Haematological toxicity of midodrine in haemodialysis patients

Sir,

Oral midodrine is an effective and well tolerated therapeutic option for the management of orthostatic idiopathic tachycardia and hypotension [1]. It is also used in haemodialysis patients [2]. The most commonly reported adverse events are piloerection, pruritus, paresthesias, urinary retention and chills [3]. We report here observations of potential haematological toxicity of midodrine. Two chronic haemodialysis patients were treated with respectively 7.5 and 20 mg/day of midodrine for orthostatic hypotension (Table 1). Four and 9 months later, without modification of basal treatment (omeprazole, calcium, heptaminol, vitamin D), they developed pancytopenia (Table 1). Medullogram was normal in case 2, and locking of granulocyte line at myelocyte stade was observed in case 1. Midodrine, heptaminol and omeprazole were withdrawn. Leukocyte count increased 6 days later.

To our knowledge, there is no case report in the literature on medullary toxicity of heptaminol whereas omeprazole-induced agranulocytosis has been described [4]. In these cases, toxicity was not dose-dependent and agranulocytosis occurred not later than 4 months after omeprazole treatment had been initiated [5]. In our patient, omeprazole treatment was started at least 5 years before the occurrence of haematological toxicity. The half-life of midodrine is approximately...
3 h. Generally, the transformation of a myelocyte into a leukocyte takes 6.5 days. We thus suggest that midodrine is the most susceptible agent to be involved in this complication.

To the best of our knowledge, this is the first case of midodrine-induced pancytopenia.

Table 1. Clinical and haematological parameters

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Case 1</th>
<th>Case 2</th>
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<tbody>
<tr>
<td>In October 1999, 4 months after start of midodrine</td>
<td>In January 2000, 9 months after start of midodrine</td>
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<tr>
<td>Leukocytes/mm$^3$</td>
<td>6/21/99, 10/27/99, 9/03/99</td>
<td>4/15/99, 1/03/00, 1/11/00</td>
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<tr>
<td>Neutrophils</td>
<td>3400, 1100, 2300</td>
<td>3850, 1070, 2450</td>
</tr>
<tr>
<td>Lymphocytes</td>
<td>1734, 69, 943</td>
<td>1540, 365</td>
</tr>
<tr>
<td>Monocytes</td>
<td>1190, 80, 751</td>
<td>2040, 631</td>
</tr>
<tr>
<td>Basophils</td>
<td>340, 242, 598</td>
<td>154</td>
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<tr>
<td>Eosinophils</td>
<td>0, 0, 0</td>
<td>0</td>
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<tr>
<td>Haemoglobin g/dl</td>
<td>11, 10, 9.6</td>
<td>11.7, 9.1, 9.7</td>
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<tr>
<td>Platelets/mm$^3$</td>
<td>126000, 108000, 127000</td>
<td>156000, 115000, 135000</td>
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