VITAMIN D DEFICIENCY AND RISK OF DIABETES MELLITUS IN ARAR, KINGDOM OF SAUDI ARABIA: A CROSS SECTIONAL STUDY

Nagah Mohamed Abo el-Fetoh¹, Fatimah Fahad Saad Altaleb², Abdulmajeeed Ahmed Alenazi², Hala Mohammed Alanazi², Dina Anwar Aljaber², Mohammed Ali Alhowaish³ and Abdalla Mohamed Bakr Ali³

¹Family and Community Medicine Department Faculty of Medicine NBU, Arar, KSA
²Faculty of Medicine, Northern Border University
³Faculty of Medicine, Sohag University, EGYPT

Abstract

Over the past decade, numerous non-skeletal diseases have been reported to be associated with vitamin D deficiency including type2 diabetes mellitus (T2DM). Studies provide evidence that vitamin D may play a functional role in glucose tolerance through its effects on insulin secretion and insulin sensitivity, no previous community based studies have been conducted in Arar, northern border of Kingdom of Saudi Arabia (KSA) addressing this issue could be traced. This study was carried out to show the magnitude of the problem of vitamin D deficiency and how such a deficiency can eventually has associated with DM in Arar population, KSA. Methods: A cross-sectional study was carried out during the period from 1, March 2016 to 30, September 2016. A total of 439 subjects aged 20–45 years, attending five randomly selected primary healthcare centers were selected using a systemic random sampling procedure. Data were collected by personal interview using a predesigned questionnaire including the relevant questions for obtaining covering the medical history of diabetes, age, family history of diabetes and other relevant needed data. Blood sample is drawn under complete a septic conditions to determine random blood glucose level. Person considered diabetic if random blood sugar was ≥200 ml/dl. Serum levels of 25-OH vitamin D were measured by ELISA. Anthropometric examination included height and weight measurements was obtained. Body Mass Index (BMI) was calculated. Results: The majority (70.6%) of the participants had normal Vit. D level, 24.8% had deficient level - lower than 12 ng/ml and 4.6% had insufficient level (12-20 ng/ml). the prevalence of diabetes mellitus among the studied population was 12.1%. Diabetes mellitus was more prevalent among cases of Vit.D deficiency as it affects 16.3% of them and 10.3% of participants with normal Vit. D level with statistically significant difference (P <0.05). there is also significant effect of sex and exposure to sunlight (P<0.05), but no significant effect of BMI, age, educational level, fast food consumption, milk and dairy products consumption, and frequent eating fruits and vegetables on occurrence of Vit. D deficiency among the studied population (P>0.05). Conclusion: In conclusion, vitamin D deficiency is a common problem in in Arar, KSA, vitamin D deficiency is significantly associated with diabetes mellitus. Health education programs and increased awareness of the health services providers are needed.

Keywords: Vitamin D deficiency; Diabetes mellitus; Arar; Kingdom of Saudi Arabia.