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Inverse association between eczema and meningioma: a meta-analysis.

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Abstract

BACKGROUND AND PURPOSE: The pathogenesis of primary brain tumors may be related to immune response. Prior studies have shown a strong association between allergy and glioma; however, so far no significant association has been established between allergy and meningioma. Here, we conducted a meta-analysis of published studies to investigate the association of meningioma with the overall and specific allergic conditions.

METHODS: PubMed, EMBASE database, and Cochrane Library were searched for pertinent citations published between January 1979 and October 2009. We used the following searching strategy (brain tumor [Text Word] OR meningioma [Text Word]) AND (allergy [Text Word] OR atopy [Text Word] OR asthma [Text Word] OR eczema [Text Word] OR hay fever [Text Word]) to search for relevant studies. Random effect model was used to estimate the association between allergic conditions and meningioma.

RESULT: A total of 7 studies (5 case-control studies and 2 cohort studies) were included in the analysis, involving 54,391 participants, of whom 2,656 had meningioma. When compared to non-allergic conditions, the pooled odds ratio (OR) with any allergic conditions for meningioma was 0.91 (95% CI: 0.79-1.04, $p = 0.163$), suggesting that there is no significant association between meningioma and allergic conditions. Interestingly, further analysis showed that eczema had significantly inverse association with meningioma (OR, 0.75; 95% CI: 0.65-0.87, $p < 0.05$). On the other hand, no significant association was found for asthma (OR, 0.88; 95% CI: 0.75-1.04, $p = 0.126$) and hay fever (OR, 0.90; 95% CI: 0.79-1.03, $p = 0.137$).

CONCLUSION: In conclusion, there was a significantly negative association between eczema and meningioma, suggesting that eczema may reduce the risk of meningioma. Although it was not statistically significant association between meningioma and other specific allergic conditions such as asthma and hay fever, further studies with large sample size may be needed to determine its relationship.

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