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Assessing Hypercholesterolemas by Total and Non-High-Density Lipoprotein Cholesterol

To the Editor:
The Expert Panel of the National Cholesterol Education Program (NCEP) identifies as desirable having concentrations of total cholesterol (TC) ≤5.18 mmol/L (1). TC includes the high-density lipoprotein cholesterol (HDL-C), which can be occasionally or permanently increased in some subjects. Because the increase of HDL-C can produce factitious hypercholesterolemas, the NCEP suggests avoiding this problem by basing risk evaluations on low-density lipoprotein cholesterol (LDL-C), determined with the formula of Friedewald et al. (2), instead of on TC.

Nevertheless, the evaluation of a patient’s risk on the basis of the LDL-C is not, in our opinion, entirely correct because it neglects the very-low-density lipoprotein (VLDL) cholesterol, which is certainly atherogenic (3, 4). Moreover, several sources of inaccuracy, both analytical and pathophysiological, can affect the results (5, 6) so that the Friedewald formula could be considered "statistical acrobatics" (7). An alternative approach for identifying hypercholesterolemic patients is to compute non-HDL-C. If one assumes as desirable TC values ≤5.18 mmol/L (1) and HDL-C ≥1.10 mmol/L (8), then the desirable concentration of non-HDL-C should be ≤4.10 mmol/L. Of 2645 consecutive unselected outpatients, we classified 1788 (67.6%) as hypercholesterolemic on the basis of the TC; only 1467 (55.5%) were hypercholesterolemic by the non-HDL-C calculation. Factitious hypercholesterolemas were, as expected, more frequent in females (15.9%) than in males (6.2%).

Recently Rosenfeld has pointed out again (9) that "... the cutoff values are necessarily somewhat arbitrary and should not be considered as scientifically precise points..." We believe that using the non-HDL-C cutoff value allows the identification of true hypercholesterolemas, thus avoiding unnecessary medical intervention and useless treatments.

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