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Cell Phone Usage And Brain Tumors; Recent Developments

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Recent headlines have reignited interest in litigation involving the link between cell phones and the development of brain tumors. In May, 2011, the World Health Organization (WHO) began listing mobile phone exposure as “possibly carcinogenic to humans.” In October 2012, the Italian Supreme Court became the first high court of any country to rule in favor of a link between mobile phone radiation and tumor development. A month later, commissioners in Pembroke Pines, FL, passed a resolution, believed to be the first of its kind in the state, to encourage cell phone users to keep their phones at least one inch away from their bodies. Michele Mullen, City Warns of Cell Phone Cancer, WCSH6, Nov. 29, 2012, <http://on.wcsh6.com/HxVhAQ>.

On March 29, 2013, an Illinois man sued cell phone manufacturers, claiming that his cell phone usage over the past 20 years caused his brain tumors. *James Voelker v. Verizon Wireless Services LLC*, No. 2013L003269, Circuit Court of Cook County IL. Is it time to put down cell phones to avoid increasing our risk of developing brain tumors? No, according to most larger scale studies that have examined the possible link. Even after an initial wave of cell phone litigation in the mid-1990s to early-2000s, there still is an absence of a credible causation connection between cell phone usage and tumor development.

This article examines some recent developments in the scientific literature, and legal issues regarding claims that mobile phone radiation causes tumor development. It explores the issue of whether the scientific literature over the past 10 years warrants any change in the law for American plaintiffs bringing suits against cell phone manufacturers. Based on the scientific studies over these years and the standard set forth in *Daubert v. Merrell Dow Pharmaceuticals, Inc.*, 509 U.S. 579, 113 S. Ct. 2786 (1993), this article concludes that a change in the application of the law in American courts is not supported.

DAUBERT AS THE GATEKEEPER

The Federal Rules of Evidence require that courts ensure that any offered testimony is “not only relevant, but reliable.” Fed. R. Of Evid., Rule 702. A proponent of testimony bears the burden to establish its admissibility. In *Daubert*, the United States Supreme Court provided several factors to assist courts in the determination of admissibility of scientific evidence: 1) whether a theory or technique can be and has been tested; 2) whether it has been subjected to peer review and publication; 3) whether a technique has a high known or potential rate of error and whether standards exist for controlling its operation; and 4) whether the theory or technique enjoys general acceptance within a relevant scientific community. *Daubert*, 509 U.S. at 592-94. A plaintiff who sues alleging that exposure to radiofrequency signals from cell phone usage caused a tumor to develop must first satisfy the *Daubert* standard before a court admits his or her scientific evidence.

EARLY LITIGATION

Early litigation relating to the link between cell phone usage and the development of brain tumors petered out because of the inability to meet the *Daubert* threshold. The following cases are examples of the lack of success that plaintiffs have encountered.

In 1992, David Reynard and others filed suit in Florida federal court against a cell phone manufacturer and cellular company under the wrongful death statute, alleging that the usage of a cell phone by his wife, Susan Reynard, either caused or aggravated an existing brain tumor, eventually leading to her death. *Reynard v. NEC Corp.*, 887 F. Supp. 1500 (M.D. Fla. 1995). It was the first tort suit in the country to allege that cell phone radiation caused brain cancer. The defendants moved for summary judgment on the issue of causation. They provided affidavits of doctors in support of their argument that the plaintiffs had not demonstrated medical causation, and, therefore, it was the plaintiffs’ burden to present admissible evidence to raise a genuine issue of material fact.

The court agreed, and granted summary judgment in favor of the defendants. The scientific studies that the plaintiffs presented showed that their position was not generally accepted, and the medical affidavit provided by the plaintiffs concluded that the tumor began many years before Susan Reynard began using a cell phone. Although the affidavit

concluded that her cell phone usage accelerated the tumor growth, the court determined that that conclusion was not supported by specific facts.

Another case against a cell phone manufacturer alleging a causal connection between radiofrequency fields from cell phones and cancer that received significant press was *Newman v. Motorola, Inc.*, 218 F. Supp. 2d 769 (D. Md. 2002), decided seven years after *Reynard*. In *Newman*, a husband and wife sued a manufacturer of mobile phones and others, alleging that the husband's use of a cell phone caused his brain cancer. Both the plaintiffs and defendants moved to exclude the other's proffered expert testimony. The court held that the expert opinions offered by the plaintiffs were inadmissible under the *Daubert* standard. In particular, neither paper relied on by the plaintiffs had been accepted for publication in a peer-reviewed journal at the time of the court hearing on the matter, and, regardless, neither paper showed a statistically significant risk for the development of malignant brain tumors from cell phone usage. The court also discussed multiple issues with the research itself, including recall bias, and that it had not been replicated or gained general acceptance.

