eReports

Dyslipidemia

Contemporary Evaluation and Management

Evan M. Sisson and McKenzie Calhoun
Michael A. Crouch, Guest Editor

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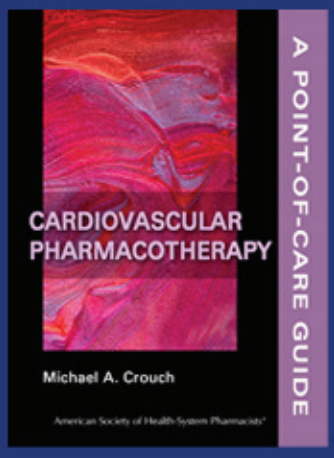

ashp publications

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Any correspondence regarding this publication should be sent to the publisher, American Society of Health-System Pharmacists, 7272 Wisconsin Avenue, Bethesda, MD 20814, attention: Special Publishing.

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Director, Special Publishing: Jack Bruggeman
Acquisitions Editor: Robin Coleman
Editorial Project Manager: Ruth Bloom
Production Manager: Amberly Hyden
Cover and Page Design: Carol Barrer

ISBN: 978-1-58528-471-9

10 9 8 7 6 5 4 3 2 1

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Adapted and updated from Barbara S. Wiggins, Dyslipidemia. In: Michael A. Crouch, *Cardiovascular Pharmacotherapy: A Point-of-Care Guide,* Bethesda, MD: American Society of Health-System Pharmacists © 2010.

INTRODUCTION

Cholesterol is a naturally occurring (fat-like) substance that can be found throughout the body, and it serves as a building block for the production of cell membranes, various hormones, vitamin D, and bile acids. Cholesterol is derived from two sources: diet and synthesis by the liver. Transportation of cholesterol occurs via the blood stream in the form of lipoproteins (lipid plus protein). These lipoproteins are formed from specific apolipoproteins, which are synthesized in the liver and intestines. The amount of lipoproteins formed is determined by dietary fat intake, hormones, drugs, and alcohol consumption.[1]

There are six classes of apolipoproteins (four of which are discussed in this eReport) as well as several subclasses. The different lipoproteins vary in size and density with regard to fat and protein content. The major lipoproteins, in order of largest to smallest, include chylomicrons, very low density lipoproteins (VLDL), low density lipoproteins (LDL), and high density lipoproteins (HDL).

Chylomicrons are triglyceride-rich lipoproteins that are formed following the consumption of dietary fat. These lipoproteins assist in the transportation of fat from the intestines to the blood stream in the form of triglycerides. VLDL are also triglyceride rich and comprise approximately 10% to 15% of total serum cholesterol.[1]

VLDL, which transport 60% to 70% of total serum cholesterol, also serve as a precursor of low density lipoprotein cholesterol (LDL-C).[1] LDL transports cholesterol to cells throughout the body and is considered the most atherogenic of the lipoproteins.

High density lipoprotein cholesterol (HDL-C) makes up approximately 20% to 30% of total serum cholesterol.[1] It is considered the "good cholesterol." This lipoprotein is secreted from the liver, acquires cholesterol from the body's tissues, and transports it back to the liver. The high and optimal ranges for cholesterol concentrations are listed in Table 1-1. Atherogenic cholesterol levels (also known as non-HDL-C) can be estimated by subtracting HDL-C levels from the total measured amount of cholesterol. Non-HDL-C generally approximates the amount of cholesterol transported by lipoproteins containing apolipoprotein B (apoB) but does not require any additional testing beyond a standard lipid profile.

Dyslipidemia is defined as values for lipoproteins that are elevated (e.g., total cholesterol, LDL-C, and triglycerides) or reduced (HDL-C). Table 1-2 provides general epidemiologic data of dyslipidemia in the U.S. population.[2]