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The Preventative Association of Vitamin D Binding Protein and Lung Cancer in Finnish Male Smokers

Vitamin D has been previously shown to have no correlation with lung cancer. This is contrary to many other studies that showed that higher amounts of Vitamin D reduces the risk of cancers such as prostate, breast and pancreatic. Because of this, we examined whether vitamin D binding protein (DBP) has any role in that relationship. Serum 25(OH)D and DBP were studied in correlation to lung cancer as a part of the Alpha-Tocopherol, Beta-Carotene Cancer Prevention Study of Finnish men. 486 lung cancer cases and 492 controls were compared matched on age and baseline serum collection date. The cases and controls were compared using Wilcoxon and chisquare tests, and then split into quintiles by DBP to assess a pattern for the various factors. Years of smoking, serum β -carotene, number of cigarettes smoked per day, BMI, serum cholesterol, alcohol intake, serum 25(OH)D and the molar ratio of 25(OH)D:DBP were kept as confounders. The odds ratio and the 95% confidence intervals were then used to evaluate the association between vitamin D, DBP and the molar ratio 25(OH)D:DBP and the risk of lung cancer. Vitamin D, DBP and molar ratio of 25(OH)D:DBP were split into quintiles with the risk of lung cancer. 25(OH)D, DBP, and the molar ratio of 25(OH)D to DBP was matched on age and serum collection week, and adjusted for β -carotene, cigarettes per day, years of smoking, BMI, cholesterol and alcohol. Stratified analyses were used to split the variables into low and high categories to see if there was an association only between a low or high portion of the variable and lung cancer and DBP. We used the likelihood ratio test to test for statistical significance. We found a strong inverse association between DBP and lung cancer, especially in men with higher levels of 25(OH)D. This is the first study to show any strong inverse interaction between DBP and any type of cancer.