

Evaluation of the association between sirtuin-1 protein level and microvascular and macrovascular complications in patients with type 2 diabetes referred to the endocrinology clinic of Semnan University of Medical Sciences in 1400

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Abstract

Background and Aim: Steadily increasing rate of diabetes incidence and diabetes-related mortality due to microvascular and macrovascular complications is a major public health problem. Hyperglycemia, dysfunction of mitochondria, inflammation and oxidative stress are the main causes of diabetes complications. Sirtuin-1(SIRT1), a class III histone deacetylase, is critical in the regulation of glucose and lipid metabolism. The aim of this study was to investigate the association between sirtuin-1 protein level and microvascular and macrovascular complications in patients with type 2 diabetes (T2DM) referred to the endocrinology clinic of Semnan University of Medical Sciences in 1400.

Methods: In this descriptive-analytical study, patients with T2DM referred to the endocrinology clinic of Semnan University of Medical Sciences were evaluated. Demographic data including age, gender and body mass index (BMI) were recorded. Cardiac complications were investigated by echocardiography and ECG, neuropathy complications by neurological examination of the lower limbs and the use of monofilament. Retinopathy complications were also investigated using urine analysis tests (UA), creatinine (Cr), urea (BUN) and microalbuminuria in random urine samples. Subsequently, 10 ml of blood sample was taken from the patients to measure fasting blood sugar (FBS), hemoglobin A1c, and SIRT1. The results were analyzed using SPSS software (version 24).

Results: Totally, 178 type 2 diabetes patients, including 67 (37.6%) men and 111 (62.4%) women, with median age of 59 years (51-65 years) were enrolled in the study. The median FBS was 142 mg/dL (121-173 mg/dL) and the HbA1c level was 7.90% (7.10-8.90%). BMI in these patients was equal to 28.50 (26-32).