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Serum chemerin relationships with body composition, insulin resistance, dyslipidemia and glycemic control in Saudi women

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Background & Objectives: Chemerin is believed to be a mediator for the adipose tissue inflammation that occurs in obesity. The present study compared chemerin levels between healthy and type 2 diabetic women matched for age and body composition. We also aimed to assess the relationship of serum chemerin levels with body composition, insulin resistance, dyslipidemia and glycemic control.

Material and Methods: This observational case control study was conducted at the Departments of Physiology and Medicine, Saud University Riyadh, Saudi Arabia. A total of 100 subjects were recruited, including 51 adult diabetic females, and a control group consisting of 49 healthy females. Finally 80 subjects were selected as per inclusion criteria. In the finally selected group, 45 of were type 2 diabetics and 35 were healthy subjects matched for age, body mass index (BMI) and body composition with age ranging between 30-65 years. Body composition analysis was estimated using bioelectrical impendence analyzer. Fasting venous blood samples were analyzed for glycemic markers, lipids and chemerin. Insulin resistance and sensitivity indices were calculated by HOMA-IR and QUICKI using standard formulas

Results: The two groups were matched for age, BMI, body fat percentage (BF%), basal metabolic rate (BMR), truncal fat and waist hip ratio (WHR). Serum chemerin levels were higher in diabetics than controls (p=0.001). Systolic blood pressure, weight, fat mass and visceral fat were found to be significantly higher in diabetics when compared to controls. Fasting blood glucose (FBG), glycocylated hemoglobin (HbA1c), low density lipoprotein (LDL), triglycerides (TG), insulin and HOMA-IR were significantly higher in diabetics compared to controls. While QUICKI and HDL were significantly lower in diabetics compared to controls. Chemerin levels correlated positively with age (r=.300, p=0.007), waist hip ratio (r=0.250, p=0.026), weight(r=0.270, p=0.016), BMI (r=0.334, p=0.003), BF%(r=0.325, p=0.003), fat mass(r=0.250, p=0.026), visceral fat (r=0.356, p=0.001) and truncal fat mass and truncal fat %, serum basal insulin levels and HOMA IR, while it correlated inversely with QUICKI. In multiple linear regression analysis age (r=0.236, p=0.023), BF% (r=0.265, p=0.014) and basal insulin levels (r=0.265, p=0.014) were independent predictors of chemerin.

Conclusions: Serum chemerin levels are elevated in patients with type 2 DM compared to healthy control subjects and are positively correlated with adiposity and Insulin resistance in patients with type 2 DM.

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