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Letters to the Editor

Microwave radiation

To the Editor: The letter from Dr. Zaret in the January issue[1] dealing with the potential carcinogenic effect of "electronic smog" requires additional comment. All of the case clusters reported by him involved exposure of limited population groups to radiation of a frequency and intensity that normally would not be present in the general civilian environment. It is my purpose in writing to call attention to two additional factors which may involve major civilian population segments and to report two apparent additional case clusters occurring under these circumstances.

All high frequency communication systems, from television to microwave, require that the transmitter be located to be able to beam the radiation directly to the intended receiver. This constraint results in there being a certain few geographically optimal transmission sites for any given metropolitan center. Hence, such transmission antennas tend to be concentrated at such sites rather than randomly dispersed. The local (within two miles) radiational field will be considerably higher than within the target city proper. This field will be quite nonuniform; local obstructions, such as small hills, will place homes behind them in a field "shadow zone," while microwave transmission, being in narrow beams, will produce corridors of considerably elevated field density.

The geographical concentration of such transmission facilities requires the delivery to the area of considerably more electrical power than would be normally required. In addition, the need for such communications during times of emergency requires that the power supplies be redundant, that is derived from more than one transmission circuit. This results in an above normal concentration of power transmission lines in the same area as the elevated radiational field. Since it has been reported that prolonged exposure to elevated levels of 60 cycle fields produces the physiological alterations of the stress adaptation syndrome,[2-4] the possibility of a synergistic effect between such fields and the high frequency communication fields must be seriously considered.

With these factors in mind, I would like to report some personal observations derived from my residing within such an area. The optimal site for such transmitting facilities for the Syracuse metropolitan area is a hill located seven miles south of the city center. Within a zone of half mile diameter on the hill top are located two television antennas, five FM communication antennas and 13 microwave relay dish antennas. Defining the hilltop as limited by the 800 foot contour line, its dimensions are six miles long in a north-south axis and two miles wide in an east-west axis with the antenna complex approximately in the center. Power transmission lines are concentrated in the northern half of the hill, along with a power substation. The total population within this area is approximately 1,100 and the area would be classed as rural with a few small residential developments and scattered individual residences. Both developments and residences are uniformly scattered with equal numbers to both north and south of the central transmitter area. There are no local industries, the hill is above the air pollution level of the city and water and sewage facilities are all individual for each dwelling.

Over the past three years, seven cases with the primary diagnosis of malignancies of various types have come to my attention within this population. These occurred in individuals who had been residents of the area in excess of five years. Six of the cases occurred in the population residing north of the transmitters in the area of power transmission line concentration. These further occurred in two clusters, one a half mile diameter with three cases, the other a tenth of a mile diameter with three cases. Both clusters were separated by a distance of approximately one mile, most of which was a radiational "shadow zone" produced by the ridge of the hill extending in a northerly direction. Each cluster was apparently within the boundaries of a microwave corridor. During the same period of time, only one case occurred in the same size population group residing south of the transmitter complex. Not only are the power transmission facilities almost absent from this area, but much of this area is within a similar "shadow zone."

Statistically the total population on the area would be expected to have a malignancy rate of 4.5 cases in the three-year period with Onondaga County being in the highest decile range,[5] while the overall rate is almost double the expected, the concentration of six of the seven cases in the two clusters, within microwave corridors and in the area of increased power transmission radiation, is suggestive of a relationship. While the data gathering and analysis used were crude and based solely on personal knowledge and observations, the results would appear to justify appropriate epidemiological studies of this and similar sites throughout the State.

ROBERT O. BECKER, M.D.
Research Professor, Department of Orthopedic Surgery
750 East Adams Street
Syracuse, N.Y. 13210

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