**HYPERTENSIVE HEART DISEASE**

Patient M reported to the hospital with complaints of chest pain and tightness, shortness of breath, fatigue, pain in the neck, back, arms, and shoulders, persistent cough, loss of appetite, and ankle swelling for two weeks. The blood pressure on admission was 174/102mmHg. After investigations, the patient was diagnosed with hypertensive heart disease with congestive heart failure and high blood pressure. The patient has then put on the ant-failure and antihypertensive regimen. That is Amiloride 5mg twice a day and Labetalol 100mg twice daily.  The condition improved. The disease was as a result of chronic complications of prolonged high blood pressure. The Framingham study reveals that hypertension contributes about a ¼ of the heart failures. Additionally, the community-based research indicates that hypertension has led to heart failures in 50-60% of patients (Go et al., 2013).

The patient was found with cardiovascular effects caused by hypertension including changing the structure of the myocardial, coronary vasculature and the entire heart conduction system. The changes were due to untreated and prolonged high blood pressure.

During the investigation and testing, other conditions such as sleep apnea, atrial fibrillations, and congestive heart problems due to other causes and athletes heart were taken into consideration because they are etiologically related to hypertension. Also, the patient was educated about self-health status, more so, the nature of the heart disease and hypertension related risks identified. This is important as it helped the patient on the update of appropriate future actions such as dietary changes, regular body exercise, regular medical checkups, weight loss and avoiding foods and drugs that increase the disease.

 The cause of the disease was determined to be hemodynamic complications and cellular related factors. These factors develop major hypertension complications. Also, patient M was found to be obese after the laboratory examinations. Obesity has been found to be another cause of the disease. As research indicates, 50% of obese patients have some hypertension complications. It further reveals that 60-70% of the hypertensive patients are also affected by obesity (Go et al., 2013).

 After further study, it was found that this disease had caused several effects to the patient. It was discovered that the left ventricle had been affected by the left ventricular hypertrophy (LVH) complications. Further studies indicated that the risk increases by two folds in obese patients. The LVH complications have been termed as an increase in the mass of the left ventricle that is caused by myocytes responding to the changes resulting from high blood pressure. The myocytes can also develop as a result of a response to increased afterload. The LVH has patterns such as concentric remodeling, concentric LVH, and the eccentric LVH. People with hypertension disease are commonly seen to be affected by the concentric LVH, with increased left ventricle thickness and mass thus leading to increased left ventricle diastolic pressure and volume (Go et al., 2013). There are high risks of developing systematic hypertensive heart disease among people with a larger mass of the left ventricle.

Lastly, the patient was found with heart failure complication that resulted from hypertension. Heart failure, diastolic and systolic dysfunctioning, decompensating and myocardial ischemia are other complications resulting from hypertension not forgetting atrial fibrillation. The atrial fibrillation is majorly caused by high blood pressure (Go et al., 2013). Then in return results to decompensating of the systolic and diastolic dysfunctioning if not detected earlier could cause a stroke.

 Physical and laboratory tests that aided in diagnosing the patient were performed to determine the etiology of the disease and the extent of spread.  The physical tests that were done were arterial pulses which was quite normal in the initial stages of the disease. The pulses provide the cardiac rhythm which determines the risk of the hypertension disease. Therefore, the regularity of the cardiac rhythm is determined by the sinus rhythm while the atrial fibrillation determines the irregular rhythm. Thus the pulses provide for the heart rates when a person has a normal heart rate, then the heart is at sinus rhythm, while at abnormal, then the heart has a decompensated heart problem. For this case of patient M, it was found with abnormal heart rates due to the irregular rhythm of the heart.

Laboratory examinations on various parts of the body such as the veins, lungs, heart, abdomen, and extremities were performed. These examinations are of critical use as they may help determine the associated organ. For instance, the affected patient’s veins test and studies indicated that patient had the hypertensive disease because the jugular veins were distended.

Hypertension is not typically categorized into stages as some diseases but rather in a given pattern. After several test and laboratory examinations on the patient, it was determined that it started with an increase in wall stress that leads to LVH, which in turn caused diastolic LV dysfunctioning. This was followed by systolic LV dysfunctioning that resulted into complex and chronicity of hypertension. The laboratory studies were important because they help to determine the sequence of the disease and establish the cause, and the organ damage target and the right treatment to be administered. After these tests, the patient was found with systolic LV dysfunctioning which is among the earlier patterns of the disease thus made the treatment easier as no major complications were associated.

The diagnosis of this hypertensive patient was as provided by the Seventh Report of the Joint National Committee (JNC 7) on prevention, detection, evaluation and its treatment (Go et al., 2013). It involved the following; application of electrocardiogram, urinalysis, testing the glucose and hematocrit levels, serum potassium, creatine and calcium quantities. Also, lipid profile after a range of 9-12 hours that involves the high density and low-density lipoprotein cholesterols were done with optimal examinations that involved measuring the urinary albumin excretion or a ratio of excretion. The transthoracic echocardiography is very important as it identifies the features of this disease due to its sensitiveness and specific than electrocardiography. The cardiac catheterization was applied for the diagnosis of the coronary artery disease, and it helped to determine the severity of increased pulmonary artery pressure in hypertension patient which normal.

The treatment to hypertension patients is categorized into two stages. The first one is the treatment of the high blood pressure and its prevention. This case of patient M fell under the second stage of treatment which is the treatment of hypertension. As provided by the JNC 7, blood pressure targets should include, below 140/90 mmHg for patients whose hypertension is uncomplicated. It should be below 130/85 mmHg for diabetic patients with renal disease of less 1g/24 hours proteinuria, and finally, it should be below 125/75 mm Hg in patients with renal disease who have more than 1g/24 hour proteinuria (Go et al., 2013).

Patient M benefited from care and management from clinicians and physicians like preventive cardiologists, hypertension, and heart failure specialists, heart failure nurses, electro physiologists, and sleep, specialists. Now the patient should include preventive, and treatment actions like dietary procures, regular aerobic exercises, ensure weight reduction and pharmacotherapy for hypertension, heart failure and systolic and diastolic LV dysfunctioning.

The dietary changes the patient was advised to consider include, low sodium intake in diets but take in high potassium, to take diets rich in fresh fruits and vegetables regularly, low cholesterol and low consumption of alcohol. Also, patient M was educated not to have the body mass below 25 kg, partake in vigorous body exercise, and to ensure a high score on the dietary lifestyles to stop the disease and nonnarcotic analgesic consumption in less than once in a week.

**References**

Go, A. S., Mozaffarian, D., Roger, V. L., Benjamin, E. J., Berry, J. D., Borden, W. B., and Dai, S. (2013). Executive summary: heart disease and stroke statistics—2013 update: a report from the American Heart Association. *Circulation*, *127*(1), 143–152.