COMMENTS AND RESPONSES

Body Iron Stores and Dietary Iron Intake in Relation to Diabetes in Adults in North China

Response to Shi and Pan

In response to the letter of Shi and Pan (1), we appreciate their interest and willingness to comment on our study (2). First, it does not matter whether the lowest quartile (featuring very low levels of heme iron intake) or higher quartiles are chosen as the reference group because odds ratio is a relative value. In addition, the large range of heme iron intake in the Chinese population is just one strength of a study of the relationship between heme iron intakes and risk of diabetes. Finally, socioeconomic status may influence diabetes development independently as well as through diet. After adjustment for socioeconomic status, the odds ratios across heme iron intake quartiles were 1.00, 1.40 (95% CI 0.75:2.59), 2.12 (1.17–3.84), and 2.54 (1.36–4.75) (*P* for trend 0.0326), which were not significantly different from the unadjusted values.

Similar positive associations between serum ferritin level and fasting plasma glucose were found in both Shi et al.'s study (3) and ours (2). We found that mean serum ferritin levels increased across heme iron intake quartiles but decreased across nonheme iron intake quartiles. The mean serum ferritin levels across heme iron intake quartiles in our data were 97.17, 99.70, 109.20, and 115.58 μg/l, and the mean serum ferritin levels across nonheme iron intake were 113.43, 110.99, 98.72, and 98.40 μg/l. Thus, nonheme iron intake should not be positively associated with diabetes risk. We found no significant association between nonheme iron intake and diabetes in our data, whereas Lee et al. (4) demonstrated that nonheme iron intake was negatively associated with diabetes.

Dietary iron supply is determined by total iron intake, content of heme iron, and the bioavailability of nonheme iron (5). The absorption of heme iron is constant and independent of meal composition, and its contribution can be readily calculated from dietary records (5). Rajpathak et al.'s study (6) and some other epidemiological studies have also demonstrated the association between heme iron intake and diabetes. It does not seem appropriate to examine the association between nonheme iron intake and diabetes without considering the bioavailability of the former.

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