Recombinant Human Erythropoietin in Anemic Patients on Maintenance Hemodialysis: Comparison between Intravenous and Subcutaneous Administration

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Dear Sir,

Table 1. r-huEPO doses: comparison between the last i.v. and s.c. doses after 3, 6 and 9 months

Recombinant human erythropoietin (r-huEPO) is now an established therapy for the anemia of hemodialysis patients [1–3]. In a previous study [4], we compared the effectiveness of intravenous (i.v.) and subcutaneous (s.c.) r-huEPO in maintaining in 9 hemodialysis patients a stable hemoglobin level of 10–13 g/dl during two 3-month periods. s.c. r-huEPO twice weekly was found to be as effective at a lower dose as i.v. r-huEPO administered thrice weekly.

In order to confirm these results over a longer period, the s.c. r-huEPO dosage necessary to maintain a target hemoglobin level of 10–13 g/dl was followed in 14 patients. For 3 months hemoglobin was kept at the target level with individually titrated i.v. r-huEPO administered thrice weekly after each hemodialysis. Patients were then switched to s.c. r-huEPO. Initially, approximately 50% of the previous weekly i.v. dose was given as twice weekly s.c. injections. The dosage was adapted to maintain the desirable hemoglobin concentration: with hemoglobin concentrations < 10 g/dl r-huEPO was increased every 2 weeks by a third of the weekly dose; with hemoglobin concentrations > 13 g/dl the dose was reduced by a third.

Seven patients were followed during 9, 4 during 6 and 3 during 3 months of s.c. r-huEPO administration. The last 3 patients did not complete the study, 2 because of severe anemia due to intercurrent operations (femoro-popliteal bypass, reanastomosis of a colostomy and creation of a new a-v hemodialysis fistula) requiring an increase in r-huEPO not compatible with the s.c. route, and 1 because of a kidney transplant.

Patient i.v. r-huEPO s.c. r-huEPO

No. U/kg/week U/kg/week

3 months 6 months 9 months

Table 1 gives a comparison between the last individual i.v. and the s.c. r-huEPO doses after 3, 6 and 9 months. The hemoglobin levels of the patients are shown in table 2.

The s.c. doses were increased in 3/14 patients at 3 months of treatment. One of these patients needed another rise of the dose after 5 months. Patient No. 4 needed

Table 2. Hemoglobin levels during i.v. and s.c. r-huEPO administration

Patient Hb, g/dl

No.

i.v. r-huEPO s.c. r-huEPO

3 months 6 months 9 months

Subcutaneous administration of r-huEPO twice weekly is effective in the treatment of the anemia of hemodialysis patients. For each patient the optimal dose needs to be established by titration. In the present study the maintenance s.c. r-huEPO doses were between 42 and 280 U/kg/week. In comparison with the i.v. route s.c. administration is more economical, practical, safe and well accepted by hemodialysis patients.

References

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