Effect of Low Doses of Recombinant Human Erythropoietin on the Anemia in Hemodialyzed Patients

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Dear Sir,

A corrective effect for recombinant human erythropoietin (rhEPO) in the treatment of anemia in hemodialyzed patients has been reported [1, 2]. The Ad Hoc Committee for the National Kidney Foundation has indicated that rhEPO should be administered intravenously three times a week at a dose of 150 U/kg until the hematocrit reaches 30%, and the dose should subsequently be adjusted in order to maintain the hematocrit at approximately 35% [3].

Since prolongation of the life of dialyzed patients has become possible due to recent developments in dialysis therapy, the issue of the improvement of the quality of life of dialyzed patients has been raised [4]. In chronic anemia, the subjective symptoms are mild, because the compensatory responses such as increases in heart rate, breath rate, cardiac output and 2,3-diphosphoglycerate concentration, can be manipulated. However, chronic anemia leads to myocardial hypertrophy and dilatation of the ventricular capacity, resulting in a high cardiac output. With age or coronary impairment, high output failure may easily supervene [5]. On the other hand, it has been found possible to achieve improvement of the myocardial hypertrophy, dilatation of the ventricular capacity and high cardiac output [6], amelioration of brain dysfunction [7], an increased energy and well-being, increased appetite, warmer body temperature, return of the ability to perspire, better sleep/wake patterns, less depression, increased arm and scalp hair growth, a decrease in shortness of breath, a decrease or elimination of angina, and improved sexual interest and ability in men and women [8], when the anemia is improved by the adminis-

tration of rhEPO. Accordingly, we consider that it is important to prevent the progression of anemia in dialyzed patients. Since the hematocrit rose in a dose-dependent fashion after administering doses of rhEPO of between 15 and 1,500 U/kg, with several patients responding to 15 U/kg and several patients not responding to 5 U/kg three times a week intravenously [2], we suggest that if rhEPO at some appropriate dose is prescribed, the hematocrit can be maintained at a fixed level. We therefore administered rhEPO (Epoetin alfa) at doses of from 7.5 to 10 U/kg three times a week intravenously to hemodialyzed patients with progressive anemia, keeping their serum ferritin concentration above 100 ng/ml. They did not have liver dysfunction, inflammatory and infectious diseases, aluminum bone disease, severe secondary hyperparathyroidisms, hypersplenism, folate deficiency, a hemolytic condition or gastrointestinal bleeding. The progression of anemia was stopped and the hematocrit values could be maintained without any side effects.

It has been reported that hypertension [9], thrombosis [10], increases in serum potassium, phosphate and creatinine concentration [3, 11] and increased dialyzer clotting [8] may occur when anemia is ameliorated by the administration of rhEPO. If the hematocrit can be maintained at approximately 35% throughout the dialyzed patient's life by the prescription of small doses of rhEPO, such disadvantages may not appear. Since administration of rhEPO was found to improve anemia without deterioration of the renal function in predialysis patients [12], it is desirable that low doses of rhEPO are used in patients with chronic renal failure immediately when the hematocrit falls below 35%, even if at the predialytic stage.

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