**Understanding the Lipid Profile and the Role of Dyslipidemia in ASCVD Risk**

Priyadarshini Suresh, MBBS1, Priyanka Satish, MD2, Anandita Agarwala Kulkarni, MD3

1. Madras Medical College, Chennai, India
2. Houston Methodist DeBakey Heart and Vascular Center, TX, USA
3. Center for Cardiovascular Disease Prevention, Baylor Scott and White Health Heart Hospital Baylor Plano, Plano, Texas, USA

The main components of a standard lipid panel include:

1. Total Cholesterol

2. Low-Density Lipoprotein(LDL) Cholesterol

3. High-Density Lipoprotein(HDL) Cholesterol

4. Triglycerides.

Dyslipidemia serves as a major risk factor for Atherosclerotic Cardiovascular Disease (ASCVD). To mitigate this risk, a comprehensive approach combining lifestyle modifications and drug therapy is commonly needed.

**Importance of Diet and Lifestyle:**

The 2018 AHA/ACC Cholesterol treatment guideline emphasizes that diet and lifestyle remain the foundation of reducing the risk of heart disease. A diet rich in fruits and vegetables, whole grains, legumes, nuts, and lean proteins, low in added sugar, saturated fat, and sodium is recommended. Engaging in 150 minutes of moderate-intensity or 75 minutes of vigorous physical activity per week is also of paramount importance for cardiovascular health.

**Lipid Management Strategies in Primary and Secondary Prevention:**

In patients without a history of heart disease (primary prevention), an assessment of 10 year or lifetime risk of having a cardiac event is recommended using the Pooled Cohort Equations. Statins form the mainstay of lipid-lowering therapy in patients with borderline, intermediate, and high 10-year cardiovascular risk (> 5%, > 7.5%, and > 20% respectively). The intensity of statin treatment varies based on the risk profile. Risk assessment can be further refined with the use of the coronary artery calcium score in certain individuals.

In patients with a history of heart disease (secondary prevention), high-intensity statins (like atorvastatin 40mg or 80mg/day or Rosuvastatin 20mg or 40 mg/day) are recommended to achieve an LDL goal of < 70 mg/dl. More intensive treatment to lower LDL-C even further is recommended for patients who have a history of multiple major atherosclerotic cardiovascular (ASCVD) events or one major ASCVD event combined with multiple high-risk conditions. If LDL-C levels remain above goal despite statin therapy, the addition of non-statin medications such as Ezetimibe and PCSK9 inhibitors are considered.

**Importance of Regular Lipid Profile Testing:**

Understanding the lipid profile results is an essential initial step in managing cardiovascular health. The CDC recommends that most healthy adults have their cholesterol levels checked every 4-6 years. However, individuals with heart disease, diabetes, or a family history of high cholesterol may require more frequent testing. For children and adolescents, it is recommended that cholesterol levels be checked at least once between ages 9 and 11 and again between ages 17 and 21.

Appropriate management of dyslipidemia can play a significant role in managing CV risk in both primary and secondary prevention patients. Lifestyle modification can play an important role in managing dyslipidemia. In cases where lifestyle changes are insufficient, lipid-lowering therapy, such as statins or other medications may be necessary to keep lipid levels in check and reduce cardiovascular risk.

**References:**

1. 1.Grundy SM, Feingold KR. Guidelines for the Management of High Blood Cholesterol. [Updated 2022 May 28]. In: Feingold KR, Anawalt B, Blackman MR, et al., editors. Endotext [Internet]. South Dartmouth (MA): MDText.com, Inc.; 2000-
2. 2.Grundy SM, Stone NJ, Bailey AL, Beam C, Birtcher KK, Blumenthal RS, et al. 2018 AHA/ACC/AACVPR/AAPA/ABC/ACPM/ADA/AGS/APhA/ASPC/NLA/PCNA Guideline on the Management of Blood Cholesterol: A Report of the American College of Cardiology/American Heart Association Task Force on Clinical Practice Guidelines. Circulation. 2019 Jun 18;139(25):e1082–1143.
3. Arnett DK, Blumenthal RS, Albert MA, Buroker AB, Goldberger ZD, Hahn EJ, Himmelfarb CD, Khera A, Lloyd-Jones D, McEvoy JW, Michos ED, Miedema MD, Muñoz D, Smith SC Jr, Virani SS, Williams KA Sr, Yeboah J, Ziaeian B. 2019 ACC/AHA Guideline on the Primary Prevention of Cardiovascular Disease: A Report of the American College of Cardiology/American Heart Association Task Force on Clinical Practice Guidelines. Circulation. 2019 Sep 10;140(11):e596-e646. doi: 10.1161/CIR.0000000000000678. Epub 2019 Mar 17. Erratum in: Circulation. 2019 Sep 10;140(11):e649-e650. Erratum in: Circulation. 2020 Jan 28;141(4):e60. Erratum in: Circulation. 2020 Apr 21;141(16):e774. PMID: 30879355; PMCID: PMC7734661.
4. *Get a Cholesterol Test.* URL: <https://www.cdc.gov/cholesterol/cholesterol_screening.htm>. Accessed 15 May 2023