Coffee and Tea Consumption in Association with Prostate Cancer Risk

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Prostate cancer is the most common cancer among men in developed countries. Compared to other common cancers, it has few known modifiable risk factors. Previous studies have raised the question of whether tea and coffee intake influence risk of prostate cancer. Both tea and coffee contain bioactive compounds which may have anti-cancer properties. Coffee contains several agents (caffeine, cafestol, kahweol, chlorogenic and caffeic acids) which may have anti-cancer effects, and the potential health effects of tea are thought to be related to polyphenols. A study from the Netherlands reported that drinking tea was associated with a lower risk of advanced stage prostate cancer, and a study in US health professionals reported that coffee consumption was associated with a slightly lower risk of any prostate cancer and a substantially lower risk of lethal prostate cancer. Other studies of the association between tea and coffee and prostate cancer have yielded mixed results.

Milan Geybels and Drs. Marian Neuhouser and Janet Stanford in Public Health Sciences conducted a population-based case-control study of men ages 35-74 years to assess whether overall risk of prostate cancer, as well as risk of specific stages and grades of prostate cancer, is associated with consumption of tea and coffee. The study population included 1,001 incident prostate cancer cases identified from the Seattle-Puget Sound SEER cancer registry, and 942 controls, identified via random digit dialing, and matched to cases on age. Investigators asked how frequently tea and coffee were consumed during the two years prior to cancer diagnosis in cases, and at an equivalent time in controls, using a food frequency questionnaire. They also collected data on other potential confounders via in-person interview, including demographic and lifestyle factors.

After accounting for differences in age, race, smoking status, past prostate cancer screening, and family history of prostate cancer, tea intake was associated with a lower risk of prostate cancer (odds ratio (OR) 0.63, 95% CI 0.45-0.90) for men who drank at least 2 cups per day compared to ≤1 cup per week. Coffee intake was not associated with an altered risk of prostate cancer (OR 1.16, 95% CI 0.82-1.63) for at least 4 cups per day vs ≤1 cup per week. The risk associated with either tea or coffee did not vary substantially by stage or grade of prostate cancer, or when limited to nonsmokers or men who had undergone PSA testing within 5 years. One possible exception was observed for high-grade prostate cancer (Gleason grade 7 to 10), the risk of which was 70% higher

in men who drank 2-6 cups of coffee per week compared to ≤1 cup per week (OR 1.72, 95% CI 1.00-2.97). However, there was no evidence for an association with higher coffee intake, and this result was not reported by other studies, so this subgroup analysis finding should be interpreted cautiously.

The inverse association observed between tea consumption and prostate cancer risk is consistent with some but not all previous studies. Inconsistencies across studies could be due to differences in patterns of tea consumption and preparation, which could affect the concentrations of bioactive agents. Recall and selection bias, and uncontrolled confounding, also cannot be ruled out. A meta-analysis of case-control and cohort studies of associations between tea and coffee consumption and prostate cancer risk did not support an association overall. According to Milan Geybels, “Although we had low case numbers for the analysis by grade and stage, particularly for the highest intakes, we found suggestive evidence that associations with tea consumption were more pronounced for higher grade and more advanced stage prostate cancer. In future analyses, investigators should evaluate whether the inverse association of tea drinking is more pronounced for specific types of prostate cancer such as for instance advanced or aggressive prostate cancer.”

Geybels MS, Neuhouser ML, Stanford JL. 2013. Associations of tea and coffee consumption with prostate cancer risk. *Cancer Causes Control*. Epub ahead of print, doi: 10.1007/s10552-013-0170-8.

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Leaves of Camellia sinensis, the tea plant