

Cardio Vascular Disease: Risk factors that Leads to Atherosclerosis

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ABSTRACT

Cardiovascular disease is caused due to some various heart diseases in that our major topic is Atherosclerosis. Atherosclerosis is caused by plaque (fatty deposits) build up in the arteries. These deposits are made up of cholesterol, fatty substance, cellular waste products, calcium and fibrin. It is a chronic inflammatory disease of the arteries and the underlying cause of about 50% of all deaths in westernized society. It mainly develops through the continuous process of arterial wall lesions due to lipid retention by trapping in the intima by a matrix (example proteoglycans) resulting in a modification which then aggravates chronic inflammation vulnerable sites in the arteries. This plays an important role in all phases of atherogenic progression.

Keywords — Atherosclerosis, risk factor

I. INTRODUCTION

Atherosclerosis is a hardening of your arteries caused by gradual plaque build-up factors include high cholesterol, high blood pressure, diabetes, smoking, obesity, lack of exercise and a diet high in saturated fat, atherosclerosis develops over time and may not show symptom until you have complications, like a heart attack or stroke. Atherosclerosis is a disease that happens when plaque builds up on the inside walls of arteries. Arteries are blood vessels that deliver blood and oxygen from the heart to the rest of the body. Plaque is a sticky substance made of fat cholesterol, calcium and other substances. As plaque build-up, arteries become and narrow.

should be a concern is the increasingly younger age group having onset of symptoms, as early as 35 years old. The progress of atherosclerosis depends on several factors – traditional: hypertension, hyperlipidaemia and diabetes mellitus, then age, sex, stress smoking and sedentary life- style. Atherosclerosis can lead to serious health problems and medical emergencies including:

- Blood clots
- Carotid artery disease
- Chorionic kidney disease
- Coronary artery disease
- Heart attack
- Peripheral artery disease
- Stroke

The increasing incidence makes the atherosclerosis a leader of morbidity and mortality in the developing world. The other things that

II THE FACTORS FOR ATHEROSCLEROSIS

NON-MODIFIABLE	MODIFIABLE
Increasing Age	Hyperlipidaemia: Alcohol
Male Gender	Hypertension: Obesity
Family History	Cigarette, Smoking
Genetic Abnormalities	

A. INFLAMMATION

- Lipoprotein
- Hyperhomocystinemia
- Metabolic syndrome
- Factors affecting haemostasis
- Stressful lifestyle and obesity

III. STAGES OF ATHEROSCLEROSIS

There are several stages of atherosclerosis each stage involves changes in the artery wall. These stages involve changes in the artery wall. These changes are so tiny that you can't see most of them without a microscope. but they add serious damage to artery. The stages of atherosclerosis happen over many years and they are often going undetected.

STAGE 1: Endothelin damage and immune response

STAGE 2: Fatty streak

STAGE 3: plaque growth

STAGE 4: Plaque rupture

B. SYMPTOMS OF ATHEROSCLEROSIS

Atherosclerosis is the often doesn't cause any symptoms until any artery is very narrow or entirely blocked. Many people do not even know there have conditions until a medical emergency, such heart attack. You may start noticing symptoms if artery is more than 70% blocked. The blockage causes blood flow to slow down as a result, you are body is not getting enough oxygen.

C. SOME EARLY WARNING SIGNAL INCLUDES,

- Chest pain(angina) while exercising this pain stops when you are rest

- Lag cramps when walking (intermittent claudication).
- Transient ischemic attack (TIA). This is a "mini stroke" that has the same symptoms as a stroke. But it goes away within a day and doesn't damage brain. If you have TIA. You're at risk of having a stroke within days.
- Chest pain, it may be mild discomfort or severe, crushing pain.
- Pain in one or both arms or shoulders.
- Discomfort in your neck
- Nausea or vomiting
- Heart palpitations
- Anxiety or a feeling of "impending doom"
- Sweating
- Dizziness or fainting.
- The blood clot or blockage can also lead to a stroke. Symptom of a stroke include.
- Sudden numbness or weakness in face, arms or legs, especially on one side of your body.
- Sudden trouble speaking or understanding others.
- Slurred or confused speech.
- Trouble seeing in one or both eyes.
- Severe dizziness or loose of sleep.

