Cardiology – Dyslipidemia

Whiteboard Animation Transcript
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Cholesterol and triglycerides are essential lipids that are carried within lipoproteins in order to become soluble in aqueous plasma. Cholesterol is carried in LDL and HDL particles, while triglycerides are carried in chylomicron and VLDL particles. Dyslipidemia is defined as abnormal levels of one or multiple lipids or lipoproteins.

Severely elevated cholesterol usually results from elevated LDL, which can be genetic, such as in familial hypercholesterolemia, seen in approximately1 in 300 people often with telltale clinical signs.

High LDL is frequently associated with secondary factors including a poor diet, obesity, hypothyroidism, kidney or liver disease, and certain medications. High LDL cholesterol increases the risk of cardiovascular disease, especially coronary heart disease. Management includes diet and lifestyle intervention in all patients, and selective medication use in patients with high cardiovascular risk.

Statins were initially developed to treat familial hypercholesterolemia. However, the pronounced benefits seen in numerous randomized clinical trials have made statins part of standard-of-care guidelines for patients with clinically obvious vascular disease, for most diabetic patients, and for asymptomatic high-risk patients, including those with multiple risk factors, hypertension, moderate renal impairment and family history of cardiovascular disease.

In patients who don't achieve satisfactory LDL cholesterol reduction or can't tolerate a statin, there are several currently available **second-line drugs** – ezetimbe, niacin, bile acid resins, fibrates, and newly approved injectable PCSK9 inhibitors.

Hypertriglyceridemia can be genetic, but is usually associated with secondary factors including poor diet, alcohol use, obesity, metabolic syndrome, diabetes, and certain medications. Extremely high triglyceride levels increase risk of acute pancreatitis; patients with such levels sometimes have unique clinical signs. Treatment includes diet and lifestyle advice, control of secondary factors and selective medication use. Use of statins when triglycerides are moderately elevated can help reduce cardiovascular risk; use of fibrates when triglycerides are severely elevated can reduce risk of pancreatitis.