Cardiovascular Risk and Cholesterol Management in Men: Implications of the New Guidelines

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The new guidelines on the assessment of cardiovascular risk and the treatment of cholesterol published by the American College of Cardiology/American Heart Association allow a comparison of risk based on gender, age, and ethnicity. For example, the 10-year risk for atherosclerotic cardiovascular disease events (ASCVD, defined as cardiovascular disease death, nonfatal myocardial infarction [MI], or nonfatal stroke) for a 55-year-old patient who is a non-smoker without diabetes and a total cholesterol of 213 mg/dL, high-density lipoprotein (HDL) cholesterol of 50 mg/dL, and untreated systolic blood pressure of 120 mm Hg in a white woman is 2.1% and in a white male it is 5.3%. The increase in risk is similar in African Americans: A woman with the same risk parameters has a 3% risk, while a man would have a 6.1% risk. The guidelines reiterate a key concept that has been known for decades—that men are at higher risk for cardiovascular disease than women at any age with similar risk factors. They also point out another tenet critical to overcoming the burden of cardiovascular disease, which is that it is much more beneficial to primarily prevent a disease than to practice secondary prevention.

In the United Kingdom database, it has been shown that approximately 85% of deaths that are prevented by coronary artery disease risk reduction were due to primary prevention, even when looking across the age spectrum from age 25 to 84 years. Due to this fact, the new guidelines have emphasized a lower level of risk at which treatment should be considered. Historically, the Framingham low-risk cohort has been defined as having 10% or less risk at 10 years for ASCVD events. The new guidelines now indicate a 7.5% risk of ASCVD events as the point at which to consider treatment. This would indicate that a significantly higher number of male patients versus female patients should be considered for treatment. For example, when looking at the distribution of estimated 10-year risk for a first heart cardiovascular event in the disease-free nonpregnant US population age 40–79 years, 48% of women would be classified as extremely low risk, with an event rate <2.5%, while only 17.4% of men would be in that same category. When looking at the same population and estimating those at ≥7.5% risk for a first event, while only 22.5% women would be in this higher risk category, almost twice as many men, 44.3%, would be categorized in this high-risk group.

The clinical implications of these guidelines are that men with high cholesterol will be treated earlier and more frequently than past guidelines have recommended. The Pooled Cohort 10-Year Risk Assessment Equations are available for both the caregiver and the patient and can be found online at the American College of Cardiology web page or through ClinCalc.com. The risk factors that are used to estimate the 10-year risk for ASCVD events are gender, age, race, total cholesterol, HDL cholesterol, systolic blood pressure, blood pressure treatment, diabetes, and smoking status. One of the little appreciated facts is that low-density lipoprotein (LDL) cholesterol, while a common target for treatment, is not used to estimate risk. The risk calculator is user friendly for both caregiver and patients and points out not only the 10-year risk for an event in all patients, but also, in those under age 60, a lifetime risk for ASCVD events. The lifetime risk is helpful in a younger patient: a 50-year-old white male with total cholesterol of 144 mg/dL, HDL cholesterol of 44 mg/dL, and systolic blood pressure of 148 mm Hg who is not on blood pressure treatment, has no diabetes, but is a smoker may have only a 7.1% ten-year event rate, but his lifetime risk is 50% for a first event. This marked jump in lifetime risk is impressive to patients, and it should be utilized, especially in the younger age group, to help educate and motivate them on the importance of lifestyle and risk factor change.

One risk marker not mentioned in the guidelines is erectile dysfunction. Prior studies have shown that erectile dysfunction (ED) can be considered as a risk factor for coronary artery disease. While a male aged ≥70 years with ED has an incidence per 1,000 person-years of coronary artery disease 1.3 times greater than a similar male without erectile dysfunction, the incidence rises significantly in younger age groups. In a male aged 40–49 years, his risk of coronary artery disease by incidence per 1,000 person years is 48 times greater than a similar male without ED. It has also been shown that a heart-healthy lifestyle improves ED within 24 months of lifestyle change and risk factor reduction.

Regarding cholesterol treatment, the guidelines put patients into four groups for risk assessment and treatment as follows:

1. Individuals with known atherosclerotic cardiovascular disease should be placed on a high dose statin.
2. Patients with type 1 or type 2 diabetes age 40 to 75 with an LDL of 70 to 189 mg/dL and a 10-year risk ≥7.5% should be considered for treatment with a
high dose statin while those with $< 7.5\%$ 10-year risk should be considered for treatment with a moderate dose statin.

3. Non-diabetics aged 40 to 75 years with LDL of 70 to 189 mg/dL and 10-year risk $\geq 7.5\%$ should be considered for treatment with a moderate to high dose statin.

4. Those with an LDL $\geq 190$ should be considered for treatment with a high dose statin.

The definition of statin dosage depends on the LDL cholesterol lowering ability of that dose: high dose lowers LDL cholesterol $\geq 50\%$ (atorvastatin 40–80 mg or rosuvastatin 20–40 mg/day); moderate dose lowers LDL cholesterol $30\%$ to $< 50\%$ (atorvastatin 10 or 20 mg or rosvastatin 5 or 10 mg); and low dose $< 30\%$ (simvastatin 10 mg or pravastatin 10 to 20 mg). Care should be taken in African American males when starting a statin agent as 7.84% have been found to have a creatine kinase level greater than 3 times the upper limits of normal at baseline pre-statin therapy. This compares with $< 1\%$ in white, Hispanic, or south Asian males and in all similar female ethnic groups.

Finally, the risk factors for cardiovascular disease have been shown to be very similar to risk for other major diseases including ED, diabetes mellitus (DM), dementia, and lung cancer. Seventy-five percent of the risk factors for MI including ED, diabetes mellitus (DM), dementia, and lung cancer.

In summary, the new risk and lipid guidelines indicate that four main groups should be considered for cholesterol reduction and that lifestyle change should always be the first step and encouraged all along the treatment process. The goal of cholesterol reduction has changed to one of a statin dose rather than an LDL endpoint that is based on prior studies. Additional risk factors should be considered and being a male increases risk for multiple diseases, not just cardiovascular disease. It should be emphasized to all men that proper management of cardiovascular risk factors also reduces their risk of ED, DM, and dementia.

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