Global Science Research Journals

Global Research Journal of Education

Open Access

Predict haemoglobin A1C model from capillary blood glucose and haematocrit in diabetic patients with haemoglobin E homozygote

Passorn Sueyanyongsiri, P Tangbundit, S Sueyanyongsiri and **S Bunmee**

Surin Hospital, Thailand

Abstract

Background: A decreased life-span of erythrocytes is associated with artificial low concentration of haemoglobin A1C (HbA1c) in haemoglobin E disorder. This research aims to develop a predict model for determine HbA1c level of haemoglobin E homozygous (HbEE) diabetic patients in Surin Hospital.

Methods: A cross-sectional study was conducted from 2009 to 2016. Patient's profile, capillary blood glucose (Dtx), haematocrit and HbA1c level were collected from haemoglobin E homozygous (HbEE) group. Each sample arm was classified into seven strata according to blood glucose level to compare HbA1c level in each subgroup. HbA1c in each subgroup was compared with capillary blood glucose measured before breakfast. Statistical analysis was carried out. Descriptive parameters are presented as means with standard deviations, or as percentiles. Multilevel Gaussian regression analysis was used for univariable and multivariable analysis. A p-value < 0.05 was considered statistically significant.

Results: During 2009-2016, 81 patients were with HbEE. There were 1089 blood tests. There were no significant differences in regard to age, sex and Dtx among the groups. The haematocrit was significantly lower in HbEE group. Homozygous haemoglobin (HbEE) produced a relationship of HbA1c (%) = 1.99+ 0.012Dtx+ 0.103Hct. The effect of Hct and Dtx to HbA1c by multilevel regression was HbA1c (%) = 2.04+0.012 Dtx (mg %) +0.102Hct by random intercept and random slop. By predict model, if Hct is lower than 32 % goal of HbA1c should be lower than 6.7%. If Hct more than 37% Dtx should be lower than 100 mg%.

Conclusion: In haemoglobin E homozygote is associated with artificial low HbA1c level and variability in Hct level. They should use individual goal following the level of Hct.

Biography

Passorn Sueyanyongsiri has completed her MD at the age of 25 years from Chulalongkorn University and postdoctoral studies from Mahidol University School of Medicine. She is a Medical Teacher in Surin hospital, affiliated Institutes of Suranaree University of Technology, Thailand.

Citation: Passorn Sueyanyongsiri, Predict haemoglobin A1C model from capillary blood glucose and haematocrit in diabetic patients with haemoglobin E homozygote, Diabetes Congress 2020, International Conference on Diabetes Research & Endocrinology, Aug 18-19, 2020, 2020, Page No: 05

Glob. Res. J. Edu. 2020
ISSN: 2408-6894

Volume 8| Issue 8 | 05