D. DIFFERENCE BETWEEN ATHEROSCLEROSIS ARTERIOSCLEROSIS

ATHEROSCLEROS	ARTERIOSCLEROSIS
This disease refers to problems caused by fats: high cholesterol, other substances that blocks the arteries with plaque.	It is a disease that occurs when the blood vessels fail to circulate oxygen and nutrients in the whole body.
The plaque is responsible for in appropriate blood flow in the body and can trigger blood clotting.	The heart pumps blood through arteries that contain essential nutrients blood vessels fail because they have become stiff or swollen-causing damage to other organs of the body with time.

E . PATHOLOGY OF ARTERIOSCLEROSIS AND ATHEROSCLEROSIS

Arteriosclerosis is a disease formed by the failure of blood vessels circulating oxygenated blood in the body. It occurs due to the damaged elasticity of the arteries. At the young age arteries are flexible, but as age increases, they become hardened and thick. The main reason for the hardened arteries is swollen arterial walls. This disease usually affects the old age groups.

Atherosclerosis is a fatal heart condition happening because of the deposition of plaque around the arterial walls. The gradual increase in plaque deposits is either because of the high cholesterol or fats. Blocked arteries break down the pressure of blood flow, causing cardiac diseases narrowed arteries are unable to circulate the required oxygenated blood in the blood.

F. RECOVERY AND TREATMENT FOR ARTERIOSCLEROSIS AND ATHEROSCLEROSIS

The treatment is followed by healthy diet plans and some lifestyle changes. Sometimes there can also be a possibility of taking medical or surgical treatment.

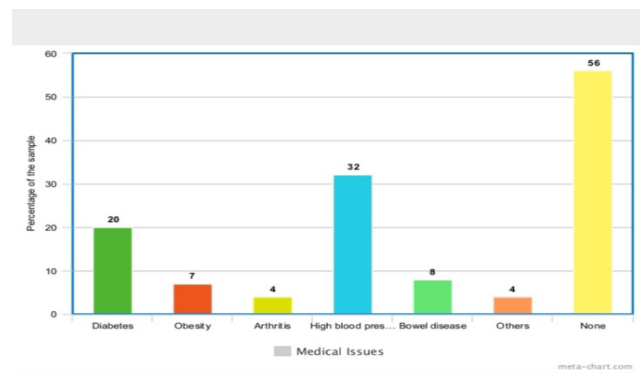
A balanced diet plan can be preventing the formation of blood clot. Medication will be prescribed based on the seriousness of the problem. However, some general medication can prevent symptoms from showing. Need to be measure you are blood pressure and cholesterol on a regular basis. Any unfortunate signs should be examined by the doctor immediately common treatment goals include,

- ✓ Lowering your risk of blood clots
- ✓ Helping you make healthier food choices
- ✓ Preventing complications like heart attack or stroke
- ✓ Slowing or stopping plaque buildup in your arteries
- ✓ Helping your blood flow heart better by widening arteries or by passing blockage

G. CASE STUDY

CASE 1

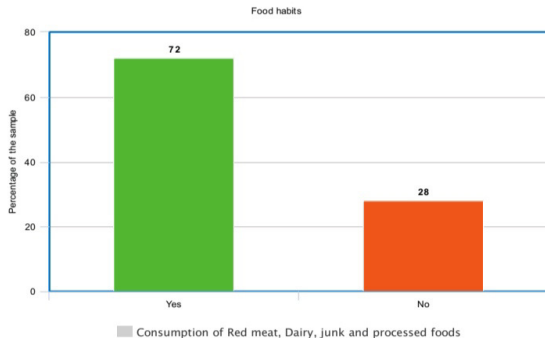
X-axis (medical issues)	Y-Axis (% of samples)
Diabetes	20%
Obesity	7%
Arthritis	4%
High blood pressure	32%
Bowel disease	8%
Other	4%
None	56%



In 30 samples, which are more prone to disease where also suffering from other medical issues, like 20% were suffering from diabetes, 7% were suffering from obesity, 4% were suffered from arthritis, 32% were suffering from high blood pressure, 8% were suffered from bowel disease, 4% were suffered from other issues and 56% were not having any medical issues, hence totally 59% of people were more prone to atherosclerosis disease.

