World Academy of Science, Engineering and Technology
International Journal of Biomedical and Biological Engineering
Vol:16, No:08, 2022

Vitamin D Levels in Relation to Thyroid Disorders

Authors : Binaya Tamang, Buddhhi Raj Pokhrel, Narayan Gautam

Abstract : Background: There may be a connection between thyroid function and vitamin D status since both bind to similar nuclear hormone receptors and have similar response regions on gene promoters. The purpose of the current study was to investigate the relationship between thyroid hormones and vitamin D levels in females who were attending a tertiary care center in western Nepal and were either hypothyroid or euthyroid. Methods: This hospital-based cross-sectional study was carried out between March 2020 and March 2021 by the Biochemistry department of the Universal College of Medical Sciences (UCMS), Bhairahawa, Province No. 5, Nepal, in cooperation with Internal medicine. Prior to the study, institutional review committee approval (UCMS/IRC/008/20) was acquired from UCMS. Women who visited the Internal Medicine OPD of UCMS and were advised to get a thyroid function test (TFT) were included in the study population. Only those who were willing to participate in the study were enrolled after the goals and advantages of the study had been explained to them. Participants who had recently used vitamin D supplements and medications that affected thyroid hormones were excluded. The participants gave their consent verbally and in writing. After getting the consent, a convenient sample technique was applied. Serum was isolated after drawing 3 ml of blood in a plain vial. Chemiluminescence assay was used to analyze vitamin D and thyroid hormones (MAGLUMI 2000). SPSS version 16.0 for Windows was used to conduct the statistical analysis. Statistical significance was defined as a P-value < 0.05. Results: Majority of the study population (n=214, 71%) had insufficient serum vitamin D levels. Among the thyroid groups, the median Vitamin D levels were significantly lower in hypothyroid (16.88 ng/ml) as compared to the euthyroid groups (25.01 ng/ml) (P<0.001). Similarly, serum Vitamin D levels were considerably lower in the obese population (16.86 ng/ml) as compared to the normal BMI group (24.90 ng/ml) (P<0.001) as well as in the vegetarian (15.43 ng.ml) than mixed diet consumer (24.89 ng/ml) (P<0.01). Even after the adjustment for these variables, the Vitamin D levels were significantly lower in the hypothyroid population than in the euthyroid group (P<0.001). Conclusion: Comparing the hypothyroid population to the euthyroid, the median serum vitamin D levels were considerably lower. We were alarmed to see that the majority of euthyroid participants also had low levels of vitamin D. Therefore if left untreated, low vitamin D levels in hypothyroid patients could worsen their health further.

Keywords : vitamin D, thyroid hormones, euthyroid, hypothyroid, Nepal
Conference Title : ICEMSD 2022 : International Conference on Endocrinology, Metabolic Syndrome and Diabetes
Conference Location : Sydney, Australia
Conference Dates : August 30-31, 2022