

Overweight and Lack of Exercise Linked to Meningioma

Sue Hughes | September 22, 2015

Individuals who are overweight or obese and those who do not engage in physical activity have an increased risk for meningioma, a new systematic review of the literature suggests.

But the review, published online in *Neurology* on September 16, did not find any evidence of a link between obesity/overweight or physical activity with glioma.

"These data are not proof for a causal relationship between being overweight or physical inactivity and the development of meningioma as they come from observational studies," coauthor of the new review, Gundula Behrens, PhD, University of Regensburg, Germany, commented to *Medscape Medical News*. "But there is a biological mechanism which would support a causal relationship and our results add weight to this hypothesis."

"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," Dr Behrens said.

Another Benefit of Losing Weight and Taking Exercise

Meningiomas occur at a rate of about 5 to 8 cases per 100,000 people per year. The 5-year survival rate for meningioma is 63%, the authors note.

"Given the high prevalence of obesity and the unfavorable prognosis for this type of tumor, our findings may be relevant for strategies aimed at reducing the risk of meningioma," Dr Behrens stated. "So we believe a lower risk of meningioma could be another benefit of losing weight and taking regular exercise," she added.

She explained that many previous studies have shown a link between obesity and cancer, but it does not appear to apply to every cancer type. "We wanted to investigate whether this association was evident in brain tumors."

For the study, the researchers conducted a systematic review and meta-analysis of body mass index (BMI) and physical activity in relation to meningioma and glioma — the most common primary brain tumors in adults — using cohort and case-control studies published through February 2015.

They included 12 studies of body mass index (BMI) and 6 studies of physical activity, comprising up to 2982 meningioma cases and 3057 glioma cases.

With normal weight used as the reference group, being overweight (BMI, 25 to 29.9) was associated with a 20% increased risk for meningioma, and obesity (BMI, 30 or more) was associated with a 50% increased risk. In contrast, being overweight or obese was not related to glioma.

When looking at physical activity, the researchers used a comparison between the highest and the lowest categories of physical activity in each study. This analysis suggested a modest protective effect of high levels of exercise on meningioma and a weak effect on glioma.

Table. Risk for Meningioma and Glioma Related to BMI and Physical Activity

Group	Relative Risk for Meningioma (95% Confidence Interval)	Relative Risk for Glioma (95% Confidence Interval)
Overweight	1.21 (1.01 - 1.43)	1.06 (0.94 - 1.20)

Obese	1.54 (1.32 - 1.79)	1.11 (0.98 - 1.27)
High vs low physical activity level	0.73 (0.61 - 0.88)	0.86 (0.76 - 0.97)

The associations persisted when the data were restricted to prospective studies, except for the association between physical activity and glioma, which became statistically no-significant.

Dr Behrens described the results as "interesting and convincing." She added: "It is interesting that both the high BMI and low physical activity levels were related to meningioma but not to glioma."

She said the results were consistent with mechanistic studies showing that adipose tissue releases estrogen and insulin, which may promote growth of certain cancers, and that meningiomas have higher levels of binding sites for these hormones than gliomas. In addition, physical activity is associated with reduced insulin levels.

The study received institutional funding. The authors have disclosed no relevant financial relationships.

Neurology. Published online September 16, 2015. Abstract

Medscape Medical News © 2015 WebMD, LLC

Send comments and news tips to news@medscape.net.

Cite this article: Overweight and Lack of Exercise Linked to Meningioma. *Medscape.* Sep 22, 2015.

This website uses cookies to deliver its services as described in our Cookie Policy. By using this website, you agree to the use of cookies.

close