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Original article

Association of Insulin Resistance, β-Cell Function Impairment and Calcium, Magnesium, and Fetuin-A Concentrations in Women with Type 2 Diabetes Mellitus

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SUMMARY

Insulin resistance and β-cell function impairment play a role in the pathogenesis of type 2 diabetes (T2DM). Insulin signaling is inhibited by fetuin-A, an abundant plasma protein. Fetuin-A is also a candidate marker of the T2DM risk. This case-control study aimed to determine whether fetuin-A serum level is related to insulin resistance, β-cell function impairment, and total and ionized Ca and Mg serum levels in Erbil patients with T2DM.

A total of 60 patients with T2DM were recruited, and 30 healthy persons were included in the control group. Fetuin-A and insulin concentrations were measured through ELISA. Other biochemical parameters were determined spectrophotometrically. Insulin resistance (HOMA2IR), insulin sensitivity (HOMA2%S), and β-cell function were examined by using a homeostatic model assessment 2 (HOMA2).

Fasting serum insulin, fetuin-A serum levels, and HOMA2IR were significantly increased. HOMA2%S of the patients with diabetes was significantly lower than that of the control group. The total serum and ionized Ca and Mg contents and the Ca/Mg ratio were reduced in the patients.

Therefore, fetuin-A is related to T2DM pathogenesis and is strongly associated with insulin resistance and glycemic control in T2DM patients. Future large-scale studies are necessary to validate fetuin-A as an indicator of IR in T2DM patients.

Key words: **Ca, fetuin-A, type 2 diabetes mellitus, insulin resistance, Mg**

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