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Cell phones & brain-tumor risk: Major new study fuels ongoing debate

Investigators seeking to establish whether a causal link exists between the development of glioma or meningioma and use of radiofrequency-generating cell phones made several interesting findings, but nothing significant enough to decisively tip the scales of debate one way or the other.

Given the project name INTERPHONE, the multiyear study was the largest yet endeavored with regard to cell phone use and cancer risk. It was published May 17, 2010 in the *International Journal of Epidemiology*.

Those who suspect linkage between cell phone use and brain cancer pointed to the following findings as evidence in support of their position:

- The odds ratio for glioma tended to be higher among individuals who preferentially and habitually held the phone on just one side of the head – the same side as that upon which the tumor developed.
- Among users who talked on a cell phone for at least 1,640 cumulative hours since acquiring such a device, their odds ratio for glioma was 1.40. For meningioma, it was 1.15. In each instance, the number shows above-normal risk (1.0 being normal).

Contrarily, those who doubt the existence of a link between cell phone use and cancer risk cite these INTERPHONE findings to bolster their side of the divide:

- Persons who were regular but not extreme users of cell phones had reduced cancer odds ratios – glioma, 0.81; meningioma, 0.79.
- After a decade or more of cell phone use, the odds ratio for both glioma and meningioma was under 1.0 for all but the most frequent talkers.

Critics speak out

Naturally, the study was not without its critics – notably those who did not think it was helpful enough in establishing a cell phone-cancer link. In their view, the study's design was flawed and, consequently, resulted in a serious underestimation of the risk of brain cancer.

One such flaw, they contend, is that data were provided only for gliomas and meningiomas, not for tumors found within the 20 percent of the brain's volume that a cell phone can potentially irradiate. They also objected that cancer risk was not analyzed by the sex of the study participants. The effect of this, they said, was to mask what they assert is women's higher risk of meningioma.

Another problem: The usage time-frames are somewhat deceptive. According to critics, a person whose cell phone use cumulatively tallies less than 1,640 hours is considered an average user and, hence, one who enjoys a reduced odds ratio of glioma and meningioma. However, in reality, many of these individuals face the elevated odds ratio of heavy users because that 1,640-hour threshold can be reached after 13 years of essentially moderate call activity, they say.

Further, when factored together, these and other built-in biases against linking phone use to cancer risk make the devices seem deceptively safe when, as critics insist, they are not. For example, study challengers opine that – had the biases been purged from the investigation's design – results would show much greater rates of gliomas and meningiomas among casual users.

How the study was conducted

INTERPHONE utilized data collected from 13 countries (the project was coordinated by the International Agency for Research on Cancer). It was premised on the notion that tissues in the head absorb most of the radiofrequency energy emitted by a cell phone and are therefore a proximate cause of glioma, meningioma, schwannoma and tumors of the parotid gland.

The project sprang into existence following a feasibility study in 1998; the first of the data collected were gathered beginning in 2000. Researchers conducted interview-based, case-controlled analyses of matched sets covering 2,409 meningioma cases (with 2,662 matched controls) and 2,708 glioma cases (with 2,972 matched controls).

Authors of the published findings indicate that most of the study's participants were light to moderate users of cell phones. The authors also report an average 52 percent prevalence for meningioma cases among regular users of cell phones who began operating the devices at least one year prior to the date their condition was diagnosed (average prevalence for glioma cases was 62 percent).

Meanwhile, it should be noted that more and broader studies into the cell phone-cancer question are being planned or now underway. The European Union,

for example, is funding an investigation focused exclusively on children and teens – the related demographics that produce the fastest-growing ranks of serious users of cell phones. The project goes by the name of MobiKids. The younger set is also the subject of Australia's MoRPhEUS project. Then there is the COSMOS project, which is a long-term study that ultimately will follow 250,000 adult cell phone users for up to 30 years.

What you can do now for your patients

For now, however, the jury is still out on the question of whether cell phones pose a cancer risk. Still, the current ambiguity should not deter users from at least becoming familiar with the controversy so that they can make informed choices.

As their physician, you might consider advising your cell phone-using patients to think about when and how they operate the devices.

Some users may wish to play it safe and modify their habits until there is a clearer picture of whether or not the risks are genuine. For those who elect to modify, here are possible safer-operating tips to consider:

- Talk and listen entirely on speaker (if the phone has that capability) so that the device can be held well away from the head while being operated.
- Limit use of the phone to just those occasions when it actually is needed (as opposed to being continually in contact with family, friends, coworkers and others).
- Rely more routinely on the phone's text-messaging features (if so equipped).
- Use a pay phone whenever practical in lieu of a cell phone.

As a Mayo Clinic-trained neurosurgeon, I've seen enough glioma and meningioma cases to know that they are usually treatable when detected early, regardless of what causes them. But even with early detection and intervention, these cases are almost invariably challenging. That is why more and more physicians in Milwaukee, Waukesha and neighboring Wisconsin communities refer to me their brain tumor and spine tumor patients.

I invite you to consider utilizing me as a resource for the management of these patients. Please know that when you refer to me, you can do so with confidence. For in addition to being accessible to you, it is customary for me to keep you informed of your patients' progress, beginning with a detailed report sent to you after the initial consult and continuing with a letter following each successive visit. (You can also expect a phone call from me after surgery to apprise you of the results and discuss any pertinent details.) Additionally, I take the time to inform patients and answer all their questions in terms they can understand.

Satisfied by the services and support I can provide, those of your patients treated for brain tumors and/or spine tumors will return to you more willing than ever to continue entrusting their ongoing care to you.

For further information about brain tumor surgery, spine tumor surgery and my other neurology-specific surgical services, please call me at (262) 717-9850.

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