

Interphone: An international study of mobile phones and brain tumours

An increase in mobile telephone use since its introduction in the early-to-mid 1980s has led to public concern about the possible health risks related to radiofrequency electromagnetic fields from this technology.

The 10 year Interphone study, which is the largest, most comprehensive study that has been conducted internationally on the risks to date, was published in the *International Journal of Epidemiology* (2010).

The study is an interview-based, 'case-control' study of mobile phone use in adults and focuses on two main types of brain tumour: glioma, which are tumours of the brain itself, and meningioma, which are tumours of the meninges, the membranes around the brain. Coordinated by the World Health Organisation's International Agency for Research on Cancer and carried out in 13 countries, including New Zealand. Scientists interviewed almost 13,000 participants, of which 5,150 had either glioma or meningioma tumours.

Professor Alistair Woodward, at The University of Auckland, is the Principal Investigator of the New Zealand arm of Interphone and says "The reason the study got underway was that we were well aware in the 1990s there had been an extraordinary spread in the use of mobile phones and this meant that for the first time people were taking a radio transmitter and holding it up very close to the side of their head".

Mobile phones send out radioactive energy in a form that is similar to the one used in microwave ovens, but at much lower levels. This is a category of radiation that very little was known about in terms of what the health effects might be, other than that radiation of this kind has a heating effect.

"But we weren't certain, and remain uncertain, about whether radio frequency radiation has other biological effects," he says.

"Given the introduction of the technology, its very widespread use and our uncertainty about whether there were health effects, we thought that it was an important topic and one that we should look closely at, and that was the genesis of the Interphone study."

It took four years for the data to be collected, from 2000 - 2004. The data has since been analysed over the past five years, including the findings from the other 12 individual study centres.

People participating in the study were aged 30 to 59 to maximise the chance of finding an effect, if there was one, by restricting the study to the group in the population that were most likely to have used cellphones in the 1980s and 1990s.

The comparison group was people of the same age, taken from the general population. The study hypothesis was that past use of mobile phones would be the same for both people with the disease and people without.

"The findings were unexpected. People who reported using mobile phones were less likely to have suffered from these particular brain tumours. There was about a 20 per cent reduction in risk that could not be explained by chance."

Overall, no increase in the risk of either glioma or meningioma was observed in association with the use of mobile phones. There were suggestions of an increased risk of glioma, and much less so meningioma, at the highest exposure levels. However, this result could be due to systematic errors in how people



Professor Alistair Woodward

Key words:

- Radiofrequency, technology, electromagnetic fields, brain tumours, glioma, meningioma

Aims of this research:

- To establish the possible health risks from mobile phone use

reported their past phone use.

"The important contribution of Interphone is that we have a substantial amount of information about long term use of cellphones worldwide," says Professor Woodward.

Whilst the findings are reassuring, the suggestion of an increase in risk in some users, the lack of follow-up beyond 10-15 years, and the lack of information on risks to children and young adults, suggest the possible effects of long-term heavy use of mobile phones requires further investigation.

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