

Radio, TV towers linked to increased risk of melanoma

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People living near many radio and TV stations are at a higher risk of melanoma, a deadly skin cancer that is diagnosed in an increasing number of people worldwide, particularly in the Western countries, according to my studies and those by others.

My studies have found that those who had four FM-radio or TV towers covering their residential area are more than twice as likely as those who had one.

The possible association between melanoma and exposure to the radio waves from FM-radio and TV stations got my attention in 1998 when I read a graph published by a local newspaper, showing that the rate had been increasing ever since 1960 and still has not seemed to level off to date.

The news story explained that the increased risk is due to increased exposure to UV-radiation from the sun, since we travel abroad more often than ever, increasing our exposure to sun rays, which are believed to be the main risk factor for skin cancer.

But the explanation was not convincing enough to me. Do we really stay 10-20 times longer in the sun now than we did before 1960, when the incidence of melanoma was much lower? Also, how do you explain the fact that melanoma is often found on part of the skin that is not often exposed to sun rays?

I am skilled at quality management and problem solving in telecommunication electronics, and I consider myself knowledgeable and competent in my profession. I believe I am well qualified to do research on the issue, and I decided to get an answer for these questions by myself.

The first thing I needed to decide was when the rate of melanoma began rising. I looked back at the data on melanoma incidence for all 289 communes in Sweden and noticed that the incidence of melanoma was near zero in 1955. Afterwards, the rate of melanoma had been increasing. Only from 1955 on did the whole country gradually become covered by FM-radio and TV towers. Everybody eventually was exposed within a 10-year period.

My first attempt to establish an association between melanoma incidence and FM-radio and TV stations was to plot a graph of the incidence versus the power density. To my surprise, the association was not significant, if there was any, as shown in Figure 1.

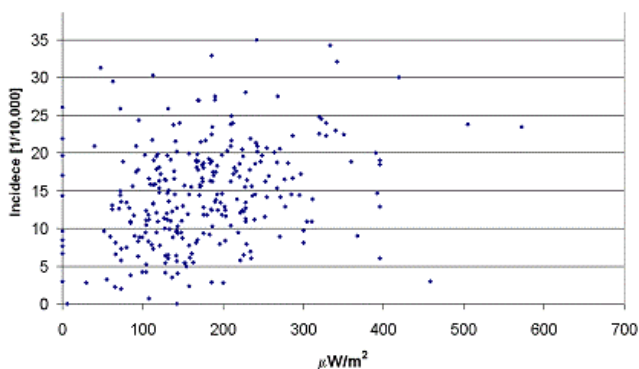


Figure 1. The rate of melanoma in 289 Swedish communes is poorly correlated with the power density from surrounding FM broadcasting main towers.

Two weeks afterwards, I came up with another idea, thinking that the incidence of melanoma may be linked to

the number of FM-radio and TV stations in a residential area. I plotted the graph and I indeed found a significant correlation between incidence of melanoma and the number of radio and TV towers covering a residential area, as shown in Figure 2.

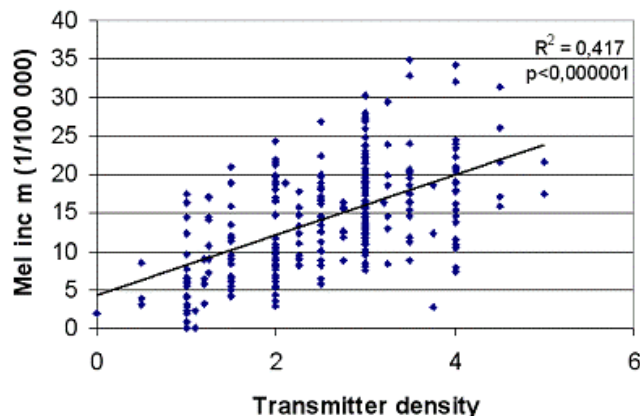


Figure 2. The melanoma rates in the 289 Swedish communes correlate very well with the number of surrounding FM broadcasting main transmitters.

From this graph, we can see that the baseline for melanoma incidence (without any radio or TV station in a residential area) is about 4.5 people in every 100,000. When the number of radio and TV stations is increased to 1.5, the incidence increases to 10 people in every 100,000. When the number of radio and TV stations is increased to 4, the risk of melanoma increases by 100 percent compared to the area with 1.5 radio and TV stations. (Editor's note: 20 people in every 100,000).

One interesting observation is that the association between radio and TV towers and incidence of melanoma depends upon age. For children ages 13 to 15 and younger, the exposure to radio waves does not seem to increase risk of melanoma. Does that mean melanoma may have a long incubation period, causing the effect of radio waves to not manifest in children? Or is it simply that the taller adults are at a higher risk of melanoma when exposed to the radio waves? I can't answer these questions.

However, I do know that the radio frequencies used by radio and TV stations make a difference. In Western countries, the FM broadcasting is transmitted in the 87-107 MHz band. The half wave length at 87 MHz is 1.74 meter. At this wavelength, you might end up catching a standing wave, shaking the center of your body for the whole night if your bed is facing an FM broadcasting tower!

Japan never used the 87-108 MHz band for their FM radio broadcasting. Their melanoma rate is just 3% of what we have in Sweden! And when Japanese people move to the USA, their melanoma rates start to increase.

My first paper on the association between melanoma incidence and the number of surrounding FM towers, which was co-authored by Associate professor Olle Johansson at the Karolinska Institute in Stockholm, was published in the spring of 2002 in a peer-reviewed medical journal, Archives of Environmental Health.

Later studies by myself and others have concluded that a continuous disturbance of the immune- and repair mechanisms from body-resonant radiation will end up increasing melanoma rates. It was also shown that countries that had not yet been covered by radiation from FM-broadcasting towers continued to have a low and stable melanoma rate, just as before.

Some models developed to explain the association between incidence of melanoma and the effect of radio towers showed that reduced repair efficiency easily can explain all age-specific melanoma rates. It also demonstrated that an increasing sun-tanning trend does not have this capability at all.

The fact that melanoma rates mainly have been increasing on normally sun-protected areas of the body (trunk, upper limbs, etc.) fits well with the body-resonance hypothesis.

During the last few years, however, we have also noticed increasing rates of melanoma on the face/head area of younger people. This disturbing fact draws a direct link to another area of my research: the influence of mobile phone use on public health.

About the Author: Mr. Örjan Hallberg is founder and senior researcher of Hallberg Independent Research in Sweden. He has published about a dozen of scientific papers on the non-thermal effects of electromagnetic radiation on public health. He had worked since 1966 as a quality and reliability engineer in the telecommunication industry and as Environmental Manager within Ericsson between 1998 and 2003.

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