Relation between Blood Pressure and Hematocrit in Anephric Patients Treated by Means of Recombinant DNA Human Erythropoietin

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Dear Sir,

The clinical use of recombinant DNA human erythropoietin (r-HuEPO) constitutes one of the most important progresses in anemia therapy for patients on chronic dialysis. Over the years the use of this drug has shown various side effects; one of them is a blood pressure increase to a clinical condition of arterial hypertension [1,2].

We report on 2 anephric chronic hemodialysis patients with anemia treated with r-HuEPO. We observed no increase in blood pressure during the study in both cases. We even noted pressure value decreases, also when adequate anemia correction was achieved. A 62-year-old woman on dialysis for 10 years due to bilateral moulded nephrolithiasis, and binephrectomized in

1989, began r-HuEPO treatment in January

1990. The starting dose was 2,000 IU u.s. three times a week and it was increased to 4,000 IU u.s. three times a week due to poor efficiency at the start. During an observation period of 28 months, hematocrit changed from a starting value of 20.9% to a maximum of 37.7%. At the beginning of the study blood pressure was 130/80 mm Hg and it did not increase during the treatment period until maximum hematocrit was achieved. During the following months the value decreased to 80/40 mm Hg (fig. 1).

The other patient, a 42-year-old woman who suffered from tuberous sclerosis, had had a right-sided nephrectomy owing to trauma and had been successively nephrectomized on the left side for renal carcinoma. After having been on dialysis for 16 years she

Fig. 1. Blood pressure to hematocrit in an anephric patient (C.E.) treated by r-HuEPO. S.B.P. = Systolic blood pressure; D.B.P. = diastolic blood pressure.

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Fig. 2. Blood pressure to hematocrit in an anephric patient (T.G.) treated by rHuEPO. S.B.P. = Systolic blood pressure; D.B.P. = diastolic blood pressure.

started on r-HuEPO therapy with a maintenance dose of 4,000 IU u.s. three times a week. The starting hematocrit was 24.0% and at the end of the observation period it was 39.0%. Blood pressure at the beginning was 130/90 mm Hg and at the end of the study 90/70 mm Hg (fig. 2). Some authors recently described the same observations [3, 4]. The plasma renin activity evaluated in the standing and supine positions in both the patients was very low.

The data point out that the values for these patients are in clear opposition to a lot of those reported for r-HuEPO-treated dialysis patients. As a matter of fact a steadiness or an increase in blood pressure is usually noted [5-10]. The only difference which distinguishes the groups is made up by the lack of renal residual tissue in our patients. Therefore we suppose that the residual renal mass continues to play a part in blood pressure regulation which has to be identified in an endocrine component which is surely absent in anephric patients.

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