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Maternal Intake of N-nitroso Compounds from Cured Meat and the Risk of Pediatric Brain Tumors: A Review.

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Abstract

Experimental investigations conducted over the last several decades suggest that transplacental exposure of offspring to certain N-nitroso compounds (NOCs) results in the development of brain tumors in laboratory animals. Dietary cured meats are a recognized source of such exposures in humans, which raises the possibility that maternal consumption of cured meat products during pregnancy could increase the risk of childhood brain tumors. This hypothesis was first suggested by an observational study conducted by Preston-Martin et al. in 1982 supporting such a role in human disease. Since that time, additional epidemiological analyses have been performed addressing this hypothesis although results are inconsistent across studies. Due to the possible impact of bias and confounding in the available observational studies, the relatively weak effect seen in some observational analyses is of questionable validity. Nonetheless, since the association of transplacental NOC exposure and brain tumor risk is biologically plausible, the suspected association cannot be unequivocally dismissed. This paper reviews the current epidemiological evidence dealing with the maternal cured meat intake/childhood brain tumor association and suggests further avenues for research.

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