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Association between fat distribution and iron status among Qatari obese adults

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Background: The prevalence of obesity in Qatar has reached an alarming rate. In addition, high prevalence of Iron Deficiency (ID) and Iron Deficiency Anemia (IDA) was observed in Gulf countries. In the early 1960s, an inverse relationship between plasma iron and adiposity was reported. To date, no data exist to elucidate the relationship between iron status and obesity among Qatari population.

Objectives: To examine the relationship between fat distribution (Waist Circumference (WC), total body fat% and trunk fat%) and iron status biomarkers in Qatari adults.

Methods: Secondary data was obtained from Qatar BioBank. Sample 200 Qatari obese (male and female) aged 21-50 years free of chronic diseases were randomly selected. Collected data included anthropometric measurements (weight, height, BMI, WC, % total fat and % trunk fat) and iron status biomarkers (iron, ferritin, TIBC, Hgb and RBC). IDA was defined as Hgb <12 g/100 ml for female and Hgb <13 g/100 ml for male. Data analyses were performed using SPSS software version 24.0. The values were expressed as mean±SD. The Pearson chi-square test was used to describe the categorical variables. T-test and ANOVA were used to describe differences between groups. A p-value <0.05 was considered as statistically significant.

Results: A high statistically significant association (P<0.05) was observed between IDA and the increase in trunk fat (low class: 3.0%, medium: 10.1% and high class: 10.6%). Results revealed a decrease in ferritin, Hgb, serum iron and RBC with an increase in % fat. There was a statistically significant correlation between the trunk fat% and iron status indicators: Ferritin (r=-0.48), Hgb (r=-0.64), serum iron (r=-0.29) and RBC (r=-0.51). Moreover, a positive significant correlation was noted between WC and all iron status biomarkers.

Conclusion: The present work is the first to demonstrate the association between iron status and fat distribution among Qatari. The results of this study reported a high prevalence of IDA among obese. Abdominal obesity determined by WC was statistically correlated iron biomarkers.

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