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Location of Gliomas in Relation to Mobile Telephone Use: A Case-Case and Case-Specular Analysis.

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Abstract

The energy absorbed from the radio-frequency fields of mobile telephones depends strongly on distance from the source. The authors' objective in this study was to evaluate whether gliomas occur preferentially in the areas of the brain having the highest radio-frequency exposure. The authors used 2 approaches: In a case-case analysis, tumor locations were compared with varying exposure levels; in a case-specular analysis, a hypothetical reference location was assigned for each glioma, and the distances from the actual and specular locations to the handset were compared. The study included 888 gliomas from 7 European countries (2000-2004), with tumor midpoints defined on a 3-dimensional grid based on radiologic images. The case-case analyses were carried out using unconditional logistic regression, whereas in the case-specular analysis, conditional logistic regression was used. In the case-case analyses, tumors were located closest to the source of exposure among never-regular and contralateral users, but not statistically significantly. In the case-specular analysis, the mean distances between exposure source and location were similar for cases and speculums. These results do not suggest that gliomas in mobile phone users are preferentially located in the parts of the brain with the highest radio-frequency fields from mobile phones.

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