

20. GLYCATED ALBUMIN – A BETTER GLYCEMIC CONTROL MARKER THAN HbA1c IN PREGNANCY AND GESTATIONAL DIABETES MELLITUS

Author: Bolocan Valeria

Scientific adviser: Veronica Sardari, MD, Department of Biochemistry and Clinical Biochemistry, *Nicolae Testemitanu* State University of Medicine and Pharmacy of the Republic of Moldova.

Introduction. Since glycation of various proteins is increased in diabetes, glycated proteins can be used as glycemic control indicators. Despite being the gold standard of glycemic control, HbA1c does not precisely reflect the actual status of glycemic control in some conditions including pregnancy and gestational diabetes mellitus (GDM). In comparison, glycated albumin (GA) more accurately reflects changes in plasma glucose because it is not affected by variable haemoglobin concentrations and modified erythrocyte life span that naturally occur in pregnancy.

Aim of study. Hyperglycemia that develops during pregnancy and disappears after giving birth is now recognized as a special type of diabetes, called GDM. GDM is a common medical complication of pregnancy, and the prevalence of undiagnosed hyperglycemia and even the incidence of diabetes in young women is constantly increasing. Therefore, new glycemic control markers are being investigated in order to ensure a good quality of diabetes care before, during and after pregnancy.

Methods and materials. To achieve the proposed goal, a synthesis of the literature published from 2009 until 2021 has been made, using 11 bibliographic sources, including electronic libraries like PubMed, Medscape, Diabetes Care and Diabetologia.

Results. Normally, erythropoietin and erythrocyte production is increased during normal pregnancy, which contributes to the understanding of the increased erythropoiesis on the one hand, and reduced haemoglobin concentration on the other hand. All of those explain the reduced life span of the erythrocytes that will determine a decrease in HbA1c values. Besides, in the first trimester there is a lower pre- and postprandial blood glucose values, which also causes a decrease in the percentage of HbA1c. Instead, in the third trimester there is an increase in the postprandial blood glucose values, which determines an increase in HbA1c. These assertions suggest that, in order to ensure an optimal glycemic control, it is mandatory to use HbA1c references specific for each trimester. Compared with HbA1c, GA reflects the short-term status of glycemic control (around 2-3 weeks). Additionally, GA reflects postprandial plasma glucose more accurately than HbA1c, which is important for the evaluation of plasma glucose level at a time point closer to the time of consultation with the physician. Moreover, as it has already been mentioned, GA does not interfere with increased erythropoiesis and erythrocyte life span, the states present in pregnancy.

Conclusion. Poor glycemic control can be associated with a higher incidence of perinatal maternal-infant complications. Regardless of its major clinical importance, HbA1c is not suitable for monitoring glycemic control in pregnant women with diabetes and GDM. It has become clear that GA, another indicator of glycemic control, is not influenced by the limitations of HbA1c and therefore might be a better indicator of glycemic control in patients with GDM and pregnant women with diabetes mellitus. However, further large-population studies are necessary in order to confirm these findings.