Evaluating The Feasibility of Pro-Neurotensin And 25-Hydroxyvitamin D3 As Possible Indicators for Type 2 Diabetes Mellitus and Its Complications

Amal A. Mohammed 1, Dina M. Abo El-Matty 2, Esraa A. Abd ElSalam 2, Mona A. Hussein 3, Wael Hafez 4 , Sharehan A. Ibrahim 5, Eman A. H. Shaheen 6, Eman A. Awad 7, Marwa A. Osman 8, Marwa S. Abd El-Raouf 9, Salma M. Saed 10, Reham Y. El-Amir 11, Doaa Ghaith 10, Fatme Al Anouti 12, and Alaa S. Wahba 2*

1 Department of Biochemistry and Molecular Biology, National Hepatology and Tropical Medicine Research Institute (NHTMRI), Cairo 11796, Egypt

2 Department of Biochemistry and Molecular Biology, Faculty of Pharmacy, Suez Canal University, Egypt

3 Department of Internal Medicine, National Institute of Diabetes and Endocrinology, Egypt

4 Department of Internal Medicine, The National Research Centre, Egypt; waeelhafez@yahoo.com

5 Department of Internal Medicine, Faculty of Medicine, Minia University, Minya 61511, Egypt

6 Department of Clinical and Chemical Pathology, Faculty of Medicine, Helwan University, Cairo 11795, Egypt

7 Department of Internal Medicine, Faculty of Medicine for Girls, Al-Azhar University, Cairo 11795, Egypt

8 Department of Neurology, Faculty of Medicine for Girls, Al-Azhar University, Cairo 11884, Egypt

9 Department of Public Health, Faculty of Medicine, Benha University, Benha 13511, Egypt

10 Department of Clinical and Chemical Pathology Department, Faculty of Medicine, Cairo University, Cairo 11566, Egypt

11 Department of Public Health, Faculty of Medicine, Cairo University, Giza 12211, Egypt

12 Department of Health Sciences, College of Natural and Health Sciences, Zayed University, Abu Dhabi 144534, United Arab Emirates

Abstract:

Background:

Type 2 diabetes mellitus (T2DM) and metabolic syndrome are associated with decreased vitamin D. In contrast, high pro-neurotensin (pro-NT) levels are linked with an increased risk of T2DM and cardiovascular disease. We aimed to determine the validity of pro-NT and 25-dihydroxy vitamin D3 levels as predictors for T2DM complications; (2) Methods: One hundred T2DM, and one hundred healthy volunteers participated in this case-control study. Their Pro-NT and 25-hydroxyvitamin D3 levels were evaluated using the ELISA technique.

Results:

Pro-NT and 25 (OH) vitamin D3 have significant validity and accuracy in T2DM prediction, 84.5%, and 90.5%, respectively (p = 0.001). At a value of <29.5, 25-Hydroxy vitamin D3 showed 88% sensitivity and 93% specificity in predicting T2DM. At a value of >124 Pmol/L, Pro-NT showed 81% sensitivity and 88% specificity in predicting T2DM. At a value of 16.5, 25-Hydroxy vitamin D3 had 78.4% sensitivity and 68.3% specificity in predicting T2DM complications. At a value of >158 pmol/L, Pro-NT predicted T2DM complications with 67.6% sensitivity and 56.0% specificity; (4) Conclusions: 25 (OH) Vit D3 and Pro-NT could identify T2DM patients and predict T2DM complications.

More extensive research:

is required to adequately validate this novel perspective with a large population study.

Keywords:

25 (OH) Vit D3; Pro-NT; marker; insulin resistance; T2DM.