Effect of Recombinant Human Erythropoietin on Nutritional Status and Plasma Lipids in Uremic Patients

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Dear Sir,

Improved appetite and food intake have been reported from earlier studies of patients treated with recombinant human erythro-poietin (r-Hu EPO) [1]. An increase in BUN, plasma creatinine and plasma phosphorus values as well as, in some cases, severe hyper-kaliemia were observed in certain series [2]. Contrasting with their generally poor nutritional status [3], plasma lipid abnormalities are common in uremic patients [4], especially those maintained on hemodialysis (HD) or peritoneal dialysis (PD). In those patients, particularly prone to diffuse atherosclerosis [5], any deleterious effect of r-Hu EPO on plasma lipids might question the benefit of correcting anemia with this treatment. However, the effect on plasma lipids of the r-Hu-EPO-induced changes concerning the nutritional behavior of uremic patients had not been assessed yet.

We have studied 12 patients, 7 HD (4 males, 3 females, mean age 57) and 5 PD (3 males, 2 females, mean age 70). Plasma lipids were measured together with different reliable parameters of the nutritional status [3], first, before initiating r-Hu EPO, then 6 months from the date of correction of anemia (defined as Hb > 10 g/dl). The following data were collected: body mass index, triceps skin-fold thickness (TST), arm muscle circumference (AMC), serum albumin, prealbumin, transferrin, total cholesterol, triglycerides (Tg), apolipoprotein (Apo) AI, Apo B, retinol-binding protein and acid α 1 glycoprotein. These values were compared to those obtained from 7 HD and 12 PD nonanemic patients, matched for age, sex and duration of maintenance dialysis.

Before EPO, Hb was 7.2 ± 0.4 g/dl in the HD and 8.6 ± 0.7 g/dl in the PD patients. The PD patients had decreased serum albumin (2.9 ± 0.4 g/dl), increased Tg (2.3 ± 1.4 mmol/l) and Apo B (0.16 ± 0.05 g/dl), whereas only Tg were abnormally high (2.0 ± 1.1 mmol/l) in HD patients. However, anthropometric hallmarks of malnutrition were exclusively found in male HD patients, who had low values of body mass index (20.9 ± 1.0 kg/m²), TST (4.2 ± 1.1 mm) and AMC (22.4 ± 2.7 cm).

After 6 months with stable Hb (HD: 10.4 ± 0.8 g/dl; PD: 10.1 ± 0.6 g/dl), only the male HD patients exhibited a significant increase in TST (5.1 ± 1.2 mm; $p < 0.01$) and AMC ($23.1 \pm$

8.4 cm; $p < 0.03$). Nevertheless, neither total cholesterol (4.9 ± 0.10 vs. 4.85 ± 0.63 mmol/l), plasma Tg (1.46 ± 0.54 vs. 1.26 ± 0.65), Apo A1 (1.53 ± 0.38 vs. 1.12 ± 0.24) nor Apo B (1.0 ± 0.14 vs. 0.95 ± 0.22) were significantly altered in these patients.

In the whole HD group at 6 months Apo A1 was significantly increased (1.3 ± 0.44 vs. 0.91 ± 0.34 ; $p = 0.01$). If confirmed in the future, this result might be interpreted as favorable since it is widely admitted that severe atherosclerosis may be associated with low Apo A1 values [6].

No consistent change of

any clinical or biological parameter could be observed in PD patients.

In conclusion, hypertriglyceridemia was the only abnormality of plasma lipids observed in our uremic patients treated with either HD or PD; improved anabolism could be demonstrated only in male HD and was not associated with any change of the lipid pattern.

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