Long-term use of cellular phones and brain tumours: increased risk associated with use for 10 years

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FROM ABSTRACT

Aim:
To evaluate brain tumour risk among long-term users of cellular telephones.

Methods:
Two cohort studies and 16 case–control studies on this topic were identified. Data were scrutinised for use of mobile phone for 10 years and ipsilateral exposure if presented.

Results:
All gave increased odd ratios, especially for ipsilateral exposure.

In a meta-analysis, ipsilateral cell phone use for acoustic neuroma was at an increased risk by 140%, and for glioma was increased by 100%, using a tumour latency period of 10 years.

Conclusions:
Results from present studies on use of mobile phones for 10 years give a consistent pattern of increased risk for acoustic neuroma and glioma. The risk is highest for ipsilateral exposure.

THESE AUTHORS ALSO NOTE:

"Over the past few decades, there has been rapid worldwide development of wireless technology, including increasing use of wireless telephone communication."

This has raised concerns about increased risk for brain tumours, "owing to the proximity of the brain to the radiation antenna, with the potential for absorbing a comparatively large amount of electromagnetic energy."

A 10-year latency period for development of tumours is a reasonable minimum period to indicate long-term carcinogenic risks from exposure to radiofrequency (RF) fields during use of cellular or cordless phones.

"The analogue system has been used from the early 1980s using 450 or 900 MHz RF fields. The digital system has been increasingly used since the beginning of the 1990s and currently dominates the market. This system uses dual-band, 900 and 1800 MHz frequencies for communication. Over recent years the third generation of mobile phones, 3G or universal mobile telecommunication system (UMTS), using 1,900 MHz RF fields has been introduced worldwide."

"Desktop cordless phones (digital enhanced cordless telecommunications; DECT) also use wireless technology. Initially, in the late 1980s, analogue 800–900 MHz was used but since the early 1990s, the digital 1900 MHz system has been used. Our research group has also assessed use of DECT phones in all of our tumour investigations."

DISCUSSION

This review included 18 studies: 2 cohort and 16 case–control studies.

"Acoustic neuroma might be a 'signal' tumour type for increased brain tumour risk from microwave exposure, as it is located in an anatomical area that receives high exposure during calls with cellular or cordless phones." "Three of the four studies with data on 10 years' use showed a statistically significantly increased risk overall for ipsilateral exposure to microwaves."

"We conclude that results from present studies on use of mobile phones for 10 years give a consistent pattern of an increased risk for acoustic neuroma and glioma."

MAIN MESSAGE FROM AUTHORS:

"Results in case–control studies on brain tumours and use of mobile phones for 10 years gave a consistent pattern of an increased risk for acoustic neuroma and glioma."

"Ipsilateral exposure (same side as the tumour occurred) yielded highest risk."

"These results indicate that caution is needed in the use of mobile phones."

KEY POINTS FROM DAN MURPHY

1) These authors used 18 studies to assess the risk for a variety of tumors related to the use of mobile phones for 10 years.

2) Ipsilateral cell phone use for acoustic neuroma was increased risk by 140%.

3) Ipsilateral cell phone use for glioma was increased by 100%.

4) “Results from present studies on use of mobile phones for 10 years give a consistent pattern of increased risk for acoustic neuroma and glioma. The risk is highest for ipsilateral exposure.”

5) “Over the past few decades, there has been rapid worldwide development of wireless technology, including increasing use of wireless telephone communication.”

6) This has raised concerns about increased risk for brain tumours, “owing to the proximity of the brain to the radiation antenna, with the potential for absorbing a comparatively large amount of electromagnetic energy.”

7) “Acoustic neuroma might be a ‘signal’ tumour type for increased brain tumour risk from microwave exposure, as it is located in an anatomical area that receives high exposure during calls with cellular or cordless phones.” “Three of the four studies with data on 10 years’ use showed a statistically significantly increased risk overall for ipsilateral exposure to microwaves.”

8) “We conclude that results from present studies on use of mobile phones for 10 years give a consistent pattern of an increased risk for acoustic neuroma and glioma.”

9) “These results indicate that caution is needed in the use of mobile phones.”