

Retraction: Confounding of the Association between Radiation Exposure from CT Scans and Risk of Leukemia and Brain Tumors by Cancer Susceptibility Syndromes

The article titled, "Confounding of the association between radiation exposure from CT scans and risk of leukemia and brain tumors by cancer susceptibility syndromes," which was published in the January 2016 issue of *Cancer Epidemiology, Biomarkers & Prevention* (1), is being retracted at the request of the authors.

The authors recently reported analytical errors that drastically change the published article conclusions. The error is explained in detail below.

The authors calculated, separately for a series of cancer susceptibility syndromes (CSS), the bias of radiation risks for leukemia and brain tumors from computed tomography (CT) scanning in children due to confounding by CSS, based on Axelson's formula. Values of the factors in the formula were chosen based on literature when available and based on assumptions otherwise. The error occurred in the calculation of bias for syndromes tuberous sclerosis complex (TSC) and von Hippel-Lindau (VHL) and brain tumor risk. More specifically, the error occurred in the calculation of the relative risk of brain tumors among patients with TSC or VHL disease compared with the general population (RR_{CD} in the formula). Because of the error, the estimates for these two relative risks were too high, 2,500 and 28,000, respectively, when they should have been 125 and 142. Because of the large (and incorrect) relative risks used, bias of TSC and VHL disease was substantial for several scenarios. As a result, the authors concluded that TSC is a potentially important confounder for brain tumor risks in CT studies. The authors originally concluded that, "associations with leukemia reported in previous studies are unlikely to be substantially confounded by unmeasured CSS, whereas brain tumor risks might have been overestimated due to confounding by TSC" (1). In light of the analytical error, the reassessment indicates that associations with leukemia and brain tumors reported in previous studies are unlikely to be substantially confounded by unmeasured CSS.

The authors regret the error and seek, in good faith, to update the scientific record by issuing this retraction.

Reference

1. Meulepas JM, Ronckers CM, Merks J, Weijerman ME, Lubin JH, Hauptmann M. Confounding of the association between radiation exposure from CT scans and risk of leukemia and brain tumors by cancer susceptibility syndromes. *Cancer Epidemiol Biomarkers Prev* 2016;25:114-26.

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