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Brain tumors and hormonal factors: review of the epidemiological literature.

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Abstract

BACKGROUND: To date, the etiology of primary tumors of the central nervous system (mainly gliomas and meningiomas) is poorly understood. The role of sex hormones has been suggested, based on clinical, experimental, biological, and epidemiological data.

OBJECTIVE: To review the epidemiological studies on the relation between hormonal factors and the occurrence of glioma and meningioma, in order to identify new research developments.

METHODS: Articles published until September 2010 were selected by considering exogenous and endogenous exposures and specific brain tumors. Standardized information was collected from 20 articles: 15 concerning gliomas and 13 meningiomas.

RESULTS: An increased glioma risk was observed with later menarche and menopause, while a reduced glioma risk was observed with hormone replacement therapy (HRT) and oral contraceptive use, despite duration of use had no effect on risk. Meningioma risk increased after menopause and with HRT use. No clear association was found with pregnancy and breastfeeding.

CONCLUSION: Results are globally concordant with the biologic hypothesis assuming that female sex hormones are protective against glioma and may increase the risk of meningioma. However, new epidemiological studies should be conducted in order to confirm these associations and to refine the role of hormonal factors in brain etiology.

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