Risk Assessment

The decision to measure a lipid profile needs to be coupled with CV risk assessment. Men ≥ 40 years and women ≥ 50 years of age (or post-menopausal) should be screened. Subjects with higher risk features, including traditional risk factors and inflammatory conditions, should be screened regardless of age. The Framingham risk score (FRS) has been recommended to classify subjects as low (< 10%), intermediate (10 to 19%), or high (≥ 20% per 10 years) risk (see Table 1). New in the guidelines is the recommendation to double the FRS per cent risk in subjects who have a family history of premature vascular disease (< 55 years for first-degree male relatives, < 65 years for females).

The decision to treat with statins will be based on the risk assessment and the level of low density lipoprotein cholesterol (LDL-C). Another change this year recognizes that nonHDL-cholesterol (nonHDL-C) (total cholesterol minus HDL-C), like apolipoprotein B (apoB is an alternate marker of atherogenic risk.² It is strongly associated with CV outcomes, can be calculated from the standard lipid panel without additional testing, and is valid in a nonfasting state or when LDL-C is not calculated due to high triglyceride levels.

In general, low-risk individuals will not be treated with statins. High-risk subjects that include those with an FRS ≥ 20% and many with diabetes, high-risk hypertension, and chronic kidney disease (new recommendation) should be considered for statin therapy. Intermediate risk subjects should be considered for statin therapy if a) LDL-C is ≥ 3.5 mmol/L, b) apoB ≥ 1.2 g/L or nonHDL-C ≥ 4.3 mmol/L, or c) a secondary test suggests a higher risk.

Secondary Testing

The vast majority of subjects can be risk stratified using a FRS history and lipid biochemistry. A secondary test should only be utilized in subjects who do not qualify for statin therapy but would consider it if a secondary test suggested an increased risk. These should be used after an extensive discussion between the health care...
provider and patient has taken place. In addition, we have not recommended multiple tests, as these strategies have not been tested in trials. Many markers could have been included; however, the new guidelines limited discussion to biochemical markers, including lipoprotein(a), hs-CRP, HbA1c, and urine albumin/creatinine ratio, and noninvasive testing, including exercise stress test, ankle-brachial index, carotid US, and coronary calcium scoring. Clinicians should choose tests based on the clinical scenario, local expertise, and availability.

**Lifestyle Modification**

Individuals in all risk categories should be encouraged to adopt healthy eating habits to lower risk. Favourable effects on risk can be expected with a diet that promotes a healthy weight. Specific recommendations included the Mediterranean, Dietary Approaches to Stop Hypertension, and Portfolio diets. It is also recommended that 150 min/week of moderate-intensity exercise be incorporated into one’s routine. Smoking cessation and alcohol consumption in moderation (< 30 g/day) are also key elements.

### Table 1: Target Levels

<table>
<thead>
<tr>
<th>Risk Level</th>
<th>When to Initiate Therapy</th>
<th>Primary Target LDL-C</th>
<th>Alternate Target</th>
</tr>
</thead>
<tbody>
<tr>
<td>High</td>
<td>Consider treatment in all cases (Strong, High)</td>
<td>≤ 2 mmol/L or 50% decrease in LDL-C (Strong/High)</td>
<td>ApoB ≤ 0.8 g/L (Strong/Moderate)</td>
</tr>
<tr>
<td>Intermediate</td>
<td>LDL-C ≥ 3.5 mmol/L (Strong, Moderate)</td>
<td>≤ 2 mmol/L or 50% decrease in LDL-C</td>
<td>ApoB ≤ 0.8 mg/L NonHDL-C ≤ 2.6 mmol/L (Conditional Moderate)</td>
</tr>
<tr>
<td></td>
<td>Consider if ApoB ≥ 1.2 g/L or NonHDL-C ≥ 4.3 mmol/L (Conditional Moderate)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Low*</td>
<td>LDL-C ≥ 5.0 mmol/L Familial hypercholesterolemia (Strong, Moderate)</td>
<td>50% reduction in LDL-C</td>
<td></td>
</tr>
</tbody>
</table>

* For those in the 6 to 9% group, consider yearly calculation of FRS and discussion about the risk-to-benefit ratio of pharmacotherapy at lower levels of LDL-C

**Smith’s Case Continued**

Mr. Smith has an LDL-C that is below the threshold for intermediate risk (≥ 3.5 mmol/L); however, his nonHDL-C is 5.5 - 0.9 = 4.6 mmol/L. This is above the ≥ 4.3 mmol/L cut-off that warrants consideration for statin therapy. As such, secondary testing would not be required. Mr. Smith will embark on lifestyle modification and started on statin therapy.

**Statins**

In individuals that require pharmacotherapy, statins are first-line therapy based on a wealth of randomized trial data. The relative risk reduction (approximately 22% per 1 mmol/L reduction in LDL-C) is fairly independent of baseline risk. Thus, the expected clinical benefit is higher in subjects at higher risk, and we should be more persistent in keeping those subjects on therapy. At least 10% of subjects will have some difficulty with statin therapy, usually in the form of muscle aches. A standardized approach to managing these side effects is important. To date, no supplements have been shown to decrease statin-induced myalgias.
The 2012 dyslipidemia guidelines stressed the need for a systematic risk assessment at the time of measurement of a lipid profile. The importance of non-HDL-C, chronic kidney disease as a high-risk feature, lifestyle modification, and statin therapy was emphasized. The goal is to identify subjects who will benefit from therapy, reducing the burden of CV morbidity and mortality in Canada.

References

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