

Diabetes complications: Cardiovascular disease and metabolic syndrome



Jin Gu*

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Description

Diabetes is a chronic metabolic disorder characterized by high blood glucose levels resulting from either inadequate insulin secretion or insulin resistance. Diabetes can lead to a number of complications, including cardiovascular and metabolic risks, which can significantly impact the health and quality of life of individuals with the condition.

Cardiovascular complications are the leading cause of morbidity and mortality in individuals with diabetes. Cardiovascular disease includes a range of conditions that affect the heart and blood vessels, such as coronary artery disease, heart failure, and stroke. People with diabetes are at a significantly higher risk of developing CVD than those without the condition. This is because high blood glucose levels can damage the blood vessels and nerves that control the heart and blood vessels, leading to a range of CVD risk factors such as hypertension, dyslipidemia, and inflammation.

Hypertension, or high blood pressure, is a common complication of diabetes. High blood glucose levels can cause damage to the blood vessels, leading to an increase in blood pressure. Hypertension can further damage the blood vessels, leading to atherosclerosis (hardening of the arteries) and an increased risk of heart attack and stroke. People with diabetes should aim for a blood pressure below 130/80 mmHg to reduce their risk of CVD.

Dyslipidemia, or abnormal lipid levels, is another common complication of diabetes. High blood glucose levels can lead to an increase in triglycerides and low-density lipoprotein cholesterol, and a decrease in High Density lipoprotein (HDL) cholesterol. This can lead to atherosclerosis and an increased risk of CVD. People with diabetes should aim for an LDL cholesterol level below 100 mg/dL and an HDL cholesterol level above 40 mg/dL for men and above 50 mg/dL for women.

Inflammation is also a key factor in the development of CVD in people with diabetes. High blood glucose levels can cause inflammation in the blood vessels, leading to the formation of plaques and an increased risk of heart attack and stroke. In addition to controlling blood glucose levels, reducing inflammation through lifestyle changes such as a healthy diet, regular exercise, and quitting smoking can help to reduce the risk of CVD in people with diabetes.

Metabolic complications are another important aspect of diabetes that can impact the health and quality of life of individuals with the condition. Metabolic syndrome is a cluster of conditions that include abdominal obesity, hypertension, dyslipidemia, and insulin resistance. People with metabolic syndrome are at a significantly increased risk of developing CVD and type 2 diabetes.

Abdominal obesity is a key feature of metabolic syndrome and is characterized by excess fat around

Department of Endocrinology, Missouri State University, Springfield, USA
*Author for correspondence: jingu@gmail.com

the waist. This type of obesity is particularly harmful as it is associated with insulin resistance, dyslipidemia, and inflammation. People with diabetes should aim for a waist circumference of less than 40 inches for men and less than 35 inches for women to reduce their risk of metabolic complications.

Insulin resistance is another important factor in the development of metabolic complications in people with diabetes. Insulin resistance occurs when the body becomes less sensitive to insulin, the hormone responsible for regulating blood glucose levels. This can lead to high blood

glucose levels, which in turn can lead to a range of metabolic complications such as dyslipidemia and hypertension. Lifestyle changes such as a healthy diet and regular exercise can help to improve insulin sensitivity and reduce the risk of metabolic complications in people with diabetes.

In addition to CVD and metabolic complications, people with diabetes are also at an increased risk of developing other health problems such as nerve damage, kidney disease, and eye problems. Diabetic neuropathy is a type of nerve damage that can cause tingling, numbness, and pain in the hands and feet.