

HIR-News

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The theme of this newsletter is melanoma of skin.

Örjan Hallberg
Hallberg Independent Research

Welcome to this third issue of the HIR-Newsletters.

Melanoma of skin and the 9 Hill criteria

In June 27 2003 the Swedish Radiation Protection Authority declared that a paper published in 2002 on the relation between body-resonant FM broadcasting radiation and melanoma of the skin did not fulfil any one of the 9 so called 'Hill criteria' on causality.

On request, SSI appeared to be unable to specify in more detail on what causes all these criteria were not met. We will here briefly discuss the 9 elements that Hill listed in 1965 to see which one of the two alleged environmental changes, i.e. increased sun exposure or the new body-resonant radiation continuously emitted over the Swedish population since 1955, which best meets these criteria. The basic information about the Hill criteria was here retrieved from K Rothman's Modern Epidemiology,

Cont page 2

IN THIS ISSUE

- 1 Melanoma of skin and the 9 Hill criteria
- 1 Recent advances
- 3 What is ongoing right now?

Recent advances

Brief news of recent advances

Örjan Hallberg
Hallberg Independent Research

FM Broadcasting Exposure Time and Malignant Melanoma Incidence

Hallberg Ö, Johansson O. FM Broadcasting Exposure Time and Malignant Melanoma Incidence. Electromagnetic Biology and Medicine, 24: 1-8, 2005

The age-specific incidence of malignant melanoma of the skin appears to be following a pattern of response to an imposed environmental change in 1955.

It shows that the incidence of melanoma has been rather stable over time for young people and not at all increasing due to artificial sun bathing etc which is the alleged background according to SSI.

It also gives a solid background for a deeper analysis in order to arrive at a mathematical model for predicting melanoma of skin among men and women in many countries. Hallberg Independent Research is currently busy in developing this model, so stay tuned for more reports along this line!

Örjan Hallberg

1. **Strength.** A strong association has more weight than a weak one. In this case the correlation between the number of covering FM-transmitters and melanoma incidence is very strong. But it is also rather strong between latitude reduction and incidence or UV-index and incidence. In any case there is a strong correlation and thus the first criteria is *met both for the FM-hypothesis and the UV-hypothesis*.
2. **Consistency.** The analysis shall be repeated for different countries and different points in time and still give the same observed results. The article presents such an analysis for four different countries where three countries got their main FM-network up and running in the 1950's while the final FM-network for the USA was not in place until after 1974. All four countries appeared to have the same exposure-time-specific incidence that can be used to predict future outcome. The melanoma incidence is not increasing by UV-index among the European countries, it is rather the opposite case. Thus the criteria *is met for the FM-hypothesis but not for the UV-hypothesis*.
3. **Specificity.** This wholly invalid criterion is stating that a given effect can not at the same time cause other effects. If SSI is referring to this criterion, they need to explain it to us.
4. **Temporality.** Temporality refers to the necessity that the cause precede the effect in time. The immediate response in increasing melanoma mortality after the introduction of body-resonant FM-broadcasting radiation comes in logical order. The fact that the mortality reacts even faster than the incidence of new cases has been used as an argument against the hypothesis. But it is a fact that there always are a prevalence of seriously ill cancer patients available, and these should be the first to react on sudden changes to the environment. The travels to sunnier places by charter trips slowly started to become popular from 1962 and onwards, not from 1955. Thus the criteria *is met for the FM-hypothesis but not for the UV-hypothesis*.
5. **Biologic gradient.** This refers to the presence of a monotonic (unidirectional) dose-response curve. An increased exposure should give increasing incidence. This criterion is really met by the FM-hypothesis and not at all by the UV-hypothesis. When studying the melanoma incidence among the Swedish municipalities we noticed that the mean group values (0-4,5 covering transmitters, grouped in steps of 0,25) had an R^2 -value of 0.82, which is extraordinarily large. The connection between UV-index and melanoma incidence is reversed in Europé at large, unrelated in Denmark, and direct in Sweden, Norway and Finland. Thus the criteria *is met for the FM-hypothesis but not for the UV-hypothesis*.
6. **Plausibility.** The hypothesis must have a biologic plausibility. The problem with plausibility is that it often is not based on firm facts but rather on prior belief. Epidemiologists, who have based their whole careers on the idea that radio frequent electromagnetic fields are totally harmless as long as the brain does not coagulate, have particular problems to start thinking in new directions. The FM-hypothesis says that cell damages may be caused due to many reasons, UV-radiation, cigarette smoke etc, but that an impaired cell repair mechanism will increase the incidence of the disease. Body-resonant radiation may disturb the immune defense system, especially at night. It is well known that small currents emanating from the skin battery leads repair cells to heal scratches and wounds in the skin. The UV-hypothesis has clear difficulties to explain why melanoma of skin is most predominantly found on the parts of the body least exposed to UV-radiation, the trunk, back, upper legs etc. Thus the criteria *is met for the FM-hypothesis but not for the UV-hypothesis*.
7. **Coherence.** Coherence implies that a cause-and-effect interpretation does not conflict with what is known of the natural history and biology of the disease. The horizontally polarized radiation from an FM-transmitter looks like when you are shaking a carpet in front of you. The carpet waves propagates horizontally and the horizontal distance between the top and the bottom of a wave is around 1,5 m. If you happen to sleep in resonance to this radiation you may get the largest induced currents in the middle of the body, on the back, chest, stomach and upper legs. This is where you should first expect to find melanoma of skin if you ever will. Thus the criteria *is met for the FM-hypothesis but not for the UV-hypothesis*.
8. **Experimental evidence.** Hill talks about experimental evidence e.g. if we study the effect from removing the suspect harmful substance from the studied group to see if they improve or not. I have suggested such an experiment to the authorities. The idea was to close the FM-transmitters at night in at least one county of Sweden to see the effect it might have on the population health. The proposal was immediately rejected. Another experiment would be to let 100 skin cancer patients sleep in full resonance to the FM-transmitter while another 100 skin cancer patients should sleep in anti-resonant direction. No funds could be given for that study and even not to have an ethical committee look at it. But the Swedish government has already since 1955

