Diabetes

T040

VALIDATION OF AN AUTOMATED IMMUNOTURBIDIMETRIC ASSAY FOR DETERMINATION OF SERUM ADIPONECTIN IN DIABETIC PATIENTS

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BACKGROUND-AIM

Adiponectin, a protein synthesized in adipocytes, has been identified as an important regulator of metabolic homeostasis. Hypoadiponectinemia is associated with an increased risk for the development of metabolic syndrome, atherosclerosis, cardiovascular disease and type 2 diabetes, as well as diabetic complications. An ongoing search for interventions able to modulate adiponectin levels is expected to eventually improve patient outcomes. Recently proposed use of adiponectin as a routine clinical biomarker in identifying high-risk patients as potential candidates for such interventions, emphasized the need for an automated methodology suitable for use in clinical laboratory.
The aim of this study was to validate Adiponectin Immunoturbidimetric assay (A-ITA;Randox Laboratories Ltd, UK) in patients with type 1 (T1DM) and type 2 diabetes (T2DM) without complications in comparison to obese subjects with normoglycaemia (ONG).

METHODS

A-ITA was applied to an automated analyzer (AU680 Chemistry System, Beckman Coulter USA) and performance verified according to CLSI-EP15-A2 Aproved Guideline. High sensitivity human adiponectin sandwich ELISA (A-ELISA; Biovendor, Czech Republic) was used as a laboratory comparator method. We tested fasting samples from ONG subjects and diabetic patients without clinical and laboratory signs of diabetic complications, attending their annual outpatient check-up.

RESULTS

Within-and total-run CVs for A-ITA ranged from 1,4-1,8% and 1,6-2,2%, respectively. Serum adiponectin levels were significantly lower with A-ITA than A-ELISA procedure (8,36±5,24 vs. 10,66±5,57 mg/L, respectively; P<0,0001). Passing Bablok regression analysis showed an excellent correlation with a significant systematic difference between the methods (regression equation: y=1,839+1,050x; Intercept A/95%CI=1,839/1,425-2,260; Slope B/95%CI=1,05/0,9873-1,1050). Serum adiponectin levels, as measured by both methods, were significantly higher (ANOVA, P<0,001) in patients with T1DM (N=31) in comparison to both T2DM (N=46) and ONG (N=38), whereas no difference could be demonstrated between T2DM and ONG. The level of significance for between-group differences was not affected by the adiponectin methodology.

CONCLUSION

Our results demonstrate that automated serum adiponectin immunoturbidimetric assay, with appropriate analytical preformance, might become a method of choice in establishing clinical utility of adiponectin as a routine biomarker in monitoring diabetes and it's complications.