Possible ameliorative effect of taurine in the treatment of iron-deficiency anaemia in female university students of Gaza, Palestine


Abstract: The aim of the study was to evaluate the haematological effects of adding the antioxidant taurine to iron sulfate in the treatment of iron-deficiency anaemia (IDA). A sample of 730 students from Al-Azhar University, Gaza, in Palestine underwent screening with complete blood counts and serum samples. In subjects with microcytosis/hypochromasia, Alpha2 delta2 (HbA2) and serum concentrations of iron, total iron binding capacity (TIBC), ferritin and taurine were determined. Samples from 17 normocytic, normochromic, and non-anaemic subjects were used as baseline controls. At baseline, 81 of the 730 subjects (11.1%) had microcytosis/hypochromasia, 26 (3.6%) were diagnosed as β-thalassemia carriers, none of which was iron deficient. Four subjects had microcytosis of unknown cause. Fifty-one subjects (all females) had iron-deficiency anaemia and were included in the therapeutic study, which lasted for 20 wk. They were matched for Hb into pairs and were treated with oral iron (325 mg of slow-release iron sulfate). In addition, they were, in a double-blind procedure, randomised to additional oral taurine (1000 mg d−1 at a cost comparable to that of adding ascorbic acid) or placebo. Mean S-taurine was significantly lower in the IDA subjects than in the controls. After 20 wk of iron supplementation, both the taurine and placebo group significantly improved their Hb concentrations and normalised the markers of iron deficiency. Apart from the expected, albeit in this study mild side-effects of oral iron, no significant side-effects were noted. In the taurine group, there was a statistically significant additive positive change from the baseline values on Hb (2.67 ± 1.24 g dL−1), red blood cell (RBC) count [(0.57 ± 0.25) × 10¹² L⁻¹] and serum ferritin (30.33 ± 17.99 µg L⁻¹) as compared to placebo group values, which were 1.80 ± 1.10 g dL⁻¹, (0.39 ± 0.36) × 10¹² L⁻¹, and 20.11 ± 7.34 µg L⁻¹, respectively. Oral taurine appears to increase the effectiveness of oral iron in the treatment of IDA, and has no significant side-effects. This merits further cost–benefit and clinical analyses.

Key words: anaemia; iron deficiency; treatment; taurine; ferrous sulfate

Correspondence: Mahmoud Sirdah, Biology Department, Faculty of Science Al Azhar University, Gaza, Palestine; ABiology Department, Faculty of Science, Cairo University, Egypt; 3Biology Department, Faculty of Science, Al Azhar University, Gaza, Palestine

Iron-deficiency anaemia (IDA) is the most common nutritional anaemia, and it is widespread throughout the world (1). IDA afflicts individuals of all ages and economic groups. However, it is more common among the very young, among those on poor diets, among people with intestinal parasitic diseases, and among women of menstruating age (2). IDA is the primary cause of microcytosis in both developing and developed countries (3). National and global awareness and consequently treatment and prevention measures for IDA have been addressed and implemented (4). Although the