

## LETTER TO THE EDITOR

# Hemoglobin A1c Level and Malnutrition/Undernutrition without Disease

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malnutrition, laboratory, HbA1C

### TO THE EDITOR

The publication on “Could Insulin and Hemoglobin A1c Levels be Predictors of Hunger-Related Malnutrition/Undernutrition Without Disease?” is very interesting [1]. Uyar et al. concluded that “Plasma insulin and HbA1c levels were significantly decreased in young adult malnourished patients without disease who had normal fasting glucose levels.” [1]. We would like to share ideas on the observations. The interpretation of hemoglobin A1C and its relationship to malnourishment might be affected by some parameters. We would like to share ideas and experience on this topic. In our setting, Indochina, there is a high prevalence of congenital hemoglobin disorders and aberrant hemoglobin A1C results are very common [2]. The abnormal high hemoglobin A1C level is observable in the patients with thalassemia/hemoglobinopathy [2] and those patients usually have nutritional problems [3]. In addition, the abnormal low hemoglobin A1C level is observable in normal people who follow a strictly sugar-free dietary pattern [4].

### Declaration of Interest:

None.

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## RESPONSE

# May Insulin and Hemoglobin A1c Levels be Predictors of Hunger-Related Malnutrition/Undernutrition without Disease?

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### RESPONSE

Thank you very much for Mr. Won's valuable comments and contributions. Hemoglobin A1c (HbA1c) is used to diagnose type 2 diabetes mellitus and shows average blood glucose levels during the preceding 2 to 3 months [1]. Previous large-scale human genetic studies have demonstrated that genetic variants have a functional and structural influence on HbA1c [2]. Hemoglobin variants can also interfere with the measurement of HbA1c and newer assays are unaffected by the most common hemoglobin variants in the United States [3]. The American Diabetes Association (ADA) concluded that hemoglobin variants and race/ethnicity may interfere with the measurement of HbA1c and the combination of HbA1c and fasting glucose should be used to confirm type 2 diabetes diagnosis in routine screening of these people [3]. In 2012, Herman and Cohen stated that error and misclassification can be made in the measurement of HbA1c if racial and ethnic differences are not fully defined [4]. However, Dr. Selvin reported that there is no compelling evidence for racial differences in the validity of HbA1c as a measure of hyperglycemia in 2016 in Diabetes Care [5]. Further studies are needed to determine the inter-individual variability in HbA1c and the factors that explain differences between races and ethnic groups.

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**Declaration of Interest:**

All authors declare that they have no conflict of interest.

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