Decreased Need for Blood Transfusion during One Year after Discontinued Erythropoietin Treatment in Haemodialyzed Patients

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Dear Sir,

In our previous papers [1–3] we reported results of our studies on the influence of erythropoietin (EPO) treatment on function of endocrine organs in haemodialyzed patients. In these studies we found that EPO administration is accompanied by different endocrine alterations among which some were confined only to the period of EPO administration, while others were still present 3 months after discontinued EPO therapy. In these studies we were surprised to still find significantly elevated haemoglobin (Hb) and haematocrit (Hct) values after 3 months of discontinued EPO treatment as compared with pretreatment ones. This observation stimulated us to assess Hb and Hct in patients in whom EPO treatment was discontinued for periods longer than 3 months.

Five anaemic haemodialyzed male patients (aged from 39 to 57 years, mean time of dialysis treatment 48.2 ± 23.0 months) were treated with EPO (Eprex; Cilag, Schaffhausen, Switzerland). EPO was administered intravenously as a bolus injection 3 times/week immediately after completion of a dialysis session, for 3 months. The average EPO dosis was 75 U/kg body weight. The Hb level and Hct value were assessed at 3-month intervals during the year preceding EPO treatment (period I) and during 1 year after discontinued EPO treatment (period II). In addition, the mean volume of blood transfused during periods I and II was calculated. During the period of EPO administration Hb and Hct were estimated weekly and no blood was transfused.

As can be seen from figures 1 and 2, EPO treatment induced an increase of the Hct value from 23.0 ± 0.9 to $34.6 \pm 0.7\%$ and of the Hb level from 4.47 ± 0.2 to 6.67 ± 0.15 mmol/l. After 3 months of discontinued EPO treatment a rapid decline of both Hct value ($27.6 \pm 0.97\%$) and Hb concentration (5.30 ± 0.15 mmol/l) was found. During the subsequent 9 months of discontinued EPO

40

30-

$\frac{1}{8}$ 20

6 9

-No EPO

12 0

--EPO--

6 9

-No EPO

Fig. 1. Hct value during the pre-EPO and post-EPO period and during 3 months of EPO therapy.

E

ε

6 9-NoEPO

12 0

—-EPO»--

I 4·

6 9

-No EPO

Fig. 2. Hb concentration during the pre-EPO and post-EPO period and during 3 months of EPO therapy.

therapy, both Hct and Hb did not change significantly and were still significantly ($p < 0.001$) higher than respective pretreatment values. The volume of transfused blood during period I was 358 ± 82 ml/month while during period II it was 58 ± 24 ml/month ($p < 0.001$).

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From these preliminary data it follows that the beneficial effect of EPO treatment on erythropoiesis is not restricted to the period of its administration, but may still be present after several months after discontinued EPO therapy. Our results seem to be supported by observations of other authors [personal information obtained from Prof. J. Bommer, Heidelberg, FRG and Dr. E.J. Sundal, Oslo, Norway].

Our studies do not explain the pathomechanism of the long-term effects of discontinued EPO therapy. Nevertheless, from these preliminary results it follows that revision of the protocol of dosage of EPO is mandatory.

Structure to Clinical Application. Contrib Nephrol. Basel, Karger, 1989, vol 76, pp 257–272.

Kokot F, Wićcek A, Grzeszczak W, Klin M: Influence of erythropoietin treatment on function of the pituitary-adrenal axis and somatotropin secretion in haemodialyzed patients. Clin Nephrol 1990;33:241–246.

Kokot F, Wićcek A, Grzeszczak W, Kin M: influence of erythropoietin treatment on plasma renin activity, aldosterone, vaso-pressin and atrial natriuretic peptide in haemodialyzed patients. Miner Electrolyte Metab 1990;16:25–29.

References

Kokot F

Wićcek A

Grzeszczak W

Klepacka J

Klin M

Lao M: Influence of erythropoietin treatment on endocrine abnormalities in haemodialyzed patients; in Baldamus CA

Scigalla P

Wieczorek L

Koch L (eds): Erythropoietin: From Molecular