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Advanced Lipoprotein Testing and Subfractionation: Research Tool or Clinical Utility?

Response to Superko

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Dr. Superko provides a comprehensive review and important insights into lipoprotein metabolism and atherogenicity. We both agree that measuring the concentration of LDL particles is generally superior to measuring the concentration of LDL cholesterol. The concentration of LDL particles can be obtained in several ways: 1) apoB; 2) NMR-measured LDL particle concentration; 3) non-HDL cholesterol or the total/HDL cholesterol ratio, which correlate highly (~0.7 to 0.85) with LDL particle measures and can be obtained easily at no additional cost to standard lipids. Two large primary prevention studies (Framingham Heart Study and Women's Health Study) found no substantial improvement in classifying subjects into NCEP risk categories with apoB or NMR-measured LDL particle concentration compared with the total/HDL cholesterol ratio. I also suggest that smaller LDL size is positively associated with cardiovascular risk because individuals with predominantly small LDL size have more LDL particles, and not because small LDL particles are inherently more atherogenic than large ones. Compared with LDL, less is known about HDL and VLDL size and subclasses in relation to clinical endpoints. Whether advanced lipoprotein testing and subfractionation may be useful and cost-effective for certain subgroups or tailoring lipid-altering therapies is an

active area of research and awaits further results from randomized trials. Caution is prudent when extrapolating results from coronary angiography (a surrogate measure) to hard clinical endpoints in light of recent trials of cholesterol ester transfer protein inhibition. Finally, we both agree that quality control and standardization are important to streamline results obtained from various laboratory methods and minimize errors in clinical decision making.