Being overweight may increase risk of type of brain tumor

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Being overweight or obese may be tied to an increased risk of a type of brain tumor called meningioma, according to a new meta-analysis published in the September 16, 2015, online issue of *Neurology*, the medical journal of the American Academy of Neurology. Meningiomas occur at a rate of about five to eight cases per 100,000 people per year. The five-year survival rate for meningioma is 63 percent.

"This is an important finding since there are few known risk factors for meningioma and the ones we do know about are not things a person can change," said meta-analysis author Gundula Behrens, PhD, of the University of Regensburg in Regensburg, Germany. "Given the high prevalence of obesity and the unfavorable prognosis for this type of tumor, these findings may be relevant for strategies aimed at reducing the risk of meningioma."

The meta-analysis looked at all of the available research on body mass index (BMI), physical activity and the brain tumors meningioma and glioma, which are the most common primary brain tumors in adults. A total of 12 studies on body mass index and six on physical activity were analyzed, involving 2,982 meningioma cases and 3,057 glioma cases.

The analysis found that compared to people with a normal weight, overweight people were 21 percent more likely to develop a meningioma and obese people were 54 percent more likely to develop one. Overweight was defined has having a BMI of 25 to 29.9; obese was considered a BMI of 30 or higher.

No relationship was found between excess weight and glioma, which occurs at about the same rate as meningioma but has a worse prognosis.

Having a high level of physical activity was modestly associated with a decreased risk of meningioma. Those with the highest amount of physical activity were 27 percent less likely to have a meningioma than those with the lowest amount of activity.

Behrens said several biological processes could potentially link excess weight and increased risk of meningioma. For example, excess weight is associated with excess production of estrogen, and estrogens promote the development of meningioma. Also, excess weight is linked to high levels of insulin, which could promote meningioma growth.

Behrens noted that the analysis does not prove that excess weight and lack of physical activity causes the brain tumors; it shows the association. "With physical activity, it's possible that meningiomas that had not been diagnosed yet caused people to reduce their physical activity at the time it was measured," she said. "As a reminder, while there was an association in the study between weight and this type of tumor, it should be noted that tumors are rare."

Provided by American Academy of Neurology

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