a sustained increase in SGPT activity. These findings confirm that SGPT can be used in the early diagnosis of hepatitis in patients on a chronic haemodialysis and heparin regimen.

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Serum ferritin levels in beta-thalassaemia trait

Both iron deficiency and iron overload have been described in subjects with β-thalassaemia trait.[1 2] In all these studies iron status has been assessed by peripheral blood count, serum iron, and by visual quantitation of bone marrow iron stores. Serum ferritin concentrations reflect iron storage status in health and also in certain diseases.[3] We have measured the concentration of serum ferritin in 69 patients with β-thalassaemia trait and compared it with the concentration in normal adult control subjects.

Patients, methods, and results

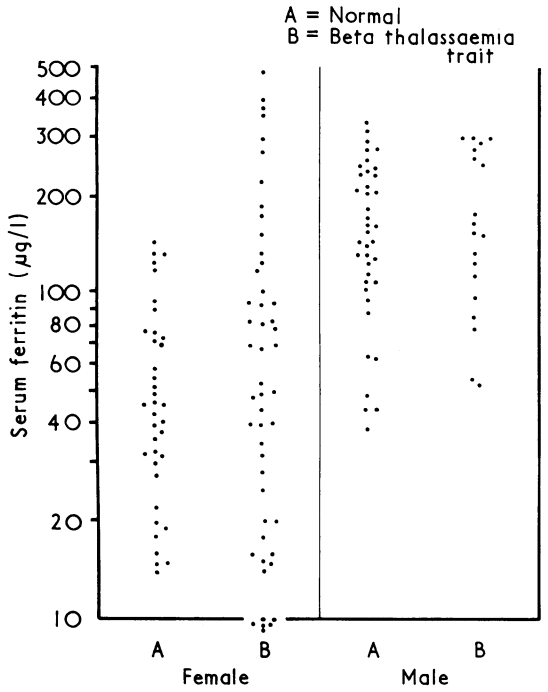
Fifty female (of whom eight were pregnant) and 19 male patients of Mediterranean or Middle Eastern origin were studied. All were apparently otherwise healthy adults with an age range of 18 to 69 years. Only one woman was older than 60. At the time of these studies 10 female patients were taking oral iron therapy, eight of them being pregnant.

The results were compared with those in 76 normal, healthy adult people (37 female and 39 male) whose ages ranged from 17-60. These people showed normal haemoglobin concentrations and normal red cell indices. None of the control patients was pregnant and none was taking iron.

The mean Hb, MCV, and MCH in normal females were as follows, the figures after the ± sign representing 2 standard deviations, 13·2 g/dl ± 1·6, 85·2 fl ± 8·8, and 29·5 pg ± 2·8, and in normal males 14·8 g/dl ± 1·0, 85·3 fl ± 6, and 29·7 pg ± 1·4 respectively. The mean haemoglobin concentration in the 50 female patients was 10·9 g/dl ± 2·2 and in the male patients was 12·6 g/dl ± 1·9. Forty (80 %) of the female patients were anaemic (Hb < 11·5 g/dl) and 16 (88 %) of the male patients were anaemic (Hb < 13·5 g/dl). The mean MCV and MCH in the female patients were 64·8 fl ± 10·8 and 21·1 pg ± 3·5 respectively. The mean MCV in male patients was 63·6 fl ± 8·0 and the MCH 20·8 pg ± 2·5. The haemoglobin A_2 level was above 3·5 % (our normal range 1·5-3·4 %) in all the 69 patients except one female, who had a haemoglobin A_2 of 3·4 % and was subsequently shown to be iron deficient.

The mean serum ferritin in the 37 normal adult females was 55·9 μg/l (range 14-148 μg/l) and in the 39 normal adult males 165·4 μg/l (range 39-340 μg/l). The mean serum ferritin level in the 50 female patients (97·9 μg/l, range 7-484 μg/l) was greater than the mean of the control female patients, but the difference was not statistically significant. Nine female patients showed serum ferritin levels above the control range; three of the nine were taking iron at the time of this examination. Six female patients showed serum ferritin levels below 14 μg/l, and four of these had a transferrin saturation of less than 16 %. None of the patients with subnormal serum ferritin levels was pregnant at the time of these studies.

All the male patients showed serum ferritin levels in the normal range (figure), and their mean serum ferritin level (177 μg/l, range 53-300 μg/l) was not significantly different from that of the control subjects. None of the male patients was taking iron therapy. In neither sex was there a relation between serum ferritin and age or percentage saturation of serum iron binding capacity.



Serum ferritin levels in normal subjects and in patients with β-thalassaemia trait.

Discussion

The results here show that patients with uncomplicated β-thalassaemia trait in general have normal iron stores. This finding is consistent with the observation that iron absorption is normal in β-thalassaemia trait.[4]

Most of our female patients had received oral iron therapy during their pregnancies, often intensively before the diagnosis of β-thalassaemia trait had been made. A_2 least four of the patients with high serum ferritin levels studied here had been given oral iron for long periods or intramuscular iron, and it is likely that oral iron therapy accounts for the increased iron stores, assessed by serum ferritin assay, in the other five patients with raised levels.

The male patients perhaps form a better group to compare iron status of β-thalassaemia trait with normal, since men are less likely to have blood tests or to be given iron therapy. Indeed, as far as we could be sure only one of the males had had iron therapy. The serum ferritin levels in all the male patients were normal.

The results of this study show, therefore, that iron status of patients with β-thalassaemia trait is normal, that these patients may become iron deficient with an equal frequency to normal subjects, and that serum ferritin estimation is of value to diagnose coincidental iron deficiency in β-thalassaemia trait.

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