Concordance/discordance between plasma apolipoprotein B levels and the cholesterol indexes of atherosclerotic risk.

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OBJECTIVE: The objective of the present study was to examine concordance/discordance among 4 atherogenic indexes of cardiovascular risk: plasma total cholesterol, low-density lipoprotein (LDL) cholesterol, non-high-density lipoprotein (non-HDL) cholesterol, and apolipoprotein B-100 (apoB).

METHODS: Analyses were conducted in a cohort of 2,103 men without coronary artery disease (CAD) at the onset of the Quebec Cardiovascular Study.

RESULTS: Although there were strong and highly significant correlations among the 4 risk indexes (0.78 < r < 0.97), only 50% of all subjects had concordant apoB and LDL cholesterol levels (i.e., values that fell into the same quintile of the population distribution). Moreover, concordance/discordance was not the same throughout the range of both variables; it was greater at the extremes of their respective distributions (65%), but significantly less in the midpoints (<40%). ApoB appeared to be more concordant with non-HDL cholesterol than with LDL cholesterol, although >1/3 of all subjects had discordant levels. Kappa analysis confirmed that there was only fair agreement between apoB and total or LDL cholesterol (0.38 and 0.36, respectively) and only moderate agreement between non-HDL cholesterol and apoB (0.47). Finally, a significant proportion of subjects (528 of 2,103) who had disproportionately higher apoB levels than would have been predicted based on their LDL cholesterol concentrations was more obese and manifested several features of the metabolic syndrome. They also had a significantly increased cardiovascular risk.

CONCLUSIONS: In summary, plasma apoB and the various cholesterol indexes are complementary rather than competitive indexes of atherosclerotic risk and provide further evidence as to why measurement of apoB should be part of a standard lipoprotein assessment of CAD risk.

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