
Electric-power lines linked with cancer

Might the proximity of one's home to high-current electric-power lines increase one's risk of cancer? A study by Nancy Wertheimer of the University of Colorado Medical Center and Ed Leeper in the March *AMERICAN JOURNAL OF EPIDEMIOLOGY* suggests that such a link might explain the distribution of leukemia and other cancers among children in the greater Denver area during the past 30 years. While the study falls short of proving a link between cancer and power lines, it did find that the homes of children who got cancer were situated "unduly often" near electric lines carrying high currents.

Wertheimer, who described the study at an environmental health conference earlier this month in Park City, Utah, said it was visiting the neighborhoods of childhood-cancer victims that led her to look at a possible link between cancer and high-current power lines. Searching for clues on environmental factors that might heighten cancer risk, she was struck by the frequency with which electrical transformers appeared close to the homes of the cancer victims. Although a link seemed far-fetched, she followed it up.

Persons younger than age 19 who died of cancer were identified from Colorado death records. Those with Colorado birth certificates who had lived in the Denver area were used; the group numbered 344. Individuals whose birth records immediately followed those of the case-study group were chosen as a control group for comparison. Birth and death addresses, when known, were visited and a small map was drawn of local electrical wires and transformers. Homes were then classed by their apparent proximity to high-current (HCC) and low-current configurations (LCC).

In the HCC category were: homes less than 40 meters from large-gauge primaries (primary lines carry power from an electrical substation to the local, neighborhood transformer) or an array of six or more thin primary lines; homes less than 20 meters from an array of three to five thin primaries or from high-tension (50- to 230-kilovolt) wires; and homes less than 15 meters from the "first span" secondary (240-volt) wires. Secondary wires run from the local transformer supplying power for individual homes and businesses. Depending on the local power load, secondaries serve anywhere from a few homes to a block or more. "First span" secondaries are those that issue directly from a transformer to the first service drop. Secondaries separated from a transformer by at least one service drop (ignoring drops attached directly to the transformer pole) are termed second span. The significance of first-span wires is that more current runs through them because

they carry current for the first and all subsequent service drops.

First span wires serving no more than two single-family homes were considered LCC, as were all remaining configurations.

The death rate for leukemia, lymphomas and nervous-system tumors in children was roughly twice the expected rate in HCC homes (normally 4 per 100,000) particularly for those near a substation. Since "a wide association with different types of cancer is not characteristic of known carcinogens... the broad association observed here suggests that the HCC-cancer relationship may not be a causal one," the authors say. It may be due to some artifact, or may reflect some effect on the body's ability to resist cancer.

How HCC's might be related to cancer risk is unknown, but Wertheimer and Leeper offer suggestions. Explaining that some of the current entering a home generally returns through the ground, usually through the plumbing, Wertheimer speculates whether magnetic fields induced by the currents might somehow directly cause cancer. Although the field strengths are small, they are orders of magnitude greater than that of the earth and more potent even than the field associated with the wires, Wertheimer says. HCC's might alter the distribution of some ambient carcinogen or cause local changes in such things as drinking water that runs through pipes that serve as electrical grounds. Although some factor independent of the HCC's may account for the cancers, correlations with social class, neighborhood, street traffic and family make-up have already been checked and ruled out, the authors say. Whatever the cause, the increased risk to any individual remains very small, they add.

Preliminary findings of a follow-up study of cancer among the region's adults appear to show the same relationship, Wertheimer told *SCIENCE NEWS*, but only in persons under 60 years of age. □

Soyuz 33 docking failure

Two Soviet cosmonauts returned to earth last week aboard their Soyuz 33 spacecraft only a day after their April 11 launching. Problems with their propulsion system forced Russian Nikolai Rukavishnikov and Bulgarian Georgi Ivanov to abandon their attempt to dock with the Salyut 6 space station, where cosmonauts Vladimir Lyakhov and Valery Ryumin have been in residence since Feb. 26. The docking would have coincided with the 18th anniversary of the first manned spaceflight by cosmonaut Yuri Gagarin. Six crews have visited Salyut 6, including one team who set a 140-day record for living in orbit. Also, five unmanned Progress vehicles have ferried new supplies, food, fuel, scientific equipment and repair gear to the station, fueling speculation about plans for a still longer stay in orbit. □

Leaving home: Viet adjustment to U.S.

The painful aftermath of the Vietnam war — parlayed by Hollywood last year into Oscar-winning film productions — afflicted the Vietnamese as well as U.S. veterans. Many Vietnamese refugees who fled to the United States several years ago experienced "delayed depression" and recurring nightmares beginning six to eight months after their arrival here, according to 1976 reports by U.S. psychiatrists. Such emotional trauma frequently lasted for a year or more before subsiding, reported University of California at Irvine psychiatrist Jean E. Carlin, who served as a psychiatric consultant in South Vietnam and then worked closely with refugees in Southern California.

It now appears that most acculturation problems were indeed transitory, and that Vietnamese people have adjusted well to life in the United States. "Basically, these people are adjusting well without losing their cultural identity," psychiatrists A. Joe Vignes of the Texas Research Institute of Mental Sciences in Houston and Richard C. W. Hall of the University of Texas Medical School report in the April *AMERICAN JOURNAL OF PSYCHIATRY*.

Vignes and Hall randomly selected 50 Vietnamese families (114 individuals) in Baton Rouge, La., who agreed to undergo extensive interviews and a 300-item questionnaire covering items such as self-image, religion, community and family relations, future expectations and various aspects of adjustment. Sixty percent of the respondents were men and the mean age of the sample was 35.6 years.

The results, combined with data from local social and mental health agencies, reveal that 92 percent of the refugees had positive adjustment scores. "The initial response of the Vietnamese families [after arriving in Baton Rouge] was one of passivity followed in two to three months by expressions of anger and disappointment, which lasted at peak intensity for another four to six months," the psychiatrists report. "Following this phase, adjustment and acceptance increased dramatically."

All of the 10 persons showing negative adjustment scores had been high-income professionals in Vietnam and underwent some "loss of professional role and identity" upon settling in the United States. "This group reflected more on past losses and were more uncertain about the future than any other subgroup," they report.

Other than that, however, "our study suggests that the Vietnamese have adjusted well in the United States," say the psychiatrists. The incidence of treated psychiatric disorders was no higher than that of the rest of the population, and "we noted no substantial deculturalization of Vietnamese traditions," except for a more assertive role for women, they report. □