

Cellular Telephones and Brain Cancer: Current Research

Two prominent medical journals recently published epidemiologic studies [Inskip et al. (1) and Muscat et al. (2)] on cellular telephones and brain cancer. These papers were featured in a front-page story in *The New York Times* (3). The message of the story was essentially that these were definitive studies that put the question of handheld cell phone hazard to rest. The television networks and other media also ran major stories and conveyed essentially the same message.

Most of the patients and most of the data analyses in the Inskip et al. (1) paper as well as in the Muscat et al. (2) paper are irrelevant to the issue of whether handheld cellular telephones cause brain cancer. Most of the patients (86%) in the study by Muscat et al. (2) used car telephones or bag telephones, not handheld telephones; the antennae used with car and bag telephones are well away from the head, so there is little, if any, exposure of the head to the energy. Most of the patients (82%) in the study by Inskip et al. (1) had no or negligible use of a handheld telephone. This crucial information is buried in both the Muscat and Inskip reports. Thus, most of the analyses in these studies (1,2) show that if you have no exposure you have no effect, and are irrelevant to the issue. Further, how is it possible to see an effect with the small group that is left, which is the only group that is relevant, particularly given the long latency for cancer to develop?

It is well established that cancers resulting from an environmental insult typically have a long latency. In the study by Muscat et al. (2), for example, the mean time from the date the 66 patients began to use a handheld cellular phone to the date when the authors assessed for cancer was less than 3 years. The situation is similar in the Inskip et al. study (1). A considerable body of cancer literature indicates that a statistically significant increase in cancer is unlikely to appear in such a short time, even if the exposure caused cancer. Thus, a no-effect result would be expected in these

small groups, even if handheld cellular phone radiation exposure did cause cancer.

Shortly after the papers by Inskip et al. (1) and Muscat et al. (2) were published, another epidemiologic study by Johansen et al. was published in another prominent medical journal (4). The comments that apply to the other studies, in general, also apply to Johansen et al.'s study, but one more comment can be made about it. Johansen et al. (4) lumped together in their analyses car, bag, and handheld telephones as though the use of all these types of telephones gave the same head exposure as handheld telephones. Because most of the people at that time were using car and bag telephones (1,2), most of Johansen et al.'s cases (4) had no exposure. Thus, Johansen et al. (4) had confounded data and could not see an effect even if a large one existed. All Johansen et al.'s analyses show is that if you have no exposure, you have no effect; thus, these analyses are irrelevant to the issue.

The carrying out and publication of these studies seems to fall into the pattern that I summarized in a recently published paper concerned with ethical questions in this area of research (5). The public has not been well served with respect to a significant public health issue.

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REFERENCES AND NOTES

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2. Muscat J, Malkin M, Thompson S, Shore R, Stellman S, McRee D, Neugut A, Wynder E. Handheld cellular telephone use and risk of brain cancer. *JAMA* 284:3001-3007 (2000).
3. Kolata G. Cell phone studies see no link to brain cancer. *New York Times*:1 (20 December 2000).
4. Johansen C, Boice J Jr, McLaughlin J, Olsen J. Cellular telephones and cancer—a nationwide cohort study in Denmark. *J Natl Cancer Inst* 93:203-207 (2001).
5. Frey AH. Cellular phones: are they safe to use? *Scientist* 14(23):47 (2000). Available: http://www.the-scientist.com/yr2000/nov/opin_001127.html [cited 28 March 2001].

CLARIFICATIONS AND CORRECTIONS

Due to changes during editing, the April 2001 NIEHS News [EHP 109:A160-A161] inadvertently implies that all species of cyanobacteria produce toxins. In fact, only about 12-15 species, including *Microcystis*, *Cylindrospermopsis*, and *Anabaena*, are known to produce toxins. A caption in the same article also states that cyanobacteria toxins are known to be responsible for alligator die-offs in Florida when such toxins are actually only suspected to be involved. Finally, credits for the photographs on p. A160 are reversed. They should read "Left to right: Dwayne Carbonneau; Paul Kempter." EHP regrets any confusion caused by the wording of the article or the incorrectly credited photographs.

Toxic Beryllium and Genetic Testing

In the article "Toxic Beryllium: New Solutions for a Chronic Problem" [Environ Health Perspect 109:A74-A79 (2001)], Scott Fields presented a balanced view of the many opinions on beryllium. However, Fields erroneously stated that Los Alamos National Laboratory "has started a genetic testing program." This is incorrect. Although Los Alamos for the past 4 years has done some genetic analysis of beryllium workers who have volunteered for a research study, the laboratory is just now considering how it might implement a voluntary genetic testing program that would provide private information to beryllium workers about their genetic risk. Such a program, if implemented, would first undergo rigorous ethical review.

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