

This abstract is for a presentation made at an international conference entitled "The Precautionary EMF Approach: Rationale, Legislation and Implementation", convened by the International Commission for Electromagnetic Safety and hosted by the City of Benevento, Italy, in February 2006

Pooled analysis of two case-control studies on use of cellular and cordless telephones and the risk for brain tumours diagnosed during 1997-2003

Lennart Hardell^{1,2} and Kjell Hansson Mild^{2,3}

1. Department of Oncology, University Hospital, SE-701 85 Örebro, Sweden

2. Örebro Life Science Center, Örebro University, SE-701 82 Örebro, Sweden

3. National Institute for Working Life, SE-907 13 Umeå

Abstract

Use of cellular and cordless telephones and the risk for brain tumours is of concern since the brain is a high exposure area. We present the results of a pooled analysis of two case-control studies on brain tumours diagnosed during 1997-2003.

For benign tumours we have an inclusion of answers from 1 254 (88 %) cases and 2162 (89 %) controls aged 20-80 years. For acoustic neurinoma use of analogue cellular phones gave odds ratio (OR) = 2.9, 95 % confidence interval (CI) = 2.0-4.3, digital cellular phones OR = 1.5, 95 % CI = 1.1-2.1 and cordless telephones OR = 1.5, 95 % CI = 1.04-2.0. Highest OR was found for analogue phones for latency period > 15 years with OR = 3.8, 95 % CI = 1.4-10. Regarding meningioma the results were for analogue phones OR = 1.30, 95 % CI = 0.99-1.71, digital phones OR = 1.05, 95 % CI = 0.86-1.29 and cordless phones OR = 1.14, 95 % CI = 0.93-1.39. In the multivariate analysis significantly increased risk was found for acoustic neurinoma for use of analogue phones.

For the two case-control studies on malignant brain tumours diagnosed during 1997-2003 we have included answers from 905 (90 %) cases and 2162 (89 %) controls aged 20-80 years. We present pooled analysis of the results in the two studies. Cumulative life time use for > 2000 h yielded for analogue cellular phones odds ratio (OR) = 5.9, 95 % confidence interval (CI) = 2.5-14, digital cellular phones OR = 3.7, 95 % CI = 1.7-7.7 and for cordless phones OR = 2.3, 95 % CI = 1.5-3.6. Ipsilateral exposure increased the risk for malignant brain tumours; analogue OR = 2.1, 95 % CI = 1.5-2.9, digital OR = 1.8, 95 % CI = 1.4-2.4, and cordless OR = 1.7, 95 % CI = 1.3-2.2. For high-grade astrocytoma using > 10 year latency period analogue phones yielded OR = 2.7, 95 % CI = 1.8-4.2, digital phones OR = 3.8, 95 % CI = 1.8-8.1 and cordless phones OR = 2.2, 95 % CI = 1.3-3.9. In the multivariate analysis all phone types increased the risk. For subjects with first use < 20 years of age we calculated for malignant brain tumours OR for use of digital phones OR = 3.7, 95 % CI = 1.5-9.1 and for cordless phones OR = 2.1, 95 % CI = 0.97-4.6, higher than in older persons.

Conclusion: Increased risk was obtained for both cellular and cordless phones, highest in the group with > 10 years latency period.