Maternal smoking during pregnancy and the risk of childhood brain tumors: Results from a Swedish cohort study.

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Abstract

BACKGROUND: Tobacco metabolites and carcinogens can be found in placental and umbilical cord tissues of fetuses exposed to maternal smoking. However, studies regarding maternal smoking during pregnancy and childhood brain tumor (CBT) have shown inconsistent results.

METHODS: All children born in Sweden between 1983 and 2010 and with information about maternal smoking during pregnancy, obtained from the Swedish Medical Birth Register, were included in this population based cohort study (n=2,577,305). CBT cases were identified from the National Cancer Register. Cox regression models were used to estimate the effect of maternal smoking during pregnancy on the risk of CBTs.

RESULTS: We identified 1039 cases of CBT in the cohort. Overall, there was little or no effect of maternal smoking during pregnancy on the risk of CBTs. However, in analyses stratified by age at diagnosis and child’s sex, positive associations were found among 5-9 years old children. In this age interval, maternal smoking during pregnancy was associated with an increased risk of all CBTs combined only among male children (RR=1.50, 95% CI 0.96-2.34), while for astrocytoma there was a positive association in both male (RR=2.00, 95% CI 1.02-3.91) and female children (RR=1.80, 95% CI 0.85-3.82).

CONCLUSION: Results from this large Swedish cohort study suggest that even though maternal smoking during pregnancy has a limited overall effect on CBTs, it may increase the risk of astrocytomas.

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