Cardiovascular Disease

Name

Institution

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Introduction

Cardiovascular disease is the wide phrase that is utilized to describe ailments that involve the lifeblood vessels or the heart. The blood flow to the body, brain or heart can be decreased due to blood clots or the deposition of fatty deposits in the artery making the vessels narrow and harden (Baxter & Funke, 2016) .The four main types of heart illness are the aortic sickness, stroke, peripheral arterial malady and coronary heart ailment. However, there are other heart illnesses that affect the heart which entails the rheumatic heart disease, venous thrombosis, heart arrhythmia, hypertensive heart disease and carditis (Maniar & Bittner, 2015). The coronary heart disease takes place when the surge of blood that is rich in oxygen is reduced or blocked due to the building-up of fatty material leading to angina. Also, stroke is a terrible medical condition that is caused by the collapse of the blood to run to the brain or a abrupt cut off blood supply to regions of the brain (Bogaev & Meyers, 2015). Thirdly, the peripheral arterial disease occurs when the arteries on the limbs are blocked. Additionally, the aortic disease is the ailment on the aorta which occurs as a result of weakened wall making it bulge outwards.

Pathophysiology

Atherosclerosis is the main cause of the cardiovascular ailment. Atherosclerosis is the condition where the plaques build up on the sides of the arteries making them harden and narrow thus causing the heart diseases (Hinson et al, 2015). The common risk factors for atherosclerosis are cigarette smoking, hypertension, and hypercholesterolemia. Other risk factors include the lack of exercise, diabetes, ethnic background, family history and being obese or overweight as well as alcohol. The risk factors unite to meet convergence of mechanism that entails the inflammation and oxidation in the artery lining which with time leads to the fatty-fibrous lesions

(Pavlovic et al., 2016). Moreover, the inflammation and physical trauma produce lesion rupture that results in clinical events such as stroke and heart attack or resolve with the plaque development.

Furthermore, the heart disease progression is marked by the formation of inflammatory indicator known as C-reactive protein (CRP). However, early indicators of the cardiovascular diseases are the cardiac myofilament protein and inflammatory marker CD40 (Tran et al., 2016). The disordered signaling of calcium to the myofilaments takes place in heart failure and cardiomyopathy. Besides, the biochemical and neuro-humoral process are present in hypertension which produces cardiac hypertrophy that makes an individual vulnerable to heart failure via apoptosis. Nevertheless, cardiac damage in human beings produces lasting loss of cells since the heart is not able to regenerate. The precursor of heart ailments begins as early as childhood with the initial lesions appearing in the aortas and right coronary arteries (Hinson et al, 2015). Everyone among three people dies due to complications caused by atherosclerosis.

Complications

The complications caused by the heart disease include the heart attack, heart failure, stroke, sudden cardiac arrest, peripheral artery disease and aneurysm. An individual becomes less functional and unable to carry out daily activities as well as being bed-ridden. Additionally, the family with a patient suffering from the cardiovascular disease tends to have a burden of taking for his or her care as well as increased medical bills (Maniar & Bittner, 2015). A lot of time is spent when taking care of the patient as well as resources which have a negative impact on the physical and psychological well-being of the patient.

Signs and Symptoms

The signs and symptoms of the heart disease depend on the form of the cardiovascular disease that an individual has. There are some symptoms and signs that are present in all types of cardiovascular ailments while others are not indicative of various conditions of the heart. The primary symptoms of heart disease include leg pain, angina, shortness of breath, fatigue, fainting and lightheadedness and palpitations (Baxter & Funke, 2016). Squeezing and tightness sensation in the chest indicates heart attack while chest ache that gets worse when a person is lying down is due to pericarditis. Pain, coldness, numbness and numbness in the arms or legs illustrate the peripheral artery disease.