RECENT SCIENTIFIC STUDIES

Throughout the decade since *Newman*, scientific research on the possible link between cell phone radiation and tumor development has continued. A brief summary of the major conclusions of some recent large scale studies follows.

Interphone Study

In May, 2010, the International Agency for Research on Cancer (IARC) reported the results of a 13-country epidemiology study of cell phone use published in the *International Journal of Epidemiology*. The study compared the use of cell phones based on interviews of persons with tumors of the brain with that of a selected control group. This case-control study included 2708 glioma and 2409 meningioma cases and matched controls. Interphone Study Group, *Brain Tumour Risk In Relation to Mobile Telephone Use: Results of the Interphone International Case-Control Study*, 39 *Int'l J. Epidemiology* 675-94 (2010). Glioma is a common type of brain tumor, and meningioma often presents as a benign tumor of the brain.

The study included the most exposed cases, particularly long-term and heavy users, to date. A reduced risk for glioma and meningioma was observed among regular mobile phone users. Also reported was an elevated risk of glioma among the 10% heaviest regular users. Although the latter association provides an indication of an increased risk of glioma at very high exposure levels, biases, including selection bias and error prevented a causal conclusion. The study concluded, therefore, that there was no observed increase in the risk of glioma or meningioma with the use of cell phones.

IARC Review

A year after the Interphone study, in May, 2011, 30 scientists from 14 countries gathered at an International Agency for Research on Cancer (IARC) confab in Lyon, France, to assess the carcinogenicity of radiofrequency electromagnetic fields (RF-EMF). The scientists reviewed epidemiological evidence for an association between RF-EMF and cancer, and concluded that there is "limited evidence in humans" for the carcinogenicity of RF-EMF based on positive associations between glioma and acoustic neuroma and exposure to RF-EMF from mobile phones. Additionally, after a review of more than 40 studies concerning carcinogenicity of RF-EMF of rodents, the group concluded that there is "limited evidence" in experimental animals for the carcinogenicity of RF-EMF. In light of the limited evidence in humans and experimental animals, the group classified RF-EMF as "possibly carcinogenic to humans." Robert Baan, et al., *Carcinogenicity of Radiofrequency Electromagnetic Fields*, 12 *Lancet Oncology* 624-26 (2011).

Swedish Council for Working Life and Social Research

In 2003, the Swedish government commissioned the Swedish Council for Working Life and Social Research (Swedish Council) to monitor research into electromagnetic hypersensitivity and to document and report on the state of research every other year. The Swedish Council published its results in June, 2012. The results included a section specifically on radiofrequency exposure and cancer risk. Anders Ahlbom, et al., *Radiofrequency Electromagnetic Fields and Risk of Disease and Ill Health - Research During the Last Ten Years*, Swedish Council for Working Life and Social Research (2012). Methodological shortcomings in studies from the last decade were highlighted. In

particular, many studies concerning the link between cell phone usage and cancer relied on self reports of call frequency and amount of time spent on a mobile phone. This method invites recall bias, which often results in overestimating mobile phone use or a tendency to recall using a cell phone on the side of the head on which a known tumor exists. The Swedish Council found that around 15 studies of mobile phone use and brain tumors had been published during the last decade.

The longest latency period was in a Danish cohort study, which was free from recall bias because mobile phone use was estimated from phone subscription records, not on personal recall, and covered a period of 13 years since the first mobile phone subscription. That study found no indication of an increased risk of glioma with mobile phone use.

A few epidemiology studies by a group led by Dr. Lennart Hardell reported an increased risk of certain types of tumors with cell phone usage. These tumors included acoustic neuroma, a noncancerous brain tumor, and malignant brain tumors, including glioma and astrocytoma, which is the most common glioma, accounting for about half of all primary brain and spinal cord tumors. The Swedish Council found, however, that such increases were outliers, and were likely of questionable credibility because there was no observed increased incidence of glioma and acoustic neuroma in national tumor rates. The tumors may have already been present by the time the individuals began using mobile phones.

In short, the Swedish Council concluded that the majority of epidemiological studies from the last decade did not result in evidence that mobile phone use is linked to an increased risk of glioma, meningioma, acoustic neuroma, or other tumors. The few studies that yielded an increased risk were likely affected by bias, particularly recall bias. There is, however, not enough research done on particularly heavy usage of mobile phones and for longer periods of usage, such as 15 years or more.

