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Adequacy of the Serum Ferritin Concentration for the Diagnosis of Uncomplicated Iron Deficiency?

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To the Editor,

The serum ferritin concentration (Ft) is related to body iron stores in normal subjects; a marked decrease after phlebotomies has been found [1, 2]. There is a crude correlation between Ft and iron stores when they are directly evaluated by stainable [3, 4] or chemically determined [5] iron in bone marrow. Thus, it has been assumed that Ft must be low in uncomplicated iron deficiency (UID); a value lower than 12 [6, 7] to 20 [8] µg/l is considered as indicative of an UID. However, this criterion is debatable [1,9]. This controversy can be explained by several factors: (1) there is no reference method for measuring Ft, and observed values differ in the same subject with commercially available reagents [10]; (2) iron therapy, even of short duration, raises the Ft in a few days [11, 12], and (3) the comparison between Ft and marrow iron stores as a reference method has been questioned in view of the absence of haemosiderin in the bone marrow of some 'normal' subjects [6, 13].

Finally, we would suggest that one of the reasons for the controversy is the existence of a category of normal subjects who have a low Ft: it is therefore difficult to establish a practical cut-off limit for the diagnosis of UID. This is the case in adult women, for whom the published normal values are 12-250 µg/l, with a mean of 35 [14] to 56 [6]. The normal Ft established for this group in our laboratory ranged from 3 to 142 µg/l (mean 35 ± 25), and from 5 to 85 µg/l for the percentile 5-95. These values have been obtained from 88 apparently healthy, nonanaemic and nonmicrocytic adult women (18-45 years); their percent transferrin saturation was more than 0.16.

28 women (aged 18-60 years) were studied as outpatients. In this group, iron deficiency was definitely confirmed on the basis of their clinical history (repeated pregnancies, chronic blood loss) and positive response to iron therapy. None of them had stainable iron on the marrow aspirates (all marrow smears contained particles suitable for assessment). The percent transferrin saturation, always less than 0.16, was 0.08 ± 0.04 . Their serum ferritin concentration ranged from 0 to 33 µg/l (mean 11.8 ± 11) and differed significantly from that of healthy women ($p < 0.001$). Out of these 28 women, 9 had a Ft value of more than 15 µg/l; 4 among them had already received iron therapy before consulting

us and their Ft was 16, 21, 22 and 27 µg/l. Even excluding these 4 patients, the measurement of Ft failed to identify iron deficiency in 5 out of 24 cases. According to these observations, it is still difficult to detect uncomplicated iron deficiency in adult women from the Ft only, because their normal values are (1) relatively low and (2) rather scattered.

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Acquired Pure Red Cell Aplasia Associated with Thyroid Carcinoma: Case Report To the Editor,

We would like to draw the attention of your readers to the following case report. A 64-year-old woman was referred to our hospital with a 2-year history of weakness. On

admission she was pale without any other relevant findings at physical examination. Haemoglobin was 7.3 g/dl, platelets $160 \times 10^9/l$, and WBC $9.4 \times 10^9/l$ with a normal differential count. Reticulocyte count was 0.5%. Bone marrow smears showed an almost complete absence of erythroblasts with normal myelopoiesis and megakaryopoiesis. All other routine biochemical tests were normal with the exception of ESR which was increased. A diagnosis of pure red cell aplasia (PRCA) was made and the patient received repeated blood transfusions. Mediastinal tomograms performed to search for a thymoma revealed a mild mediastinal enlargement; the patient underwent mediastinoscopy and a biopsy was performed. The histological examination revealed a lymph nodal metastasis from the medullary carcinoma of the thyroid. This diagnosis was confirmed on the thyroid gland which was almost completely involved by the tumor when a hemithyroidectomy was carried out. Repeated blood counts and bone marrow examinations, following surgery, confirmed the diagnosis of PRCA and no improvement was observed. Blood transfusion requirement was unchanged and the patient died at home 7 months later of unknown cause.