THE CLINICAL VALUE OF ADIPOCYTE SECRETORY PROTEINS AS MARKERS IN COMPLICATIONS OF EGYPTIAN TYPE 1 DIABETICS

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ABSTRACT

**BACKGROUND:** T1DM is mostly an autoimmune disease with many serious short-term and long-term implications. The adipocyte-derived hormone, adiponectin, has beneficial effects not only on improvement of insulin sensitivity but also on mitigation of vascular damage and enhancing cardio-protection.

**OBJECTIVES AND AIM OF THE WORK:** This study was designed to investigate serum concentration of adiponectin in Egyptian children and adolescents with T1DM and to explore the impact of gender, pubertal stage, metabolic control as well as different complications of DM on adiponectin serum level. In addition, the study aims also to afford access to information that may allow prediction of such complications.

**RESEARCH DESIGN AND METHODS:** Urine and serum samples were collected from children and adolescents with T1DM (n=60) and healthy volunteers with comparable age and sex distribution (n=20). The analysis included the parameter of matching for BMI and Tanner stage. Glycemic control indices, lipid profile, liver and kidney function tests as well as albuminuria were estimated. Serum adiponectin was also determined quantitatively using ELISA technique. In addition, traditional anti-atherogenic indices were calculated. ROC curves were established to assess the diagnostic accuracy indices of investigated parameters in predicting micro- and macro-vascular diabetic complications.

**RESULTS:** Adiponectin serum levels were higher in patients with T1DM compared to volunteers at p < 0.0001. Adiponectin showed an inverse and significant correlation with TG while HbA1C was directly and significantly correlated with ACR. Accuracy of CVD risk assessment indices was in descending order of adiponectin (100 % sensitivity), T-C / HDL-C ratio then LDL-C / HDL-C ratio.

**CONCLUSIONS:** This study investigated the clinical significance of adiponectin in serum of Egyptian patients with T1DM and explored its role in complications of the disease. Results of this study predict that adiponectin has higher and better diagnostic accuracy indices compared to other traditional atherogenic indices. Furthermore, the results also suggest that adiponectin could prove to be a marker for the assessment of a cardiovascular risk after standardization in a population-based study. The association between adiponectin and diabetic nephropathy requires further investigations.

**KEYWORDS:** T1DM, Adiponectin, CVD, Microalbuminuria, ACR, HbA1C, FBGL, Lipid profile.

Ordered list of degrees:
- **Secondary Stage**: year 2000
- **BSc.**: Year 2005. Bachelor of Pharmaceutical Sciences; Cumulative Grade: “Excellent with Honors”, Ranked 3rd among 320 students, (Faculty of Pharmacy, Helwan University), May 2005.
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Academic experience:
- **Instructor & demonstrator**, Department of Biochemistry & Molecular Biology, Faculty of Pharmacy, Helwan University, Nov. 2005 - Oct. 2010.
- Working at **National Institute for Diabetes and Endocrinology "NIDE"** in the field of clinical research for obtaining master degree in pharmaceutical sciences (Biochemistry & Molecular Biology), 2009.
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RESEARCH INTERESTS:
- Clinical biochemistry
- Tumor markers applications
- Molecular biology
- Stem cell clinical applications

AWARDS & HONORS:
- **Helwan University award** as a Privileged student of the college in 2005.
- **Shield of excellence 2005**: General Egypt Syndicate of Pharmacists.
- "**The Best Scientific Thesis**" award in the field of "Basic Sciences" for the academic year 2011 / 2012 for the master thesis titled "The Clinical Value of Adipocyte Secretory Proteins as Markers in Complications of Egyptian Type 1 Diabetic Patient."