

Study Title: Use of cellular telephones and brain tumour risk

Authors: L Hardell, M Carlberg and K Hansson Mild.

Published in the June 2005 Issue of Journal of Occupational and Environmental Medicine.

Summary: A new Swedish study has found a 3-fold increase in rural people who have used a digital mobile phone for at least 5 years.

Lennart Hardell and colleagues have continued to analyse their data on 1429 Swedish cell-phone users who were diagnosed with a brain tumour between January 1997 and June 2000. The major finding that they announced was a 1.5 fold (1.4/0.9) higher risk of brain tumours in rural users compared with users who used their phone mostly in urban settings, rising to a 3.5 fold (3.4/0.9) increased ratio for people who had used their digital phones for 5 years or more. This rose to a six-fold (8.4/1.4) difference when only malignant brain tumours were considered. They suggest that this difference may be due to the fact that mobile phones uses "adaptive power control" which reduces the transmitted microwave power when they are used close to base stations - as is usually the case in urban areas. Digital GSM Handsets can radiate 1000 times more power when they have to communicate in a poor signal strength area compared to when they are close to a base station. They also normally use full power at all times while they are "dialing out" and waiting for the called person to answer their phone, so it is a good idea to hold the phone away from your head during this time.

More interesting, though not mentioned in the paper's abstract, are the latency time trends - that is the overall rates for all users depending on how many years they have used their phones over.

For analogue phone users, over all tumours, there is a 1.9-fold increase (i.e. almost a doubling) after using the phone for 10 years. This is especially the case for people who use their phone for over 90 minutes per week (about 15 minutes per day). Below that level of usage there are too few cases to meaningfully calculate an odds-ratio. For all users, combined, the OR is still 1.6 (1.1-2.5), which is a significant result. For malignant tumours only the result is stronger; overall showing a significant OR of 2.1 after 10 years (1.1-4.0)

For GSM users, data is not available for 10 years use. The overall results for 1 and 5 years are not significant, but do increase for people who use their phone for more than 10 minutes per day from 0.9 after one year to 1.4 after five years. Note that these are not heavy users.

For cordless phones (not clear if analogue or DECT or other type) there is a significant 1.4-fold increase after 5 years (1.5-fold in heavy user group), rising to a non-significant (too few cases) 2.1-fold increase after 10 years (0.7-6.3).

This study suggests that calls are best made in areas close to a base station for the particular handset's network, as that will reduce the microwave radiation levels the user will be exposed to.

However, Powerwatch's overall conclusion is that this study confirms that regular mobile and cordless phone use may well at least double the risk of developing a brain tumour over time, especially a malignant one, and that people should be advised to use such phones only when necessary and they should make most calls on an old-fashioned wired landline phone or wired (not

Bluetooth) voice-over-internet (e.g. Skype) network