WHAT IS ONGOING?

A continuous work goes on to study **melanoma of skin**.

The signs that support the FM-hypothesis just add to each other. The costs for the industry to keep the industry-loyal 'experts' loyal will probably continue to increase. I am just waiting to hear from the first SSI-expert that he/she now thinks that there might be something useful in my research. People, who finally change their firm beliefs, usually tend to become very supportive, just to motivate their sudden change. So, I am just waiting...

Lung cancer is also an ongoing research topic. Right now I am working on a general model to take into account the number of smoking-beginners every year, the numbers who quit smoking and changes in the environment.

Do you know that we have very good tools to measure the environment with? We can easily detect if the general environment suddenly has become worse or better from a health perspective.

These tools are available free of charge and are monitored continuously by the National Health and Welfare Authority (Socialstyrelsen) so that anyone can look it up on the web and read off the gauge.

What it is?

Well, it is the mortality among our oldest smokers. They are preciously sensitive, so keep them alive...

CALENDAR

SUBMITTED PAPERS

AT PRESENT 4 PAPERS ARE BEING CHECKED BY PEER-REVIEW

BOOKS

TWO BOOKS ARE BEING AUTHORED. ONE IS FINISHED AND IN PRINTING, THE OTHER IS NOW BEING CONSIDERED BY A PUBLISHER.

PRESENTATIONS

IF YOU ARE INTERESTED IN A PRESENTATION - PLEASE CONTACT ME VIA THIS E-MAIL:

ORJAH.HALLBERG@SWIPNET.SE

started a full scale experiment of the whole population and my research has clearly shown the result of this in all parts of Sweden. We have no experimental evidence showing that UV-radiation from sun-bathing or tourist travelling really is causing an up-turn in the skin melanoma incidence among young people. Thus the criteria ***is met for the FM-hypothesis but not for the UV-hypothesis***.

9. **Analogy.** Search for analogies to the hypothesis among other diseases. May-be there are other similar relationships. Well, one example is my currently ongoing study on lung cancer. It appears that the development of lung cancer mortality follows the skin melanoma mortality very well in all examined countries. One important risk element for lung cancer is smoking duration and, to a lesser extent, smoking intensity. But there is also a sudden increase in lung cancer mortality from the same year that the FM-broadcasting started in Sweden and in many other countries. A predictive model that only takes smoking into account appears to be very imprecise while a model taking both smoking and the exposure to body-resonant radiation into account exactly predicts the lung cancer deaths among both men and women in Sweden. Of obvious reason it is not possible to seriously state that lung cancer is caused by increasing exposure to UV-radiation down into the lungs. Thus the criteria ***is met for the FM-hypothesis but not for the UV-hypothesis***.

In summary

Eight of the nine criteria are relevant and all eight of them are met by the FM-hypothesis. The UV-hypothesis, on the other hand, is only met by the first criterion, and as a matter of fact, only for Sweden but not for the whole of Europe.

It is very disturbing that the Swedish Radiation Protection Authority first can state that the FM-hypothesis does not meet with one single of the nine Hill criteria and then, upon request, refuses to explain why.

What is the main purpose with this authority?

- ? ***Is it to protect the population against dangerous radiation?***
- ? ***Is it to protect the radiation against a dangerous population?***

Örjan Hallberg