Efficiency of Once-Weekly Subcutaneous Administration of Recombinant Human Erythropoietin versus Three Times a Week Administration in Hemodialysis Patients

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Dear Sir,

Recombinant human erythropoietin (rHuEPO) offers an effective treatment of anemia in patients on maintenance dialysis [1, 2]. In Spain, it has been common practice to give rHuEPO subcutaneously three times weekly, after every hemodialysis session. Theoretically, it would be more convenient for the patient to receive rHuEPO in a once-weekly injection, rather than three times weekly, if efficiency is similar between both regimens. In this study, we assessed the efficiency in reversing renal anemia of once-weekly subcutaneous administration of rHuEPO and we compared this schedule with the usual, three times weekly administration.

We studied 30 stable patients on maintenance hemodialysis treated with subcutaneous rHuEPO, three times a week. Table 1 presents the sex, age, time on hemodialysis therapy and end-stage renal disease diagnosis in these patients. Patients showed stable hematocrits, serum ferritin higher than 100 ng/ml and they received iron supplementation, if required. The target hemoglobin was 10.5 mg/dl.

Twenty-one (experimental group, EG) of 30 patients were treated with their habitual rHuEPO dose and rule, for 6 months; they then received once-weekly subcutaneous administration for the next 12 months. The other 9 patients (control group, CG) received subcutaneous doses of rHuEPO three times a week for 18 months. Six patients in the EG were excluded: 3 underwent kidney transplantation, 2 patients refused to continue in the study, and 1 patient was transferred to another unit. Two patients of the CG were excluded: 1 underwent kidney transplantation and the other required prolonged hospitalization.

No significant statistical differences were found throughout the study between the rHuEPO doses in the two groups. Two EG patients required a change of schedule and an increase of the rHuEPO dose because the hemoglobin level decreased below 9 g/dl. No significant decreases in hematocrit or hemoglobin level were found in the patients in the EG throughout the study or in comparison with the CG (table 2).

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There were no differences in leukocytes or platelet counts, serum iron, transferrin and ferritin levels during the 18 months of study (table 2).

There are some studies to determine the effectiveness of different dosage regimens of rHuEPO. There was no difference between daily or three times weekly subcutaneous administration [3]. A similar response was obtained with once-weekly and twice-weekly regimens, in two studies; the first, in 20 patients on hemodialysis [4] and the second, in patients on continuous ambulatory peritoneal dialysis [5]. We concluded that once-weekly administration of rHuEPO has technical advantages, it is more comfortable and

Table 1. Characteristics of 30 patients on HD

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Table 2. Biochemical and hematological changes in both groups

<table>
<thead>
<tr>
<th></th>
<th>6 months</th>
<th></th>
<th>12 months</th>
<th></th>
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</thead>
<tbody>
<tr>
<td></td>
<td>Start</td>
<td>12 months</td>
<td>Start</td>
<td>12 months</td>
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<tr>
<td>Transferrin, mg/dl</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>EG</td>
<td>192 ± 33</td>
<td>213 ± 42</td>
<td>205 ± 40</td>
<td>205 ± 40</td>
</tr>
<tr>
<td>CG</td>
<td>209 ± 43</td>
<td>239 ± 46</td>
<td>225 ± 50</td>
<td>225 ± 50</td>
</tr>
<tr>
<td>Ferritin, µg/dl</td>
<td>332 ± 227</td>
<td>334 ± 30</td>
<td>334 ± 40</td>
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</tbody>
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EG = Experimental group (rHuEPO once weekly); CG = control group (rHuEPO three times a week).

in the majority of patients, it is as effective as the three times a week schedule. Only a small decrease in hematocrit and hemoglobin has been observed in 2 patients during 12 months of follow-up. An increase of rHuEPO doses has been required in these patients.

References

