Cell phones – as (non) Cancerous as Coffee, Firefighting?

Trevor Butterworth, June 3, 2011

The World Health Organization assembled an advisory committee on the health risks of cell phones, the result is… confusion.

Once again, a scientific claim is making world headlines before the study in which it is embedded is published. After convening an expert committee to pore over the existing research on cell phone usage and cancer, the International Agency for Cancer Research (a part of the World Health Organization) announced that it had

> *"classified radiofrequency electromagnetic fields as possibly carcinogenic to humans (Group 2B), based on an increased risk for glioma, a malignant type of brain cancer1, associated with wireless phone use."*

This meant that cell phone usage was "possibly" carcinogenic in the same way that coffee is "possibly" carcinogenic. Other 2B carcinogens include caffeic acid, which is present in many vegetables, and, interestingly, being a firefighter. Does that mean we should avoid coffee, give up vegetables, and ban firefighting?

Of course not.

Virtually no-one thinks coffee is, *realistically*, a carcinogen. Sure, 72 percent of the naturally occurring chemicals in roasted coffee produce tumors in rodents. But these only happen at extremely high doses, as that indispensable font of common sense, the Carcinogenic Potency Project at UC Berkeley, points out; it is simply impossible to replicate this kind of dose through drinking coffee. On the other hand, how does one quantify occupational exposures as a firefighter?

This would seem to be the key problem with using the IARC classification list as a way of communicating risk to the public: it says nothing about exposure. "Possible" has become the new gold standard of precautionary thinking, driving public health communication; but it is, by definition (impossibly) vague.

Geoffrey Kabat, Senior Epidemiologist at Albert Einstein College of Medicine, and a specialist in cancer epidemiology offered several points of caution about over-interpreting the IARC's classification – or, in other words, why we should be cautious about being overly precautious. "Look at the Scandanavian countries," he says, "where they have excellent cancer registries for the whole population and where cell phone use became widespread relatively early, compared to other countries: they have not found increased rates for different types of brain tumors."

Second, there is, he says, "no known mechanism whereby RF/microwave radiation

How the story played in the media

Surprisingly, some media organizations were cautious in reporting the news, despite its obvious drama. The lede in USA Today's story was "A branch of the World Health Organization announced Tuesday that cellphones are 'possible carcinogens' — a statement that was met with skepticism from many American cancer experts." A combined CBS News/Associated Press report led in the same fashion:

"In the wake of a new report that labels mobile phones 'potential carcinogens,' experts are downplaying the potential threat. Some say the report - issued Tuesday by the International Agency for Research on Cancer - needn't lead people to change their cellphone habits.

'Anything is a possible carcinogen,' said Donald Berry, a professor of

could induce or promote cancer -- it does not have enough energy to knock electrons out of atoms and thereby damage DNA and other cellular molecules."

Because the IARC issued its statement before it published its paper, we are only able to guess at the quantitative evidence driving their decision, but the reference to the risk for glioma, a type of brain tumor, strongly suggests that the committee relied on the INTERPHONE Study Group paper published last year.

This study looked at odds ratios (OR): the odds for getting cancer if you *ever* used a cell phone regularly, divided by odds for getting cancer if you *never* used one regularly. But the results of this study were clearly baffling, even to the authors. Overall, regular users of mobile phone had significantly *reduced* risks for glioma and meningioma. Only in the small group of users (highest tenth) , whose recalled cumulative call time was ≥1640hours, was there a modest increase in risk of glioma (but not meningioma). The authors went to great lengths to caution against giving a causal interpretation to this result, in view of the biases and uncertainties inherent in the study.

And a strong dose of caution is needed because this kind of study relies on recall data. Do people accurately recall how much time they spend on the phone? More importantly, do people with brain cancer recall things differently than people without it?

The IARC said they couldn't ignore this study's findings, which leaves an the impression that they put more weight on them than its authors did, while giving, in effect, less weight to an expansive and thorough 2009 review of review of the epidemiology by the International Commission for Non-Ionizing Radiation Protection. Again, the failure to publish their detailed study at the same time as they released their conclusion makes assessing the IARC's reasoning difficult.

Right now the decision to announce cell phone use a "possible carcinogen" seems incautiously precautious. Either way, if you are a heavy cell phone user, you can eliminate this hypothetical risk with a real Bluetooth headset.

biostatistics at M.D. Anderson Cancer Center at the University of Texas. He was not involved in the agency's assessment. 'This is not something I worry about and it will not in any way change how I use my cellphone,' he said - speaking from his cellphone."

Matthew Herper in Forbes, ran some numbers and found the risk not something people should worry about, and one that's easily avoidable if you use headsets.

By contrast ABC News opened with "a major new warning for the five billion people who use cell phones." Dr Richard Besser, ABC's medical expert said the "new classification sounds frightening" and, interviewing Dr. Joel Moskowitz, it seemed to *be* frightening: "If I were a consumer I would take this extremely seriously," Moskowtiz said, drawing the analogy, later on in the segment, with smoking. But by the end, the message from ABC was, uh, we don't really know. The evidence is limited, to be on the safe side, use bluetooth."

Moskowitz, a psychologist by training, is director of Center for Family and Community Health at the University of California, Berkeley; he has repeatedly warned about the risk from cell phones, and has dismissed some of the major studies on their safety as biased and industry-funded (although elaborate safeguards have been taken to shield the researchers in question; it is hugely expensive to do large epidemiological studies on cell phone use). Moskowitz has called for the US government to treat cell phones, presumptively, as cigarettes in terms of health warnings.

It might have been helpful for viewers if ABC had signaled this context – and perhaps balanced it with one of the many experts – who showed up in print coverage – to offer a less alarmist perspective. But that's not how you create dramatic TV.

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