ABSTRACT

Obesity is rise in all over the world and it is alarming worldwide health problem. The effect of micronutrients on the obesity has not been concerned in until recent past. Zinc is one of the essential trace elements and one of major micronutrient that have attained importance in human nutrition and health. It is a component of many enzymes participating in the synthesis and degradation of carbohydrate, lipids, proteins and nucleic acids. It involves in the synthesis, storage and release of insulin. The objective of this study was to compare the Zn level and metabolic risk actors among obese and non-obese healthy adults. In this case control study thirty five obese and thirty non-obese adults were participated. Weight, height, body mass index (BMI), waist circumference (WC), hip circumference (HC), Xiphisternum to umbilicus distance (XUD), Skin fold thickness of triceps, bicep and abdominal were measured for anthropometric assessment. Fasting total cholesterol and fasting blood glucose were determined by enzymatic method using commercial kits. Dietary intake was assessed by using 7-day diet records. Serum zinc status was measured using atomic absorption spectrophotometry. There were significant difference ($p<0.0001$) of anthropometric measurements among case and control group. Furthermore, cases had significantly high total cholesterol (3.94 ± 0.73 mmol/L) and fasting blood glucose (5.65 ± 1.11 mmol/L). Non obese had serum zinc status 3.27 ± 1.28 μmol/L where obese showed 2.86 ± 0.42 μmol/L. The risk of developing obesity was 1.8 and 3.9 fold greater in the high energy intake and high energy intake from saturated fat group. It can be concluded that there is high level of serum zinc status among non obese adults than obese adults. Nevertheless, results showed that there is a negative correlation between serum zinc and blood glucose level. Furthermore, weight, BMI, WC, HC, body fat and XUD has shown a negative correlation with the serum zinc.

Key words: Obesity, Zinc, metabolic risk factors, insulin