Sir,

The pathogenesis of hemodialysis-induced hypoxemia has been debated for many years. Not a single factor was thought to be responsible for hypoxemia during dialysis, instead various causes such as membrane-associated factors [anaphylotoxins and other humoral mediators, 1, 2], respiratory factors [decrease in pulmonary diffusion capacity, 3, widening of alveolar-arterial oxygen tension gradient, 4, hypoventilation due to CO2 transfer to acetate dialysate, 5] and pulmonary leukosequestration originating from blood-membrane interactions [3] were suggested by several earlier studies. On the other hand, low levels of fibronectin are known to spoil pulmonary gas exchange by elevating the permeability of the pulmonary vessels, thereby leading to pulmonary edema, [6]. In view of the latter information, Schwartz et al. [7] proposed that decreases in plasma fibronectin (FN) levels observed during dialysis can cause dialysis hypoxemia as a result of pulmonary edema in hemodialysis patients.

In order to evaluate the role of FN on the genesis of dialysis hypoxemia, we studied white blood cell counts, arterial blood gases, and FN levels at 0, 15, 30, 60, 90 and 120 min during dialysis procedure in 18 patients on maintenance hemodialysis, using a parallel-plate dialyzer with a cuprophane membrane and acetate-buffered dialysate. The results are shown in figure 1. There was a marked drop in leukocyte count at 15 min and it reached the lowest level at that time. Marked leukopenia was still evident at 30 min of dialysis (p < 0.001). Reduction of arterial oxygen tension was
noted to begin at 15 min and was most severe at 30 min. The observed hypoxemia lasted during
the entire study period (p < 0.05). An early fall in plasma FN levels was observed at 15 min,
followed by a return to predialysis levels after 30 min from the start of dialysis and remained like
this through the procedure.
These data indicate that FN may contribute to dialysis hypoxemia only in the early phase of
dialysis. The persistence of hypoxemia through the whole course of the study in spite of the
normalization of plasma FN levels at 30 min suggested that the factors apart from FN are
responsible for dialysis hypoxemia, especially in the late phase of the hemodialysis procedure.

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