

Biochemistry

Letter to the Editor – 62134



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Importance of HbA1c and fructosamine as a marker of glycemic control and evaluation of some biochemical parameters during pregnancy

Gebelik döneminde HbA1c ve fruktozaminin glisemik kontrol belirteci olarak önemi ve bazı biyokimyasal parametrelerin değerlendirilmesi

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Dear Editor,

We read with great interest Seker and his friends' study entitled as "Importance of HbA1C and fructosamine as a marker of glycemic control and evaluation of some biochemical parameters during pregnancy" [1]. We congratulate the author and his friends for this comprehensive and effortful study. In addition, we would like to note a few points for readers and the authors about the studied parameters.

Although the study mentions that variant haemoglobins affect HbA1C measurement, what methods (Immunochemistry, Boronate affinity, Ion Exchange, etc.) used by the researchers is not noted in the study. HbA1C values determined by means of especially some HPLC measurement methods cause quantification problems in the existence of variant. We consider about the issue that it could be useful to examine the National Glycohemoglobin Standardization Programme (NGSP)'s source indicating which method is influenced from the existence of which variant and regard that knowledge in accordance with the method in HbA1C studies [2]. American Diabetes Association (ADA) suggests using only blood glucose criteria in the diagnosis of diabetes especially in the second and the third trimesters of pregnancy and in such circumstances red cell turnover increases as recent blood loss, blood transfusion, erythropoietin treatment and haemolysis

[3]. Regarding the study, it can be observed to include the pregnant most of whom are in the second and third trimesters. The writers have already concluded that HbA1C is an inadequate marker in the diagnosis and monitoring of gestational diabetes.

The method used for Fructosamine is not stated in the study. The literature includes four measurement methods that are Affinity chromatography, HPLC, Photometric procedure and the one with Phenylhydrazine and Furosine [4]. As far as we understand, the writers have measured Fructosamine photometrically. We consider that it would be useful to state the method of the study and the used device.

Seker and his friends' study have determined statistically significant difference in Albumin values between diabetic and nondiabetic pregnant groups (average 3.69 g/dL and 3.82 g/dL in diabetic and nondiabetic groups, respectively), yet no significant difference for Fructosamine ($p:0.277$). We consider that the result will be more different when Fructosamine corrected for albumin is statistically analysed. It is recommended to correct the changes in protein concentration in Fructosamine measurements. Otherwise, incorrect changes can happen in measurements. Corrections for Albumin and Total protein can be made in accordance with the formula as follows [5].

$$[\text{Fructosamine}]_{\text{corrected for total protein}} = (\text{Fructosamine} / \text{Total Protein}) \times 7.0 \text{ g/dl}$$
$$[\text{Fructosamine}]_{\text{corrected for albumin}} = (\text{Fructosamine} / \text{Albumin}) \times 4.1 \text{ g/dl}$$

Regards.

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