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Children and Adolescent Mobile Phone Users at No Greater Risk of Brain Cancer Than Non-users

Children and adolescents who use mobile phones are not at a statistically significant increased risk of brain cancer compared to their peers who do not use mobile phones, according to a study published July 27 in the *Journal of The National Cancer Institute*.

Mobile phone usage has increased among children and adolescents in recent years. The increased usage has raised a concern about the possibility of the development of brain tumors in this population since children have a developing nervous system; also, because their head circumference is smaller, the radio frequency electromagnetic fields may penetrate regions that are deeper in their brains. However, no previous study has examined whether mobile phone usage among children and adolescents is associated with a difference in brain tumor risk.

To determine the relationship between mobile phone usage and brain tumor risk among children and adolescents, Martin Röösli, Ph.D, of the Swiss Tropical and Public Health Institute in Basel, Switzerland, and colleagues looked at the medical records of children aged 7–19 with brain tumors, identified through population registries. Researchers did face-to-face interviews with them regarding their mobile phone usage. They also consulted data from phone network providers.

The study, conducted between 2004 and 2008, included participants from Norway, Denmark, Sweden and Switzerland. They looked at data for 352 brain cancer patients, and 646 control subjects.

The researchers found that patients with brain tumors were not statistically significantly more likely to have been regular mobile phone users than control subjects. They found that 265 (75.3%) of case patients and 466 control subjects (72.1%) reported having spoken on a mobile phone more than 20 times before the time when the case patient was diagnosed. Furthermore, 194 case patients (55%) and 329 control subjects (51%) reported regular mobile phone usage. However, in a subset of study participants for whom operator recorded data were available, brain tumor risk was related to the time elapsed since the mobile phone subscription was started (but not to amount of use). No increased risk of brain tumors was observed for brain areas receiving the highest amount of exposure.

The researchers write, "Because we did not find a clear exposure-response relationship in most of these analyses, the available evidence does not support a causal association between the use of mobile phones and brain tumors." Nevertheless, since mobile phone usage among children and adolescents has increased over the years, they encourage a careful watch on the trend.

In an accompanying editorial, John D Boice, Jr., ScD. and Robert E. Tarone, Ph.D., of the International Epidemiology Institute in Rockville, Maryland and Vanderbilt University in Nashville, Tennessee write that Röösli and his colleagues "have filled an important gap in knowledge by showing no increased risk of brain tumors among children and adolescents who are regular cell phone users."

Boice and Tarone conclude that it is reassuring that the incidence rates of brain cancer in the general population, including children and teenagers, have not changed over the past 20 years in the United States and many other countries despite the steady and marked rise in the use of cell phones throughout the world since the 1980s. They recommend that investigators continue to monitor population incidence rates and that in the meantime, individuals who are concerned might consider alternatives to holding a cell phone up to their ears, such as using an ear piece or using the phone's speaker. They also point out

that individuals should heed what is known about real risks by avoiding the use of cell phones while driving a car, because such distractions have been clearly documented to increase the risk of accidents and injuries.

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