Additionally, the backing of fluids into the lungs due to the failure of the heart leads to shortness of breath which gets worse when lying down (Pavlovic et al., 2016). Fatigue is a common symptom of the heart ailment which is caused by the insufficient blood surge to the muscles together with the reduced availability of oxygen due to the fluid retention in the lungs. The inadequate blood run to the brain leads to abnormal heart rhythm which leads to fainting. Besides, the signs that indicate the cardiovascular condition comprises of cyanosis, pale or clammy appearance, shallow or rapid breathing, low or high blood pressure and swollen veins in the neck (Hinson et al, 2015). Other signs include swelling of the ankles and feet, enlarged heart, cool extremities, fluid in the lungs abnormal heart sounds and absent or reduced pulses in the extremities.

Progression Trajectory

The group of risk factors related to atherosclerosis defines the metabolic syndrome and leads to cardiometabolic peril. The accumulation of fat in the body, as well as the formation of the plaques, leads to blockage and hardening of the blood vessels leading to atherosclerosis. The

first step of atherosclerosis entails the adhesion of white blood cells to the activated monolayer of the artery which is migrated to the intima where the maturation of monocytes takes place to become macrophages which uptakes lipids that yield a foam cell (Bogaev & Meyers, 2015). The lesion formation comprises of the migration smooth muscle cells from media to intima which heightens the formation of the extracellular matrices such as elastin, collagen, and proteoglycans. The smooth muscle cells and plaque macrophages can die while the lipids from the dying and dead cells accumulate the central part of the plaque (Maniar & Bittner, 2015). Moreover, the advancing plaque has got microvessels and cholesterol crystals which make it hard to dissolve. The plaque tends to block the blood vessels leading to the emergence of heart ailments.

Diagnostic Testing

The test for heart condition depends on the category that the physician thinks that the patient has depending on the signs and symptoms. However, a doctor will always ask about family and personal history prior any test. The chest x-ray and blood tests that are used to diagnose cardiovascular ailments include Holter monitoring, cardiac catheterization, electrocardiogram, echocardiogram, magnetic resonance imaging and CT scan (Tran et al., 2016). The electrocardiogram detects the electrical signals and helps the doctor to determine the irregularities on the heart's structure and rhythm. Secondly, the Holter monitoring comprises the use of a portable device that a person wears to record the electrocardiogram for about 24 to 72 hours which helps in identifying any abnormality in pulse rate (Pavlovic et al., 2016).

Treatment Options

The remedies for cardiovascular disease vary with the condition, but the general treatments include the medications, lifestyle changes, and surgery. Lifestyle changes include eating healthier diets such as low-fat and sodium diet, quitting smoking, limiting alcohol intake

and engaging in moderate physical exercises (Baxter & Funke, 2016). The type of medication used in the treatment of heart disease depends on the type of the ailment while the surgery to be done depends on the damage to the heart and the form of the condition. However, the prevention of the cardiovascular disease entail reduced sugar intake, decreased psychosocial anxiety, lower blood pressures, tobacco cessation, high fiber diet, low-fat diet and decreased bad cholesterol (Maniar & Bittner, 2015).

Key Ideas to be shared

The primary notions to be shared with the family and patient during the management of cardiovascular diseases include quitting smoking, managing stress, aiming for healthy weight and involving activity. Habitual physical activity, as well as the reduction in sedentary living, improves the physical fitness hence decreasing the risks for heart disease such as decreasing bad cholesterol and raising good quality cholesterol in the blood, helping in losing weight and controlling the elevated blood pressure (Hinson et al, 2015). The patient should take part in moderate aerobic exercises for 30 minutes to 3 hours in every week or vigorous exercises for 15 minutes to 1 hour. Stress contributes to increased blood pressure and various cardiovascular risks hence the patient should be able to cope and manage stress. Stress can be managed through being physically active, practicing meditation, relaxation therapy and conversing with community, family or friends. Losing and maintaining healthy weight helps in lowering glucose and triglycerides in the blood thus reducing the risks for heart diseases (Maniar & Bittner, 2015). Moreover, a patient with cardiovascular disease should have a heart-eating practice which comprises of eating fruits, vegetables, low-fat or fat-free products, whole grains, lean meats, legumes and vegetable oil. Additionally, quitting smoking is necessary for the cardiovascular

disease victims since smoking increases the risk of developing heart attack and coronary heart disease as well as worsening other cardiovascular illnesses.

