

Myocardial Infarction in a 72-Year-Old Woman with Low LDL-C and Increased hsCRP: Implications for Statin Therapy

Paul M Ridker¹

¹Center for Cardiovascular Disease Prevention, Brigham and Women's Hospital, Harvard Medical School, Boston, MA.

Address correspondence to this author at: Center for Cardiovascular Disease Prevention, Brigham and Women's Hospital, 900 Commonwealth Avenue East, Boston, MA 02215. Fax 617-734-1508; e-mail pridker@partners.org.

CASE DESCRIPTION

A 72-year-old white woman underwent a routine annual physical examination. She had no history of diabetes, cardiovascular disease, cancer, or chronic inflammatory condition. She smoked, had hypertension (systolic blood pressure 145 mm Hg), and was being treated with an angiotensin-converting-enzyme inhibitor. She was on no other medications. Physical examination was unremarkable. She was thin with a body mass index of 23 kg/m².

Screening laboratory evaluation included total cholesterol [5.59 mmol/L (216 mg/dL)], LDL cholesterol (LDL-C)² [69 mmol/L (104 mg/dL)], and HDL-C [2.12 mmol/L (82 mg/dL)]. Her primary care physician considered her lipid concentrations "optimal," and the patient's calculated Framingham 10-year risk for cardiovascular disease was 7% or low risk, despite her age and smoking history. However, the patient had a family history that included myocardial infarction in her father at age 58 years as well as bypass surgery in a brother at age 62 years. Her high-sensitivity C-reactive protein (hsCRP) was increased at 7.7 mg/L (repeat value 2 weeks later 7.4 mg/L). With these data, the patient's calculated 10-year risk according to the Reynolds Risk Score was 23.2%, or very high risk.

Preventive therapy recommendations for this patient were based on Framingham guidelines, so no pharmacologic intervention was provided. Four months later the patient was admitted with acute myocardial infarction and substantial loss of ventricular function. Coronary angiography revealed stenoses in the left anterior descending and circumflex arteries. She was treated with drug-eluting stents and prescribed simvastatin 40 mg, aspirin, and Plavix; 30 days after lipid-lowering therapy was initiated, LDL-C was 2.02 mmol/L (78 mg/dL) and hsCRP was 4.8 mg/L.

Both the patient and her physician wondered why myocardial infarction occurred despite excellent lipid concentrations, and both sought information regarding whether the patient's achieved LDL-C and hsCRP concentrations were adequate for long-term care.

Questions to Consider
• What are the current guidelines for statin therapy for primary and secondary prevention?
• When should hsCRP be measured?
• What are the limitations of the traditional risk factors?
• When is an aggressive treatment approach in the presence of border-line lipids warranted?

Final Publication and Comments

The final published version with discussion and comments from the experts will appear in the February 2009 issue of *Clinical Chemistry*. To view the case and comments online, go to <http://www.clinchem.org/content/vol55/issue2> and follow the link to the Clinical Case Study and Commentaries.

Educational Centers

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