NCI on Cell Phones: U.S. Brain Tumor Rates Consistent with Interphone, But Not with Hardell

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A new analysis from the U.S. National Cancer Institute has found that the rates of brain tumors (glioma) in the United States are inconsistent with the results of Lennart Hardell's group in Sweden. The NCI team, led by Mark Little, does allow that "the U.S. data could be consistent with the modest excess risks in the Interphone study."

The NCI study, which was posted online yesterday by the *British Medical Journal,* might partially undermine the findings of an expert group convened by the International Agency for Research on Cancer (IARC) last spring. The panel concluded that RF radiation, including that from mobile phones, is a "possible human carcinogen." That was largely based on the Hardell and the Interphone studies. Interphone is a 13-country epidemiological study of cell phone tumor risks, coordinated by IARC. The Interphone brain tumor results were published in 2010. (The new NCI paper is open access; it's a free download.)

Little and his coworkers, who include Martha Linet and Peter Inskip of the NCI's Radiation Epidemiology Branch, used tumor incidence data from the NCI's SEER program through 2008. Cell phone subscriber data were taken from the CTIA, the industry trade association. The analysis covered latency periods, tumor location and types of brain tumors (grades of glioma).

The NCI team concludes that if the Hardell risk estimates and tumor latencies —a doubling to a tripling of certain brain tumors after ten years of use— applied to cell phone users in the U.S., the observed incidence of glioma in 2008 would be 44% higher than that reported in the SEER database. On the other hand, the U.S. data are consistent with those of the Interphone study —though not with the apparent protective effect, now discounted and attributed to bias in the way the data were collected. In its analysis, NCI took

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into account the more compelling and suggestive results that appear in Appendix 2 of the Interphone study, in which light users are substituted for non-users as the control group to address the bias that made it look like cell phones could prevent brain tumors.

“This is a useful paper,” Martin Röösli told *Microwave News,* providing a “consistency check” for the case-control studies, such as the Interphone and Hardell studies. Röösli, who is with the Swiss Tropical and Public Health Institute at the University of Basel, noted that the NCI results are consistent with those published earlier this year by Isabelle Deltour, who is now at IARC in Lyon. “These analyses can now exclude a substantial tumor risk within 15 years,” he said.

Michael Kundi of the Medical University of Vienna is less convinced. “I did some analyses on SEER data and I don’t think that any long-term results can be meaningfully extracted,” he told us.

While the incidence of glioma in the U.S. was essentially unchanged between 1992 and 2008 (it decreased by 0.02% per year) and the Interphone study showed an increase, that increase was within the confidence limits of the SEER data —that is, the uncertainty in the U.S. data would allow for the increases observed by the Interphone group.

Joel Moskowitz of the University of California, Berkeley, School of Public Health takes exception at NCI’s characterization of the Interphone risks as “modest.” In an interview, he pointed out that the tumor risks among long-term users in Interphone's Appendix 2 was above two. “The doubling of the glioma risk among cell phone users over ten years is neither modest nor trivial,” he said. Moskowitz added that the long-term risk in Appendix 2 is not that different from that reported by Hardell.

Lennart Hardell who is at the Örebro University Hospital in Sweden could not be immediately reached for comment.

Little and his NCI colleagues do not include any analyses for latency periods longer than ten years. In an e-mail response to questions from *Microwave News,* Little explained, “The [Hardell] study predicts excess risks less than 10 years after exposure (i.e., minimal latency [of less than] 10 years). So to assume much longer minimal latency would be to some extent biologically implausible, and it would directly contradict the current epidemiological data that is the basis of our study (and the IARC 2011 report).” Little went on to write: “Future studies may predict somewhat different latency distribution, so it will be important to continue to assess the body of evidence.”

NCI also states that the minimum tumor latency for ionizing radiation is two to five years and argues that the latency for RF radiation from mobile phones would likely be shorter because it is “not strong enough to cause DNA lesions directly.” But in the paper the NCI team added that, “since the cause of brain cancer is still unclear, we could not definitively state a minimum latency period, and therefore considered several periods between one and ten

years.” When asked if NCI had considered other mechanisms that might lead to tumors other than DNA breaks, such as effects on DNA repair, Little replied: “We cannot speculate on other candidate mechanisms, none of which are well established in the peer-reviewed literature.”

In an accompanying “News Note,” the NCI press office wrote: “The authors recommend continued surveillance of glioma rates for a number of reasons, including changing usage patterns and technology, and because tumor latency may be longer than has been observed to date.”

The new paper may be seen by some as a continuation of the ongoing crusade being waged by NCI’s Peter Inskip against the Hardell group. Inskip, who was a member of last year’s IARC panel on RF radiation (as were Hardell and Röösli), stormed out of the meeting before the final vote. One of the reasons for walking out was his frustration over IARC’s reliance on Hardell’s work, which he believes should not be believed or trusted.

NCI, Martha Linet, Peter Inskip, Mark Little, SEER, Martin Röösli, IARC, Interphone, Lennart Hardell, Isabelle Deltour, brain tumors,

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