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# 당뇨 환자에서 혈장 irisin 수치의 의의

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# Circulating Irisin Level in Human Diabetic Cohorts; 11 Year Retrospective Cohort Study

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**Objective:** Irisin, a novel myokine which is proteolytically processed from the product of the FNDC5 gene, has been proposed to mediate beneficial effects on metabolism by inducing browning of subcutaneous adipocytes and upregulation of uncoupling protein1 level in experimental mice. In humans, circulating irisin level was significantly decreased in obese and diabetic patients. However, the role of irisin in humans is not clearly elucidated. We therefore, examined circulating irisin level and its associations with various complications of diabetes.

**Methods:** We performed a retrospective cohort analysis of 161 diabetic individuals followed up for approximately 11 years. Baseline circulating plasma level of irisin was measured using commercially available EIA kit (Phoenix pharmaceuticals (ng/ml)). The associations between the circulating irisin with variable metabolic parameters, microvascular and macrovascular complications were evaluated.

**Results:** Total 161 patients (n=14, type 1 diabetes, n=147 type 2 diabetes, mean age 43,6±4.6, 66.8±10.4 respectively) were analyzed. There were no significant associations with circulating irisin levels with gender difference, the type of diabetes, body mass index, age, Patients with hypertension (n= 66) showed significantly decreased level of circulating irisin (649.09±661.9 vs 884.01±792.27, p=0.04). There was no significant difference in irisin level among the CKD stages (using CKD-EPI equation), however there was a trend toward decrement as the stage advanced. (stage 1 (n=62) 806.97±793.70, stage 2 (n=58) 925.31±849.83, stage 3a (n=20) 690.75±522.96, stage 3b (n=12) 547.5± 460.7, stage 4 (n=5) 627.30±464.73, stage 5 (n=4) 207.48±75.89). Binary logistic regression was performed to evaluate the relative risks of irisin level with the development of micro- and macrovascular complications. The irisin level did not affect the risks of macrovascular complications. However, increased level of irisin (log irisin) significantly decreased the risk of retinopathy (Unadjusted RR 0.688, 95% CI 0.516-0.918, p=0.01, Adjusted RR 0.677, 95% CI 0.487-0.942, p=0.02).

**Discussion:** Circulating irisin level of diabetic patients was not affected by renal insufficiency nor did not affect diabetic nephropathy. It might have a predictive role in diabetic retinopathy.

**Key Words:** 당뇨, 아이리신, CKD EPI
Diabetes, Irisin, CKD EPI