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Possible Mechanism of Double Burden of Malnutrition: Effect of Nutrient Deficiency on Resting Metabolic Rate Status

Background: Obesity and overweight along with the under-nutrition consider as main problem in low-income countries. Whereas deficiency in food intake has contributed to the under-nutrition problem, a lack of dietary diversity also has a demonstrated main role in increasing over-nutrition. Previous study demonstrated that deficiency in several nutrients may contribute to metabolic status and decrease the resting metabolic rate (RMR) and thus increased in overweight/obesity (OW/OB) risk. So, we design current study to determine the correlation between nutritional status and resting metabolic rate in OW/OB Iranian women.

Methods: This cross-sectional study was conducted on 304 overweight and obese women 18–50 years (BMI≥25). Anthropometric measurements were assessed for all cases. The MH phenotype was defined according to the Karelis criteria. Dietary intake were determined using a valid and reliable Food Frequency questioner with 147 items. Resting metabolic rate was measured by indirect calorimetry (METALYZERR 3B-R3) according to the manufacturer's instructions.

Result: Our results demonstrated the participant with decreased of normal status of resting metabolic rate (Dec. RMR) had inadequate intake of vitamin A and riboflavin. Results of multivariate regression analysis showed that, participant with inadequate intake of vitamin A had greater odds of Dec. RMR (OR=2.45, 95%CI=1.11-2.88, P=0.02) after control confounder factors, also women with inadequate intake of riboflavin had high odds of Dec. RMR (OR=1.63, 95%CI=0.97-2.20, P=0.04) after adjusted for BMI, age, total EI, compared to those in the adequate intake.

Conclusion: It seems that the nutritional deficiency through several mechanism in cellular energy and body metabolism increased the risk of metabolic disorder and consequently obesity progression.

Keywords: Double Burden of Malnutrition, Nutrient Deficiency, Resting Metabolic Rate Status

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