Serum Lipoprotein(a) as an Independent Cardiovascular Risk Factor for Patients Undergoing Chronic Hemodialysis

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Dear Sir,

Several studies in chronic hemodialysis patients aimed at determining whether any particular traits do exist in their serum lipid and lipoprotein profiles that may be used as potential predictors for cardiovascular atherosclerotic complications. In this connection, the recent letter by del Cura et al. [1] points out the role of increased lipoprotein(a) concentrations. Our data [2] are consistent with this possibility.

We determined the serum concentrations of a variety of lipid constituents [total cholesterol, triglycerides, HDL cholesterol, LDL cholesterol and apolipoproteins AI and B measured with standard techniques, and lipoprotein(a) measured with a noncompetitive enzyme-linked immunoassay] in our hemodialysis patients. After the patients affected by diseases or administered with drugs known to influence lipid metabolism were excluded from final analysis, we could compare the results between 11 patients with well-documented coronary artery disease and 53 patients without it. Stating in advance that the two groups were comparable with regard to sex, age, underlying nephropathy and duration of dialysis, the only significant differences between the two groups were the higher mean concentration of lipoprotein(a) and the higher prevalence of 'atherogenic' levels (i.e. >30 mg/dl) of this lipoprotein in the patients with disease. These findings are summarized in tables 1 and 2. Interestingly, regression analysis showed statistically significant positive correlations of lipoprotein(a) to total cholesterol ($r=0.345$; $p < 0.01$), LDL cholesterol ($r=0.289$; $p < 0.05$) and apolipoprotein B ($r=0.295$; $p < 0.05$) in hemodialysis patients as a whole; no such correlations could be obtained when the patients with coronary artery disease were analyzed separately.

In agreement with del Cura et al. [1], our findings, while demonstrating that a high lipoprotein(a) can indeed be considered as a specific serum marker of cardiovascular risk in hemodialysis patients as well as in the general population, indicate that the cardiovascular risk that lipoprotein(a) confers in such patients must be assessed independently, by directly measuring this lipoprotein.

References

del Cura J, Gil-Paraiso A, Borque L, Carazo ME, Maside C, Casajus AS: Lipoprotein(a) in chronic renal failure patients undergoing hemodialysis: Does it have an independent role in the development of further cardiovascular complications? *Nephron* 1993;65:644-645. Docci D, Manzoni G, Bilancioni R, Delvecchio C, Capponcini C, Baldrati L, Neri L, Feletti C: Serum lipoprotein(a) and coronary artery disease in uremic patients on chronic hemodialysis. *Int J Artif Organs* 1994;17:41-45.

Table 1. Comparison of serum lipids and apolipoproteins between hemodialysis patients with (CAD+) and without (CAD-) coronary artery disease

Table 2. Prevalence of potentially atherogenic lipid and apolipoprotein levels in hemodialysis patients with (CAD+) and without (CAD-) coronary artery disease

CAD-
(n=53)
CAD+ (n=11)
Serum levels
CAD-
(n=53)
CAD+ (n=11)

Concentrations (mean: CAD- patients.
:SD) are expressed in mg/dl. *p < 0.001, vs.
Figures in parentheses represent percentage. *p < 0.01, vs. CAD-patients.

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