Key Interdisciplinary Team

Patients who are diagnosed with heart diseases work with several healthcare professionals, and it is important to have a good association with the team members since they all play a vital role in the management of the condition. The interdisciplinary team is made of a cardiologist, primary care physician, dietitian, other doctors, nurse practitioner and clinical nurse specialist. Moreover, the management team comprises of case manager and social worker, occupational and physical therapist as well as the pharmacist (Tran et al., 2016). The primary care medical doctor offers the client with routine deterrent healthcare as well as basic and physical tests. The caregiver and patient are the indispensable parts of the team. The patient is responsible for following the instructions offered by the experts as well as letting them know his or her problems and progression. However, good communication and teamwork improves the quality of life and makes the client feel better.

Facilitators and Barriers to Optimal Management and Outcome

The barriers that prevent optimal outcome and management of heart disease include the high cost of services, low awareness, socio-cultural issues, lack of health care amenities as well as the delay in referring patients for screening and treatment (Hinson et al, 2015). Low awareness is the personal barrier that hinders appropriate management and outcome of the cardiovascular disease since people are less aware of the symptoms, treatment options, screening and preventive measures. The increased cost for the heart disease remedies acts as the obstacle for individuals to keep a routine visit to the hospital or purchase the required prescriptions. Furthermore, lack of health facilities that can deal with heart disease patients increases the difficulties of dealing the illness (Bogaev & Meyers, 2015). However, the barriers can be

reduced by dropping the treatment cost, providing proper health facilities and increasing people awareness about the heart diseases. The attentiveness can be achieved through the mass media, planning regular and routine check-ups. Furthermore, patients should be involved in the medical procedures which would ensure that the care instructions are followed accordingly (Maniar & Bittner, 2015). Additionally, facilities that are specialized with heart disease treatment should be increased and be equipped with necessary machines to ensure that patients receive standard health care.

Care Plan

The main aim of the treatment of the cardiovascular diseases includes relieving symptoms, prevention of heart disease complications, lowering the risk of blood clotting and reducing the risk factors that fastens the plaque formation (Baxter & Funke, 2016). Besides, the care priorities comprise of reducing fluid volume, improve myocardial contractility and provision of the information about the prognoses, therapy requirements, and relapse prevention measures. Likewise, the discharge aims include complication resolved, adequate cardiac output, functioning attained, ailment process understood and plans for the follow-up clinics. The care plan for the cardiovascular disease entails the six care plans that include reduced cardiac productivity, surplus fluid retention, activity bigotry, deficient knowledge, compromised gas exchange and diminished skin integrity.

Decreased Cardiac Output

The decreased cardiac output diagnosis can be associated with structural changes, alterations in pulse rate and inotropic changes. The evidence includes extra sound, diminished peripheral pulses, increased heart rate, reduced urine output, chest pain, and orthopnea. Furthermore, the desired outcomes include decreased episodes of angina and dyspnea,

dysrhythmias absent, and taking part in actions that reduce heart workload (Pavlovic et al., 2016). The interventions comprise of noting heart sounds, monitoring blood pressure, palpating peripheral pulses, inspecting skin for cyanosis and pallor as well as monitoring urine output. Also, other interventions include the provision of bedside commode, checking calf tenderness and administering supplemental oxygen. The drugs to be used include the diuretics, vasodilators, morphine sulfate, digoxin, inotropic agents, and anticoagulants (Tran et al., 2016). The rationale for medication and other interventions is to reduce congestion, improve contractility and amplify the stroke volume. Moreover, the oxygen supplement increases oxygen availability for the myocardial uptake to fight the impacts of hypoxia.

