



The effect of anemia on glycated hemoglobin (HbA1c) level in Yemeni patients

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Abstract:

Diabetes mellitus is one of the most common diseases worldwide with significant morbidity and mortality. HbA1c remains one of the most important methods for diagnosis and monitoring of the disease. Since HbA1c is a reflection of the glucose attached to red blood cells, factors affecting hemoglobin and red blood cells' half-life can influence HbA1c measurements. This study aims to evaluate the effect of different types of anemia on Glycated hemoglobin (HbA1c) levels in Non-Diabetic Patients. This cross-sectional study of 296 patients including those diagnosed with anemia and a control group. The control group were healthy adults with normal HbA1c and hemoglobin, who were not known to have diabetes or anemia. This study was conducted in the Department of Medical Laboratories at Al-Saeeda University in cooperation with Al-Gumhouri Teaching Hospital - Sana'a during the period from February to May 2020. The data analyze by SPSS version-20. The significant value is consider when P- value < 0.05 and used EndnoteX7 for references management. Out of the total of

296 subjects, 100 subjects had iron deficiency anemia without diabetics (group 1), 96 subjects had other types of anemia without diabetics (group 2) and compared with 100 controls who were healthy individuals (non-diabetic & non-IDA) (group 3). The mean HbA1c levels were significantly higher in iron deficiency anemia (7.50 ± 0.84) when compared to the control group (5.29 ± 0.32). However, the mean HbA1c levels in sickle cell anemia (3.91 ± 0.53) and (3.92 ± 1.13), (4.39 ± 0.67), (4.79 ± 0.80) in thalassemia, aplastic anemia, and Anemia of chronic diseases respectively. **Conclusion:** This study found a significant increase in HbA1c levels in iron deficiency anemia in patients not known to have diabetes. However, there was a significant decrease effect in those patients with sickle cell disease, aplastic anemia, and Anemia of chronic diseases.

Keywords: HbA1c, iron deficiency anemia, Thalassemia, Sickle cell anemia, Aplastic anemia, and Anemia of chronic diseases.