Letters to the Editor

Significance of low serum ferritin levels in elderly in-patients

Sir,

In our opinion, the above study\(^1\) was flawed by the implied assumption that all serum ferritin levels below 50 μg/l were equally valid for the diagnosis of iron deficiency. In actual fact, when the diagnosis of iron deficiency is validated by absence of stannable iron from a bone marrow aspirate, only serum ferritin levels <12 μg/l possess 100% specificity for this diagnosis.\(^2,3\) The likelihood ratio for iron deficiency falls from 41.47 in elderly subjects with a serum ferritin of <18 μg/l, to 3.12 in those with serum ferritin levels in the range >18 ≤45 μg/l.\(^4\)

Joosten et al.\(^1\) also questioned the sensitivity of a mean corpuscular volume (MCV) <80 fl as a screening test for non-anaemic iron deficiency.\(^1\) Although originally regarded as having comparable validity for the diagnosis of iron deficiency, a mean corpuscular haemoglobin (MCH) <26 pg\(^5\) now seems to have lapsed into disuse as a screening test. Our own unpublished observations, based on 156 consecutive patients aged ≥60 with unequivocal iron deficiency (that is, serum ferritin <10 μg/l), indicate that an MCH <26 pg provides a more sensitive indication of underlying iron deficiency than an MCV <80 fl. Combined results from patients with moderate hypoferritinaemia (serum ferritin = 5.1–9.9 μg/l) as well as patients with severe hypoferritinaemia (serum ferritin ≤5.0 μg/l) (Table I), showed that there were 125 patients with MCH <26 pg vs 102 patients with MCV <80 fl. In 100 instances both red blood cell indices fell below these cut-off levels. The subgroup of 17 patients (14 females and three males) with haemoglobin levels ≥12 g/dl also showed a trend favouring greater sensitivity of an MCH <26 pg as an index of unequivocal iron deficiency (Figure 1).

O.M.P. Jolobe
H. Rakicka
Department of Medicine for the Elderly,
Tameside General Hospital,
Fountain Street,
Ashton-under-Lyne OL6 9RW, UK.

Table I RBC indices in severe and in moderate hypoferritinaemia (percentage of total number of patients in parentheses)

<table>
<thead>
<tr>
<th>Subgroup</th>
<th>Ferritin ≤5.0 μg/l</th>
<th>Ferritin = 5.1–9.9 μg/l</th>
</tr>
</thead>
<tbody>
<tr>
<td>MCV &lt;80 fl + MCH &lt;26 pg</td>
<td>53/74 (71.6)</td>
<td>47/82 (57.3)</td>
</tr>
<tr>
<td>MCV &lt;80 fl</td>
<td>53/74 (71.6)</td>
<td>49/82 (59.8)</td>
</tr>
<tr>
<td>MCH &lt;26 pg</td>
<td>61/74 (82.4)</td>
<td>64/82 (78.0)</td>
</tr>
<tr>
<td>Hb ≥12 g/dl</td>
<td>5/74 (6.8)</td>
<td>12/82 (14.6)</td>
</tr>
</tbody>
</table>

Figure 1 MCV vs MCH in 17 patients (14 female and three male) with serum ferritin <10 μg/l in the presence of haemoglobin ≥12 g/dl.

References


This letter was shown to Dr Joosten and colleagues who reply as follows.

The recommended cut-off point for serum ferritin to discriminate between iron deficiency and non-iron deficiency varies in the literature, mostly between 12 and 20 μg/l for a non-geriatric population. These traditional cut-off points dividing normal and abnormal are not optimal.\(^1\) Patterson et al.\(^2\) and Guyatt et al.\(^3\) clearly demonstrated that serum ferritin is the best single laboratory test to diagnose iron deficiency anaemia in elderly patients with an optimal cut-off in terms of maximizing accuracy of 45 μg/l.\(^1,2\) In a similar study, we confirmed those data with a cut-off point of 50 μg/l as the best discriminant between iron deficiency and non-iron deficiency.\(^4\) The likelihood ratios associated with the different serum levels were as follows: 0.21 for ferritin >100 μg/l; 0.49 for ferritin between 50 and 100 μg/l, 7.65 for ferritin between 20 and 50 μg/l and infinity for ferritin levels less than or equal to 20 μg/l. A cut-off point of 50 μg/l corresponds with a sensitivity of 76% and a