Excess Fluid Volume

The extra fluid volume in the heart could be linked with decreased glomerular filtration rate, increased antidiuretic hormone secretion and water or sodium retention. The possible evidence of the diagnosis comprises of weight gain, hypertension, orthopnea, oliguria, respiratory distress, and edema. Desired outcomes include clearing breath sounds, stable weight, fluid restrictions, and absence of edema (Maniar & Bittner, 2015). Interventions are monitoring urine output, maintaining bed or chair rest, fluid restriction, weigh daily, evaluating the distended peripheral and neck vessels as well as monitoring blood pressure. The prescriptions should comprise of diuretics and potassium supplements. Other interventions include consulting the dietitian, monitoring chest x-ray, palpating the abdomen and measuring the abdominal girth. Moreover, the reason for providing potassium supplement is to replace the lost potassium due to the side effects of diuretic remedy which can affect the heart function (Baxter & Funke, 2016).

Impaired Gas Exchange

The impaired gas exchange diagnosis could be related to the fluid collection. The desired outcomes include the demonstration of adequate oxygenation and ventilation of tissues and taking part in the treatment regimen. Besides, the interventions include noting the crackles and sounds, encouraging position adjustments, administering oxygen supplement and use of diuretics and bronchodilators. Moreover, instruct the patient to breathe deep and effective coughing as well as maintaining bed or chair rest (Tran et al., 2016). The rationale for medications and other interventions is to reduce the oxygen need and promote maximum lung inflation as well avert pneumonia and atelectasis. Besides, diuretics reduce the congestion in alveolar thus enhancing gas flow while the bronchodilators amplify the oxygen distribution by dilating the airways which reduce pulmonary congestion (Hinson et al, 2015).

Activity Intolerance

The activity intolerance would be related to the extended bed relax, generalized limitations, and unevenness between demand and supply oxygen. However, the possible evidence includes dyspnea, pallor, fatigue, diaphoresis and dysrhythmias. The desired results comprise of participation in activities and achieving measurable amplification in activity tolerance. Likewise, the interventions are checking vital signs prior and immediately after the exercise particularly if the client is receiving diuretics, beta-blockers or vasodilators (Maniar & Bittner, 2015). Also, assess the causes of fatigue and documenting the heart rate responses to the activity. The intervention improves and strengthens the heart function by gradually increasing the activity to avoid extra myocardial oxygen consumption and workload. Furthermore, the interventions prevent deep vein thrombosis as a result of vascular congestion.

Deficient Knowledge

The deficient of knowledge would be associated with lack of awareness or misconceptions regarding interrelatedness of heart disease or function. Possible evidence includes recurrent of the disease, misconceptions, and questioning. However, the results should be the recognition of links between the therapies, identifying stress and initiating behavioral or lifestyle changes (Hinson et al, 2015). Additionally, the interventions include the discussion about the normal heart actions, reinforcing remedy rationale, encouraging regular home exercise, discussing the important of certain food restrictions and being active. Besides, the patient should be referred to the dietician, recommend taking the diuretic in the morning as well as explaining the risk factors associated with cardiovascular diseases (Bogaev & Meyers, 2015). The rationale for the interventions is to add the knowledge and allow the patient to create informed choices concerning the management of the ailment as well as the prevention measures.

Impaired Skin Integrity

The risk for impaired skin integrity would be due to edema, prolonged bed rest and decreased tissue perfusion. However, the required results include the maintenance of skin integrity and demonstration of behaviors that avert skin breakdown. The intervention comprises of gentle massage around the blanched or reddened region, providing skin care and inspecting skin as well as the presence of edema (Maniar & Bittner, 2015). Also, avoid intramuscular administration of drugs and offer alternating pressure and protectors. The reason for avoiding intramuscular medication is because the edema impedes medicine absorption thus predisposing the tissue to breakdown as well as the development of infection. Moreover, gentle massage promotes the blood surge thus reducing the tissue hypoxia.

Conclusion

Cardiovascular illness is the wide term that describes several diseases that affect the heart or vessels. The major types of heart disease include aortic illness, peripheral arterial disorder, stroke and coronary heart ailment. The primary cause of cardiovascular illness is atherosclerosis which leads to the hardening and narrowing of arteries due to the formation of plaques. However, the risk factors include high cholesterol, smoking, hypertension, and genetics. Besides, the signs and symptoms of heart ailment include angina, fatigue, leg pain, and breathe shortness. The remedy for cardiovascular disease comprises of lifestyle change, medication and surgery.

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