

Rapid response to "Mobile phone use and risk of glioma in adults: case-control study" (Hepworth et al., BMJ. 2006 Jan 20)

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We have read this recently published paper, UK part of the so-called Interphone study, with interest [1] However, the results are difficult to interpret due to several limitations in the study design and analysis.

The participation rate was extremely low, for cases 51 % and for controls only 45 %. Furthermore "non-participating controls were replaced" thus with potential for selection bias for the controls. In fact participating controls were more affluent than both non-participating controls and participating cases. There is a clear gradient of mobile phone use as to social class. In our case-control study encompassing answers from 1 254 (88 %) cases with a benign brain tumour, 905 (90 %) cases with a malignant brain tumours and 2 162 (89 %) controls, use of cellular telephones was reported by 48 % of the most affluent cases and 36 % in the least affluent group. [2,3]

Use of cordless telephones was not assessed in contrast to our studies. The "unexposed" group was thus not truly unexposed to microwaves. The analysis of laterality is doubtful since the "unexposed" group contained subjects with exposure to microwaves on the opposite side of the head than analysed; analysis of ipsilateral exposure with contralateral exposure classified as "unexposed" and analysis of contralateral exposure with ipsilateral exposure classified as "unexposed".

We note that the numbers of interviewed cases are not constant. In the abstract 966 cases are reported but in Table 2 numbers of tumour grade and side of phone use are given for 972 cases, see footnotes. In Table 3 of 14 odds ratios 13 are < 1.0 and one > 1.0 indicating non-random variation and methodological problems in the study. Brain tumour cases may not be ideally interviewed face to face shortly after their operation due to serious cognitive behavioural defects such as memory loss and aphasia. In the Danish Interphone study cases with glioma scored significantly lower than controls due to problems in recalling words (aphasia) and symptoms due to paralysis. [4] These aspects are not at all discussed in the paper. [1] In contrast to our studies the interviewers knew if it was a case or a control that was interviewed.

As to urban and rural living the investigators seem just to have asked about the study subjects own ideas on that without relying on official statistics. Thus these data are less informative compared with our data where we used the Swedish Population Registry for municipality for all cases and controls and Statistics Sweden for further classification into 6 categories of population density. [5]

Our latest publication on malignant brain tumours and use of cellular and cordless telephones is not cited although available at internet since July 14, 2005. [6] Now results of the pooled analysis of our studies are published.2,3 Clearly we found an increased risk for high-grade astrocytoma using >10 years latency period. It is unfortunate that the current publication does not give results for high-grade and low-grade glioma separately.

It is interesting to note that the article cites critics of our studies published even before our results appeared in scientific literature. Two of the cited reports have never been published in a pre- review journal and are thus not possible to rebut. The third cited report was published in

2000, thus even when our first large case-control study was on going and no data had been reported. Furthermore, there seems to be a link to the mobile phone industry among some of the cited authors. [7]

We note that some of the participating universities and authors have received grants from the telecom industry. Also this study was heavily telecom industry funded. Besides local industry grants in UK the Interphone study according to IARC is funded from industry with 3.5 million Euros, and from the European Union, 3.85 million Euros (E Cardis, personal communication). The contract stipulated that the industry has the right to be informed about the results a maximum of seven days before the publication. [8] Receiving grants from industry is by the International Committee of Medical Journal Editor regarded as "the most important conflicts of interest". In a review of health studies on environmental tobacco smoke, the rate ratio of a paper with at least one author with industry associations reaching an industry-favourable conclusion was 3.2, 95 % CI 1.4-7.5. [9] It should be noted that one of the authors (Dr Swerdlow) is a member of ICNIRP, a German foundation on this issue that does not recognize any cancerogenesis from microwave exposure. ICNIRP seems to be a closed organisation that elects its own members and without full disclosure how it is financed. Membership might be a conflict of interest.

Finally, we do not agree with the statement in the accompanied editorial that "any risk to the individual mobile phone user of developing brain pathology is fleetingly small" and that there is "no need to apply the precautionary principle" for mobile use. [10] This is a too premature statement since studies on long term health effects, especially for children, are lacking.

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Competing interests: None declared