Cholesterol, What's Changed?

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The 2009 Canadian Cardiovascular Society guidelines for the diagnosis and treatment of dyslipidemia, the third iteration, were published in October 2009.[1] They incorporate significant changes from the 2006 version.[2]

What's the same?

Recommendations for lipid profile screening, including patients with demonstrated cardiovascular disease (myocardial infarction, angina, stroke, transient ischemic attack, peripheral vascular disease), diabetes, hypertension, smokers and those over 40 (men) or 50 (women) are unchanged. The LDL cholesterol is still the major target.

Three risk groups are defined depending on the 10-year risk of cardiovascular disease: low (< 10%), moderate (10 to 20%) and high (> 20%). The goals for treatment of LDL cholesterol vary depending on the Framingham Risk Score: the group most at risk warrants the lowest goals. Low risk patients warrant treatment if the LDL cholesterol is greater than 5.0 mmol/L. Attention to other cardiovascular risk factors, such as hypertension, smoking and diabetes, is stressed.

What's different?

New groups have been added for screening: the obese, those with family history of cardiovascular events in a first degree relative younger than 60-years-of-age, those with a chronic inflammatory disease such as rheumatoid arthritis, those who are HIV positive, and those with erectile dysfunction.

Measurement of high-sensitivity C-reactive protein (hs-CRP), is recommended in those meeting entry criteria for the JUPITER study.[3] These include men older than 50 and women over 60, without overt cardiovascular disease or diabetes, who have "normal" LDL cholesterol 3.4 mmol/L or less, have normal renal function, and lack inflammatory diseases.

Family history, traditionally emphasized by primary care practioners, has been added as a risk factor. Framingham does not take this into account. The Reynolds Risk Score, which incorporates family history and hs-CRP can be used in place of the Framingham Risk Score.[4]

For all risk groups/patients, the recommended goal is a 50% reduction in LDL cholesterol.

Table 1
Examples of Framingham Risk Scores

Sex	Age	SBP*	TChol**	10 year risk***
Male	50	130	5.2	9.4%
Male	55	130	5.2	11.2%
Male	50	140	5.2	13.3%
Female	55	130	5.2	7.3%
Female	65	130	5.2	13.0%
Female	55	160	5.2	21.5%
Male	75	130	5.2	21.6%

* Systolic blood pressure
** Total serum cholesterol
*** Risk of cardiovascular disease in 10 years (assuming HDL cholesterol of 1.0)

Comments

Even though Framingham and Reynolds risk scores are available online[5] and in the published paper,[1] primary care physicians have difficulty applying them in real time. We use a simple "counting risk factors" approach. If a person has three or more of: age over 50 years, hypertension, smoking, low HDL-cholesterol (< 0.9 mmol/L), or positive family history, they are likely to be in the moderate risk category.

The Framingham Risk Score is extremely sensitive to age (Table 1). Men over 75 are almost always classified as high risk. The value of treating moderately elevated cholesterol levels in such persons is uncertain. The PROSPER study involved persons 70 to 82 with either documented cardiovascular disease, or one or more risk factors.[6] Their 10-year risk was almost 50%! Pravastatin 40 mg q.d. reduced the LDL cholesterol by 33% and cardiovascular events by 15%. However, the absolute risk reduction was only 2.1% in three years, yielding a "number needed to treat" of about 50%. We can presume that number would be increased in elderly people at lower risk.

The role of hs-CRP in cardiovascular risk scoring is still evolving. Care must be taken to avoid testing in patients with infections or chronic inflammatory conditions. A second reading should be taken a week or more later.

The more ambitious goals for LDL cholesterol are likely to be reachable only by using high potency statins such as atorvastatin or rosuvastatin. In the CURVES study, only atorvastatin 40 mg q.d. produced LDL cholesterol reductions of more than 50%,[7] while maximal doses of lovastatin, simvastatin and fluvastatin caused a less than 40% reduction.

In summary, the 2009 guidelines provide a rich source of information on lipid management. They also present a challenge to physicians.

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References

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