

# ABSTRACT

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Title of Diploma Thesis: Pathophysiology and therapy of hypercholesterolemia

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Background: The aim of this diploma thesis was to describe the origin and pathophysiology of cholesterol metabolism and to summarize the findings concerning the current pharmacotherapy of hypercholesterolemia.

Main findings: High cholesterol bothers most of the adult population. Hypercholesterolemia is the major risk factor for atherosclerosis. If it is not treated it is considered to be a risk factor of cardiovascular diseases. For instance, myocardial infarction, angina pectoris and stroke. In addition to genetically acquired dyslipidemias, some diseases and drugs can increase cholesterol levels. It is important to warn patients first and foremost about following the given regime and dietary measures. If these measures don't work, pharmacotherapy is indicated, which is currently at a high level, and there are enough drugs that lower the cholesterol.

Conclusions: At present, we still have new substances available that, in combination with already established pharmacotherapy (statins, fibrates, ezetimibe), should lower cholesterol levels to the required values. These include anti-PCSK9 monoclonal antibodies, bempedoic acid, lomitapide, antisense oligonucleotides, anacetrapib, inclisiran and evinacumab.

Keywords: cholesterol, lipoproteins, hypercholesterolemia, pharmacotherapy, statins, fibrates, ezetimibe, niacin, bile acid sequestrants, PCSK9-inhibitors, bempedoic acid, lomitapide, mipomersen, CETP-inhibitors, inclisiran, evinacumab.