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Brain tumour risk in relation to mobile telephone use: results of the INTERPHONE international case-control study.

The INTERPHONE Study Group.

Abstract

BACKGROUND: The rapid increase in mobile telephone use has generated concern about possible health risks related to radiofrequency electromagnetic fields from this technology. **METHODS:** An interview-based case-control study with 2708 glioma and 2409 meningioma cases and matched controls was conducted in 13 countries using a common protocol. **RESULTS:** A reduced odds ratio (OR) related to ever having been a regular mobile phone user was seen for glioma [OR 0.81; 95% confidence interval (CI) 0.70-0.94] and meningioma (OR 0.79; 95% CI 0.68-0.91), possibly reflecting participation bias or other methodological limitations. No elevated OR was observed ≥ 10 years after first phone use (glioma: OR 0.98; 95% CI 0.76-1.26; meningioma: OR 0.83; 95% CI 0.61-1.14). ORs were < 1.0 for all deciles of lifetime number of phone calls and nine deciles of cumulative call time. In the 10th decile of recalled cumulative call time, ≥ 1640 h, the OR was 1.40 (95% CI 1.03-1.89) for glioma, and 1.15 (95% CI 0.81-1.62) for meningioma; but there are implausible values of reported use in this group. ORs for glioma tended to be greater in the temporal lobe than in other lobes of the brain, but the CIs around the lobe-specific estimates were wide. ORs for glioma tended to be greater in subjects who reported usual phone use on the same side of the head as their tumour than on the opposite side. **CONCLUSIONS:** Overall, no increase in risk of glioma or meningioma was observed with use of mobile phones. There were suggestions of an increased risk of glioma at the highest exposure levels, but biases and error prevent a causal interpretation. The possible effects of long-term heavy use of mobile phones require further investigation.

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