What is the best strategy for monitoring the lipid-lowering effects of medical therapy used for the primary prevention of coronary artery disease (CAD)?

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**EVIDENCE-BASED ANSWER**

There is good evidence that treatment for primary prevention of CAD decreases risk of major first coronary events and cardiovascular mortality, though all-cause mortality has not been shown to be reduced.\(^1\)\(^-\)\(^3\) There is no evidence identifying the best measures for monitoring response to therapy. In the one study that titrated lovastatin, the investigators used a target fasting low-density cholesterol (LDL-C) of 110 mg/dL\(^2\). All other studies used a fixed dosage without titration. (Grade of recommendation: C.)

**EVIDENCE SUMMARY**

Clinicians expecting results similar to a randomized clinical trial should use treatment regimes based on those used in the trial. The Air Force/Texas Coronary Atherosclerosis Prevention Study was the only primary prevention randomized controlled trial that titrated the dose of medication (either 20 mg or 40 mg of lovastatin daily) to reach a LDL-C of 110 mg/dL\(^2\) or lower. Titration was done after 3 months of therapy. All other studies used a fixed dose of medication without regard to the lipid levels obtained (cholestyramine 24 g/day,\(^4\) gemfibrozil 600 mg twice daily,\(^5\) clofibrate 1.6g/day,\(^6\) and pravastatin 40 mg/day\(^1\)). There have been no trials that test different strategies for monitoring lipid levels.

The Munster Heart Study (PROCAM)\(^7\) demonstrated that “the ranking of continuous risk factors in terms of predicting major coronary events was LDL-C, total cholesterol (TC), high-density lipoprotein (HDL-C), triglycerides (TG)…. Grover and colleagues\(^8\) found that the TC/HDL-C and the LDL-C/HDL-C ratios both performed better than the TC in predicting heart disease mortality. The Framingham Study\(^9\) confirmed the usefulness of TC and HDL-C in assessing risk. None of the studies gave guidance on what to monitor while a patient is on treatment.

**RECOMMENDATIONS FROM OTHERS**

The National Cholesterol Education Program (NCEP)\(^10\) recommends that LDL-C be monitored every 6 weeks
after the initiation of treatment. After the goal LDL-C is attained, measurement every 4 to 6 months is adequate.

**CLINICAL COMMENTARY**

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Once lipid therapy is begun, I aim to achieve NCEP recommended LDL-C. Although these levels are not based on randomized controlled trials, drug therapy effectively lowers LDL-C. Since medications less effectively elevate HDL-C and high TG is a risk mainly with elevated LDL-C, I focus on the LDL-C response. The TC, HDL-C, and TG are necessary for calculation of LDL-C.

I check lipids 5 to 12 weeks after initiating or changing therapy, allowing time for the medication to have full effect and to detect toxicities. Once LDL-C is controlled, rechecking cholesterol every 6 months provides an opportunity to readdress diet, exercise, smoking cessation, and hypertension.

**REFERENCES**