Developement of an automated immunoassay for advanced glycosylation end products in human serum

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Abstract

OBJECTIVE: Nonenzymatic reaction of protein and carbohydrate produce a series of brown fluorescent advanced glycosylation end products (AGEs). However, a convenient and rapid assay for serum AGEs level is currently unavailable.METHODS: We raised AGEs-specific polyclonal antibodies, which were used to develop a fully automated, noncompetitive, homogeneous, light-scattering immunoassay for serum AGEs.RESULTS: The assay requires a sample volume of 2 microL and takes a reaction time of 2 min. The coefficient of variation range from 1.8 to 6.1%, and the mean recovery rate was 98.6%. Comparative analysis shows moderate correlation with competitive ELISA (r = 0.8209, n = 52). The mean +/- SD concentration of AGEs in young and in older healthy subjects were 4.6 +/- 1.5 (n = 39) and 4.9 +/- 1.4 (n = 40), respectively. The level of AGEs was significantly higher in serum from patients with type II DM 7.8 +/- 4.8 (n = 89) than that from the normal subjects (p < 0.05).CONCLUSIONS: The automatic immunoassay for AGEs is appropriate for clinical use.