CASE 2

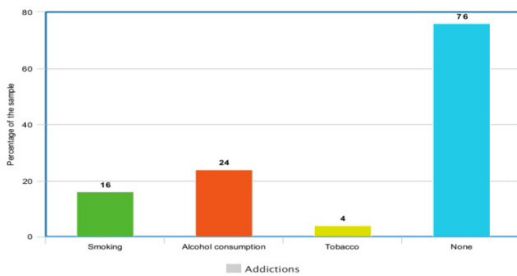
X-axis (red meat dairy junk foods)	Y-axis (%of samples)
Yes	72%
No	28%



In the samples we got were categorized into vegetarians and non-vegetarians and junk food dairy products consumptions. The percentage of sample that consumes red meat weekly thrice and consumes dairy products junk foods regularly were of 72% and 28% of sample were not consuming red meat junk food dairy products they follow healthy diet.

CASE 3

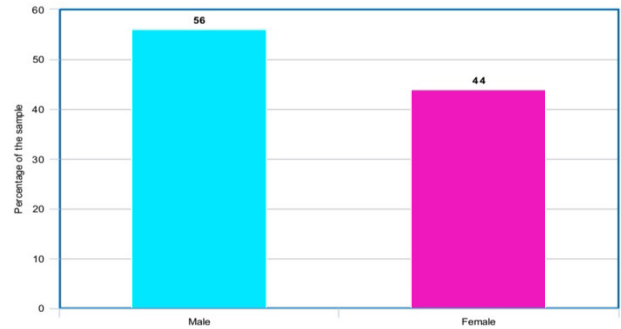
x-axis (addictions)	Y-axis (% of samples)
Smoking	16%
Alcohol consumption	24%
Tobacco	4%
None	76%



We categorize the samples in different aspects like addictions. In the samples 16% of people were addicted to smoking, 24% people were addicted to alcohol consumption, 4% of people were addicted to tobacco and 76% of people were not addicted to any habits hence totally 44% of people were more prone to disease because of addictions.

CASE 4

x-axis(gender)	Y-axis (% of samples)
Male	56%
Female	44%



In 60 samples 30 were more prone to atherosclerosis diseases in that 56% of male and 44% of female are more prone to diseases. The graph was plotted by considering all the aspects like food habits age exercise medical issues symptoms.

RESULT

Atherosclerosis is the building up of fat and cholesterol and other substances in and on the artery which obstructs the flow of blood. If untreated it may cause heart attack, carotid artery disease, blood clots, coronary artery disease, chronic kidney disease and stroke.

According to the responses collected and tabulated 88.8% people were prone to this disease in the future because of their food habits, addictions, lifestyle, and other medical issues. The rest 11.2% people on average are not prone but may or may not get this disease because researchers still say that it's unclear why atherosclerosis occurs but the main risk factor include high cholesterol and triglyceride levels, high blood pressure, smoking, diabetes, obesity, physical inactivity and high saturated fat diet.

CONCLUSIONS

At last, after taking the patient reports in reference we got to know what was the risk factor leading to atherosclerosis then later considering all the responses received we conclude that 88.8% people are prone to this disease. These signs and symptom of atherosclerosis may develop gradually and may be few as the plaque gradually builds up in the artery. However, when a major artery is blocked may be severe such as those acquiring with heart attack, stroke and blood clot. You can get diagnosed in a nearby hospital by simple tab test, ECG and Doppler solography. However, it can be treated by lifestyle changes medicines and surgery. It can also be prevented by adopting a healthy lifestyle a healthy diet losing weight being physically active and not smoking can help reduce your risk a healthy diet includes fruits vegetables whole grains meat skinless chicken, seafood and fat-free or low-fat milk dairy products and by liltng sodium, refined sugars grains and solid fats.

If you are at risk of atherosclerosis because of family history it is important that you take medicines as directed by your health care provider or doctor if your symptoms get worse or you have new symptoms like your health care provider

reduce the risk of atherosclerosis and have a healthy cardiac life.

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