Fluoridation and county-level secondary bone cancer among cancer patients

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The decision whether to fluoridate drinking water continues to be controversial in some communities. Dental and skeletal fluorosis in response to chronic fluoride overexposure are cited as reasons to avoid community water fluoridation in spite of evidence of the oral and skeletal health benefits fluoridation confers. Community fluoridation of ~1mg/L fluoride has not been found to be associated with primary bone cancer but is associated with improved bone fortitude. No studies have examined fluoride exposure and secondary bone cancer, a common metastasis with significant morbidity.

We hypothesize that fluoridation may diminish likelihood of secondary bone cancer due to its role in bone fortification. We examined the association between water fluoridation and prevalence of secondary bone cancer among cancer patients 18 years of age or older in counties in New York State. Relative to counties with less than 25% of the water supply fluoridated, we report no association between secondary bone cancer among cancer patients in counties with 25%-75% of the water supply fluoridated ($\beta = 0.02$, $p = 0.96$) and among those counties with >75% fluoridated ($\beta = 0.02$, $p= 0.97$). We found no evidence of an association between fluoridation and secondary bone cancer at the county level in New York State.

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