Epidemiology Incidence Study

A study published in March, 2012 in *Epidemiology* examined time trends for incidence rates of glioma in the Nordic countries for the period of 1979 through 2008. Specifically, the statistics were from the entire adult population of 17 million of Finland, Sweden, Norway and Denmark, which is significant because these populations were among the first in the world to use cell phones extensively, and since 2005, there has been more than one subscription per person. Additionally, these nations have maintained high-quality nationwide cancer registries for the past 50 years. The basis for the study was that if mobile phone use was causing increased risks of glioma, the incidence rates would reflect the increased risk. The conclusion was that there was no clear trend change in glioma incidence rates, suggesting that longer terms of mobile phone use need to be studied, that risks are lower than concluded in certain studies, or that there is a lack of association between mobile phone use and increased risk of glioma. I. Deltour et al., *Mobile Phone Use and Incidence of Glioma in the Nordic Countries 1979-2008: Consistency Check*, 23 *Epidemiology* 301-07 (2012).

ITALIAN SUPREME COURT RULES IN FAVOR OF LINK

In October, 2012, the Italian Supreme Court became the first high court of any country to affirm a ruling that cell phone use caused a man's brain tumor. A businessman who used a cell phone and a cordless phone for five to six hours a day for 12 years was diagnosed with a benign tumor on a nerve that controls facial muscles and sensations. He filed a workers' compensation claim alleging that usage of a cell phone was responsible for the tumor. At first, the claim was rejected on the ground that there was no proof that his illness had been caused by his work, but then the court of appeals reversed the decision, and the Italian Supreme Court affirmed. No further appeals are possible.

The question on appeal involved whether the evidence before the court showed a causal link between phone use and the onset of the tumor. The court assessed the submitted studies, which included the Interphone study and studies by the Hardell group, one of which concluded that the use of cell phones for 10 or more years increased the risk of acoustic neuroma - closely related to the plaintiff's tumor. The court noted that the Interphone study was funded in part by the mobile phone industry and expressed a preference for the Hardell studies, which were funded independent of cell phone manufacturers.

ARE THE NEW HEADLINES JUSTIFIED?

To date, personal injury suits in the United States based on a link between mobile phone use and the development of tumors have been unsuccessful because, in large part, plaintiffs are unable to establish causation. In addition, some circuits have concluded that preemption bars these suits because the Federal Communications Commission considers safe all mobile phones that comply with the prescribed standards, and suits that challenge radiation below those standards directly or indirectly seek to impose stricter standards. *See, e.g., Farina v. Nokia, Inc.*, 625 F.3d 97 (3d Cir. 2010). The issue of preemption is, however, outside the scope of this article.

Daubert remains the legal standard that must be met to admit scientific evidence regarding a potential causal relationship between radiofrequency fields from cell phones and tumors. As a review of the recent developments in the scientific literature discussed above reveals, there has not been a significant change in the scientific literature that would warrant a different outcome in the Daubert analysis. A causal link between mobile phone usage and tumor development fails to rise to the level of general acceptance; the vast majority of the studies, even the recent longer term studies, have not demonstrated that causal connection.

This position is supported by the recent comprehensive review by an independent Advisory Group on Non-ionising Radiation for the Health Protection Agency of Great Britain. Independent Advisory Group on Non-ionising Radiation, Health Effects from Radiofrequency Electromagnetic Fields, Health Protection Agency (2012). Thus, the weakness of plaintiffs' scientific claims will likely continue to serve as a bar to establishing causation.

CONCLUSION

Although the Italian Supreme Court decision garnered many headlines, its potential encouragement of new suits on the basis of a link between cell phones and tumor development will likely not prove successful for plaintiffs. Not only are suits in America subject to the gatekeeping standard of Daubert, but the facts of the Italian Supreme Court case were very particularized. The plaintiff's cell phone usage was toward the extreme - five to six hours a day for 12 years. Additionally, the suit was in the context of a workers' compensation claim, and not a product liability suit.

Simply put, almost 20 years after the Reynard decision, the scientific literature does not support the conclusion that cell phone usage is linked to tumor development. The comprehensive Interphone study, the report by the Swedish Counsel, and the long-term incidence study in the Nordic countries (and a number of other countries including the United States) all do not support a causal link between tumor development and cell phone usage. Although certain isolated studies suggest correlations or causal links, as the Newman court articulated,

[t]heir reasoning, theories, and methodology have not gained general acceptance in the scientific community, as demonstrated by the numerous national and international scientific and governmental published reports finding no sufficient proof that use of handheld cellular phones causes human brain cancer, and by the array of established, experienced, and highly-credentialed experts [who testify for cell phone manufacturers]. Newman, 218 F. Supp. 2d at 783.

Over 10 years later, that statement rings just as true. Accordingly, although there may be a new wave of suits against cell phone manufacturers sparked by the Italian decision, any departure from well-established precedent in American courts is not justified by the weight of evidence from scientific studies.

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