 3 (2018): 341–42. <https://doi.org/10.4103/aca.ACA-214-17>.
- [10] Papalkar, P., S. Kumar, S. Agrawal, N. Raisinghani, G. Marfani, and A. Mishra. "Heterotaxy Syndrome Presenting as Severe Pulmonary Artery Hypertension in a Young Old Female: Case Report." *Journal of Gerontology and Geriatrics* 66, no. 2 (2018): 59–61.
- [11] Bittner, Vera A., Michael Szarek, Philip E. Aylward, Deepak L. Bhatt, Rafael Diaz, Jay M. Edelberg, Zlatko Fras, et al. "Effect of Alirocumab on Lipoprotein(a) and Cardiovascular Risk After Acute Coronary Syndrome." *Journal of the American College of Cardiology* 5, no. 2 (January 21, 2020): 133–44. <https://doi.org/10.1016/j.jacc.2019.10.057>.
- [12] Goodman, Shaun G., Philip E. Aylward, Michael Szarek, Vakhtang Chumburidze, Deepak L. Bhatt, Vera A. Bittner, Rafael Diaz, et al. "Effects of Alirocumab on Cardiovascular Events After Coronary Bypass Surgery." *JOURNAL OF THE AMERICAN COLLEGE OF CARDIOLOGY* 74, no. 9 (September 3, 2019): 1177–86. <https://doi.org/10.1016/j.jacc.2019.07.015>.
- [13] Jukema, J. Wouter, Michael Szarek, Laurien E. Zijlstra, H. Asita de Silva, Deepak L. Bhatt, Vera A. Bittner, Rafael Diaz, et al. "Alirocumab in Patients With Polyvascular Disease and Recent Acute Coronary Syndrome ODYSSEY OUTCOMES Trial." *JOURNAL OF THE AMERICAN COLLEGE OF CARDIOLOGY* 74, no. 9 (September 3, 2019): 1167–76. <https://doi.org/10.1016/j.jacc.2019.03.013>.
- [14] Ray, Kausik K., Helen M. Colhoun, Michael Szarek, Marie Baccara-Dinet, Deepak L. Bhatt, Vera A. Bittner, Andrzej J. Budaj, et al. "Effects of Alirocumab on Cardiovascular and Metabolic Outcomes after Acute Coronary Syndrome in Patients with or without Diabetes: A Prespecified Analysis of the ODYSSEY OUTCOMES Randomised Controlled Trial." *LANCET DIABETES & ENDOCRINOLOGY* 7, no. 8 (August 2019): 618–28. [https://doi.org/10.1016/S2213-8587\(19\)30158-5](https://doi.org/10.1016/S2213-8587(19)30158-5).
- [15] Steg, Philippe Gabriel, Michael Szarek, Deepak L. Bhatt, Vera A. Bittner, Marie-France Bregeault, Anthony J. Dalby, Rafael Diaz, et al. "Effect of Alirocumab on Mortality After Acute Coronary Syndromes An Analysis of the ODYSSEY OUTCOMES Randomized Clinical Trial." *CIRCULATION* 140, no. 2 (July 9, 2019): 103–12. <https://doi.org/10.1161/CIRCULATIONAHA.118.038840>.
- [16] White, Harvey D., Ph. Gabriel Steg, Michael Szarek, Deepak L. Bhatt, Vera A. Bittner, Rafael Diaz, Jay M. Edelberg, et al. "Effects of Alirocumab on Types of Myocardial

Infarction: Insights from the ODYSSEY OUTCOMES Trial.” EUROPEAN HEART
JOURNAL 40, no. 33 (September 1, 2019): 2801–9.
<https://doi.org/10.1093/eurheartj/ehz299>.

UNDER PEER REVIEW