Exploring the Relationship between Vitamin D and Cardiovascular Health: An American NHANES Analysis

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Background: Vitamin D plays a pivotal role in maintaining overall health and affects several physiological processes. We aim to evaluate the relationship between 25-hydroxy vitamin D levels and cardiovascular risk factors.

Methods: A retrospective study used data from the National Health and NHANES conducted between 2001 and 2018. We analyzed a dataset of 43,355 individuals, excluding those under 20 years. Regression and difference tests examined the relationship between vitamin D level and cardiovascular risk factors.

Results: Females showed higher vitamin D levels (63.63 ± 29.17) than males (61.46 ± 24.07) (p = 0.002). Patients with borderline diabetes exhibited lower levels of vitamin D (65.57 ± 26.42) (p = 0.002). BMI equal to or greater than 30 was associated with decreased vitamin D levels (57.82 ± 25.49) (p = 0.000), while BMI less than 18.5 was associated with higher levels (67.15 ± 27.91) (p = 0.000). Patients with high blood pressure (systolic ? 140/ diastolic ? 90), high fasting blood glucose (>126), high body mass index (>30), high triglyceride (>150), and high cholesterol (>150) had lower odds of having high-level 25-hydroxy vitamin D (>70.60) than the other reference subgroups (AOR=0.68, 95%CI:0.63-0.74, AOR:0.62, 95%CI:0.57-0.68, AOR:0.62, 95%CI:0.51-0.76, AOR:0.83, 95%CI:0.78-0.88, AOR:0.89, 95%CI:0.83-0.96, respectively)(P-value<0.05).

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Conclusion: Our research confirmed a significant negative correlation between 25-hydroxy vitamin D levels and blood pressure, fasting blood glucose, body mass index, triglycerides, and cholesterol. Large multicenter clinical trials are needed to validate our findings.

Keywords: Cardiovascular Disease

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