Research into possible health effects, Sweden

Kjell Hansson Mild

National Institute for Working Life, Umeå, and

Department of Natural Sciences, Örebro University, Örebro, Sweden.

Several universities and governmental institutions in Sweden are involved in research about possible non-thermal effects of microwave exposure associated with mobile phone use. The research ranges from cellular studies to epidemiological studies of people using handheld phones. In this presentation a brief overview of some of the ongoing research projects will be given.

At the National Institute for Working Life in Umeå a study is done on people claiming subjective symptoms in connection with their mobile phone use. A battery of neurophysiological tests will examine the subjects, much in the same way as previously people claiming to be electrical hypersensitivity have been examined. The study is expected to be finish during Spring 2003.

Professor Lennart Hardell at Department of Oncology at the University Hospital in Örebro is heading a large epidemiological study on brain tumours and mobile phone use. The study comprising over 1600 cases has so far resulted in two published papers and two more are being considered for publication. It was seen that users of analogue phone had a statistical significant increased risk, OR = 1.3, with one year latency, and this increased with ten years latency to 1.8. The collection of new cases has continued since July 2000 and a new analysis will be done in Spring 2003. There is also a study on salivary gland tumours that is almost completed and the results are to be expected during Spring 2003.

At the Department of Environmental Epidemiology, Karolinska Institute, Stockholm, professor Anders Ahlbom and ass. Professor Maria Feychting is participating in the large international WHO Interphone study, and they are also part of the PMC study headed by professor Paul Elliot, UK. More about these studies will be presented by others at the meeting.

At Chalmers in Gothenburg a dosimetry project is being done. They are especially interested in modelling the inner ear since this is neglected in present human head models. The model will then be used with FDTD calculations to obtain the SAR distribution for the inner ear.

Dr Igor Belayev at Stockholm University is investigating the stress response in brain cell and lymphocytes from rats exposed to microwaves. In a 2D-gel electrophoresis a more than 2-fold change in several protein spots have been observed after exposure of the rats to 0.4 W/kg for 2 h. In another study biochemical markers in lymphocytes from persons claiming electrical hypersensitivity are studied. So far they have observed effect on chromatin conformation and appearance of 53bp1 protein foci, which is similar to the stress response from a heat shock.

The research group at Lund University is continuing their experiment with the blood-brain barrier in rats when exposed to low-level microwaves. They have now up to 1600 animals studied and the effect on the BBB is reported to be largest at around 20 mW/kg. Now they also report on damaged nerve cells in the brain as a result of the exposure.