LETTER TO THE EDITOR

Is mobile phone radiofrequency radiation all bad?

Dear Editor

In 1992, Dr. Sheldon Wolff published his widely cited paper ‘Is Radiation All Bad? The Search for Adaptation’ [1]. Dr. Wolff was widely honoured for his findings on the stimulatory effects of low doses of ionising radiation. Now, due to exponential increase in mobile phone use (4.6 billion users globally), we should ask a new question, “Is mobile phone radiofrequency (RF) radiation all bad?” It should be noted that, currently in some parts of the globe, mobile phones are the most reliable or even the only phones attainable. A large body of evidence 

indicates that when cells are pre-exposed to low doses of ionising radiation and DNA-damaging agents, such as ultraviolet (UV) radiation, alkylating agents, oxidants and heat, they become more resistant to high doses of those agents and in some cases to similar agents, a phenomenon that is usually referred to as the adaptive response. The induction of adaptive response after pre-exposure to low doses of ionising radiation was first described by Olivieri et al. for radiation-induced chromosomal aberrations in human lymphocytes [2]. Other investigators and I have recently indicated that RF radiation can induce an adaptive response phenomenon [3–5]. We have also recently revealed that pre-exposure of laboratory animals to RF radiation emitted from a GSM (Global System for Mobile Communications) mobile phone increases their resistance to a subsequent bacterial infection [6,7]. As discussed in our work, this phenomenon may have implications in humans’ long-term stay in space [8]. However, the potential beneficial effects of (RF) radiation are not limited only to the induction of adaptive phenomena. Previously, we have indicated that the visual reaction time (VRT) of university students was significantly affected by a 10-min exposure to electromagnetic fields (EMFs) emitted by a mobile phone [9]. Furthermore, we have previously shown that occupational exposures to radar radiations decreased reaction time in radar workers [10]. Altogether, our results revealed that these exposures caused decreased reaction time, which might lead to a better response to different hazards and decrease the probability of human errors and fatal accidents. Meanwhile, cognitive beneficial effects of long-term exposure to high-frequency EMFs have been indicated by some studies. Using a word interference test, in 2007, Arns et al. showed that long-term heavy cellphone use resulted in better performance in normal subjects [11]. Moreover, Schuz et al. in 2009 reported that long-term cellphone users (subscribers of 10 years or more) had a 30–40% decreased risk of hospitalisation due to Alzheimer’s disease (AD) and vascular dementia [12]. In this light, it will be challenging to investigate if there are other RF-induced stimulating effects and to explore their potential applications. Further research may shed light on the dark areas of the health effects of short- and long-term human exposure to RF radiation.

References

phones decreases computer-assisted visual reaction time. Acta Neurol Belg 2012;112:171–5.

