Study of the Association Between Serum Vitamin D Levels and Prostate Cancer.

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INTRODUCTION: Vitamin D has been suggested as a marker for prostate cancer risk, but prior study results are conflicting. This study evaluated the association of prostate cancer diagnosis with vitamin D levels as well as with each of the following variables of interest: age, race group, military service, smoking status, and alcohol use.

METHODS: A total of 11,547 adult males aged 18 or older who participated in the National Health and Nutrition Examination Survey for years 2001-2010 were included in this retrospective, cross-sectional, observational study. National Health and Nutrition Examination Survey is an annual, nationally representative sample of noninstitutionalized civilian adult and child residents of the United States. Active duty military are excluded from the survey. Subjects were excluded if they answered "don't know" or "refused" to vitamin D or prostate cancer survey questions. χ² analyses were performed to analyze associations between diagnosis of prostate cancer and variables of interest. The military service variable was developed on the basis of the response to survey question "Did you ever serve in the Armed Forces of the United States?" A multivariable logistic regression model included all the variables of interest that were available in the database. All analyses were appropriately weighted for extrapolation to average annual population-based estimates for the years included in the study.

RESULTS: Two percent had a diagnosis of prostate cancer, whereas 72% had less than 75 nmol/L of vitamin D. Unadjusted χ² test results suggested those with a vitamin D level of <75 nmol/L, <65 years of age and consuming at least one alcoholic drink per day were significantly less likely to be diagnosed with prostate cancer although smokers and those with military service were significantly more likely to be diagnosed with prostate cancer. However, after adjusting for covariates included in the multivariable logistic regression model, only the following covariates remained significant: men <65 years old were less likely to be diagnosed with prostate cancer (odds ratio [OR] = 0.07, 95% confidence interval [CI] = 0.04-0.12), although those with military service and non-Hispanic blacks were more likely to be diagnosed with prostate cancer (OR = 1.66, 95% CI = 1.09-2.53 and OR 1.73, 95% CI 1.28-2.33, respectively). No other factors in the model, including vitamin D level, retained significance.

CONCLUSION: Among the documented risk factors for prostate cancer from the available data, age, military service, and race group were significantly associated with prostate cancer diagnosis. Further study on a larger cohort with prostate cancer is needed to better assess for associations.