Abstract

**PURPOSE:** To test the association of androgen deprivation therapy (ADT) in the treatment of prostate cancer with subsequent Alzheimer's disease risk.

**METHODS:** We used a previously validated and implemented text-processing pipeline to analyze electronic medical record data in a retrospective cohort of patients at Stanford University and Mt. Sinai hospitals. Specifically, we extracted International Classification of Diseases-9th revision diagnosis and Current Procedural Terminology codes, medication lists, and positive-present mentions of drug and disease concepts from all clinical notes. We then tested the effect of ADT on risk of Alzheimer's disease using 1:5 propensity score-matched and traditional multivariable-adjusted Cox proportional hazards models. The duration of ADT use was also tested for association with Alzheimer's disease risk.

**RESULTS:** There were 16,888 individuals with prostate cancer meeting all inclusion and exclusion criteria, with 2,397 (14.2%) receiving ADT during a median follow-up period of 2.7 years (interquartile range, 1.0-5.4 years). Propensity score-matched analysis (hazard ratio, 1.88; 95% CI, 1.10 to 3.20; P = .021) and traditional multivariable-adjusted Cox regression analysis (hazard ratio, 1.66; 95% CI, 1.05 to 2.64; P = .031) both supported a statistically significant association between ADT use and Alzheimer's disease risk. We also observed a statistically significant increased risk of Alzheimer's disease with increasing duration of ADT (P = .016).

**CONCLUSION:** Our results support an association between the use of ADT in the treatment of prostate cancer and an increased risk of Alzheimer's disease in a general population cohort. This study demonstrates the utility of novel methods to analyze electronic medical record data to generate practice-based evidence.

© 2015 by American Society of Clinical Oncology.

PMID: 26644522 [PubMed - as supplied by publisher]