Gain in Recombinant Human Erythropoietin Dosage with Continuous Intravenous Intradialytic Administration for the Treatment of Anaemia in End-Stage Renal Disease

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Dear Sir,

It is known that recombinant human erythropoietin (rHu-EPO) treatment has become a widely accepted therapy in the treatment of anemia due to chronic renal failure [1].

Otherwise, rHu-EPO is an expensive drug, and its high cost does not make this therapy disposable to an extensive use for all patients who theoretically need it.

Usually rHu-EPO is administered intravenously or subcutaneously at the end of dialysis [2, 3]. Daily self-administration has also been reported [4]. The aim of this study was to evaluate continuous intravenous intradialytic administration, in the hope of cutting the cost of such an expensive treatment, without reducing the efficacy. A recent study reported the pharmacokinetics of rHu-EPO administered before dialysis: the results showed no significant loss of drug efficacy during the dialytic procedure [5]. According to these data we employed a new in vivo protocol.

In 10 patients with anemia of end-stage renal disease under dialytic treatment and stable rHu-EPO therapy (intravenously at the end of dialysis), we started to administer rHu-EPO during dialysis using a pump. The initial hemoglobin and hematocrit values (median $\pm$ SE) were 9.25 ± 0.47 g% and $28.08 \pm 1.42\%$, respectively. After 6 months of intravenous intradialytic rHu-EPO therapy (maintaining constant hemoglobin and hematocrit values of 9.09 ± 0.52 g% and $28.67 \pm 0.54\%$, respectively), the median weekly dose required was reduced from 25 U/kg three times/week to 7 U/kg three

times/week. The serum iron and serum ferritin concentrations were 78.3 ± 7.76 μ g/dl and 529.18 ± 118.353 ng/ml, respectively, at the beginning of the study. After 6 months of intravenous intradialytic rHu-EPO therapy, the respective levels were 86.3 ± 10.4 μ g/dl and 463.30 ± 100.898 ng/ml. No change in iron administration was necessary during the study. According to previous studies on experimental compartmental models, we can conclude that rHu-EPO can be effectively administered during dialysis without significant loss of efficacy by absorption or removal by the dialysis membrane. If our results can be reproduced in a larger group of patients, they will stress the impressive advantage and the potential economic

benefits of this method of rHu-EPO administration: to cut by half or more the cost without reducing the benefits of this very important drug.

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