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Scientific Comment

Comment on: Homocysteine and vitamin B_{12} status and iron deficiency anemia in female university students from Gaza, Palestine

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Iron is the most abundant heavy metal in the earth's crust and is required by almost all organisms.[1] In the human body iron is required by and present in all cells and has several vital functions.[2] Anemia due to iron deficiency is the commonest type of nutritional anemia worldwide, and occurs when body iron stores become inadequate for the needs of normal erythropoiesis. Iron deficiency anemia (IDA) results from an imbalance between iron intake and iron losses or utilization.[3] Vitamin B_{12} deficiency is another type of nutritional deficiency that is encountered among the elderly of rich countries, but it is more prevalent in poorer populations around the world.[4] On the other hand, increased levels of homocysteine (hyperhomocysteinemia) are found to be associated with coronary atherosclerosis and cerebrovascular disorders.[5] In the current issue of the Revista Brasileira de Hematologia e Hemoterapia, Sirdah et al. present original data about serum homocysteine and vitamin B_{12} status in female university students (18–22 years old) diagnosed with IDA.[6] The authors explored the association between the markers of IDA (serum ferritin, hemoglobin concentration, red blood cell mass) and the serum levels of homocysteine and vitamin B_{12}. The importance of the study can be viewed in respect to different aspects. The study is among the very few scientific works that tried to find an association between anemia, specially IDA, homocysteine, and vitamin B_{12}. Also it covers a very vulnerable target group for developing IDA, females of the childbearing age. Moreover, the study was carried out in the Gaza Strip of Palestine where the socioeconomical situation, the restrictive environment and the stress in day-to-day life are risk factors for developing nutritional deficiencies.

In addition to the relatively high occurrence of IDA among the female university students, the results of the study of Sirdah et al. reveal significantly higher levels of serum homocysteine among IDA females compared to the controls, with statistically significant negative correlations of serum homocysteine with serum ferritin, vitamin B_{12}, hemoglobin, and hematocrit. A remarkable finding of the study was the statistically reduced level of vitamin B_{12} in IDA females, which may be encountered less frequently in the modern era because of improvements in nutritional status.[7] However, in the Gaza Strip where the local political climate is seriously affecting Gazian economics and the fact that the majority (almost 75%) of the people are United Nations Relief and Works Agency (UNRWA) refugees,[8] this combination of iron and vitamin B_{12} deficiencies may be understandable. However, the cause(s) of hyperhomocysteinemia in these iron and vitamin B_{12} deficient females should be addressed properly in future works.

There is a scarcity of published information that addresses the correlation of IDA markers and serum homocysteine and vitamin B_{12}. Therefore, the results of the study of Sirdah et al. should inspire further comprehensive follow-up studies on other target groups and settings aiming to incontestably define this correlation.

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Conflict of interest

The authors declare no conflicts of interest.

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