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Birth Weight and Subsequent Risk of Childhood Primary Brain Tumors: A Meta-Analysis

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The etiology of primary brain tumors is largely unknown. Since a peak of incidence occurs during childhood, factors operating very early in life might play a key role. Previous studies have suggested that high birth weight is associated with an increased brain tumor risk. The authors conducted a meta-analysis on the association between birth weight and risk of specific histologic types of primary brain tumors. They included published studies (1966–2007) that reported odds ratios and 95% confidence intervals for brain tumors associated with birth weight. The authors identified eight studies involving 1,748,964 children, of whom 4,162 suffered from brain tumors of three histologic types (astrocytoma, medulloblastoma, and ependymoma). For astrocytoma, high birth weight (>4,000 g) was associated with increased risk (odds ratio = 1.38, 95% confidence interval (CI): 1.07, 1.79), with each 1,000-g increase in birth weight being associated with a 19% (95% CI: 4, 36) increase in risk. For medulloblastoma, high birth weight was also positively associated with increased risk (odds ratio = 1.27, 95% CI: 1.02, 1.60). No association was found for ependymoma. These findings indicate that birth weight is related to the development of childhood

brain tumors, with high birth weight being a risk factor for the two most common types of brain tumors.

birth weight; brain neoplasms; child; meta-analysis

Abbreviations: CI, confidence interval; IGF-1, insulin-like growth factor 1; OR, odds ratio

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