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Mobile phone use and brain tumours in the CERENAT case-control study.

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Abstract

The carcinogenic effect of radiofrequency electromagnetic fields in humans remains controversial. However, it has been suggested that they could be involved in the aetiology of some types of brain tumours.

OBJECTIVES: The objective was to analyse the association between mobile phone exposure and primary central nervous system tumours (gliomas and meningiomas) in adults.

METHODS: CERENAT is a multicenter case-control study carried out in four areas in France in 2004-2006. Data about mobile phone use were collected through a detailed questionnaire delivered in a face-to-face manner. Conditional logistic regression for matched sets was used to estimate adjusted ORs and 95% CIs.

RESULTS: A total of 253 gliomas, 194 meningiomas and 892 matched controls selected from the local electoral rolls were analysed. No association with brain tumours was observed when comparing regular mobile phone users with non-users (OR=1.24; 95% CI 0.86 to 1.77 for gliomas, OR=0.90; 95% CI 0.61 to 1.34 for meningiomas). However, the positive association was statistically significant in the heaviest users when considering life-long cumulative duration (≥ 896 h, OR=2.89; 95% CI 1.41 to 5.93 for gliomas; OR=2.57; 95% CI 1.02 to 6.44 for meningiomas) and number of calls for gliomas ($\geq 18,360$ calls, OR=2.10, 95% CI 1.03 to 4.31). Risks were higher for gliomas, temporal tumours, occupational and urban mobile phone use.

CONCLUSIONS: These additional data support previous findings concerning a possible association between heavy mobile phone use and brain tumours.

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KEYWORDS: Case-control studies; Electromagnetic fields; Glioma; Meningioma; Mobile phone; Radiofrequency electromagnetic fields

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