Serum Cytokine Levels in Uremic Patients

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Dear Sir,

It has been shown that circulating cytokine levels or in vitro production of cyto-kines rise above normal levels in uremic or hemodialysis (HD) patients, and it has been suggested that this finding may contribute to some complications [1-4].

We determined serum tumor necrosis factor-alpha (TNF- α) and interleukin-1 α (IL-1 α) levels in 106 uremic patients, including 74 males and 32 females ranging in age from 14 to 63 years (35.4 $\pm$ 11.2 years, mean $\pm$ SD). Thirty-five patients were predialytic, 57 were HD and 14 were continuous ambulatory peritoneal dialysis (CAPD) patients. HD and CAPD patients had been on that treatment for an average of 37.9 $\pm$ 22.3 and 23.7 $\pm$ 15.2 months, respectively. HD patients were dialyzed with a single-use cellulose cuprophane capillary membrane (Re-nak E, Kawasumi Lab., Inc, Tokyo, Japan or Diacap CE, B. Braun, Melsungen, Germany) three times a week using an acetate dialysate bath. Thirty apparently healthy volunteers were used as controls. Antecubital venous blood sampling was performed under sterile conditions. Extreme care was taken to prevent sampling during fever or infection. Serum sampling was performed before the dialysis session in HD patients. After separation, serum was kept at -70°C pending assay. Serum cytokine assays were performed using commercial ELISA kits (Human TNF- α ELISA kit and Human IL-1 α ELISA kit; Endogen Inc., Boston, Mass., USA). Sensitivity limits were 5-1,900 pg/ml for TNF- α and 13-2,560 pg/ml for IL-1 α .

TNF- α levels of 5-10 pg/ml were found in the sera of 12 predialytic (34.2%), 12 HD (21.0%) and 4 CAPD (28.5%) patients, and of 8 control subjects (26.6%), while other sera did not have detectable TNF- α levels.

The sera of 9 predialytic (25.7%), 7 HD (12.2%), and 3 CAPD (21.4%) patients, and of 6 control subjects (20.0%) were found to have IL-1 α levels of 13-60 pg/ml, while other measurements were below the detection level. Overall detectable TNF- α was found in the sera of 26.4% of the patients and 26.6% of the controls, and detectable IL-1 α was found in 17.9% of the patients and 20% of the controls. There was no statistically significant difference for both TNF- α and IL-1 α levels between the patients and the controls. Together, these findings indicate that our patients do

not have chronically high serum TNF- α and IL-1 α levels, and that more efforts are needed to evaluate the contribution of these cytokines to some complications of uremia and dialysis treatment.

References

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