Neurological dysfunction and mobile phones

Sir,

In the recent few years, the extensive use of mobile phones (MP) raises the question of possible health effects of the radiofrequency electromagnetic fields emitted by these phones, in particular on neural functions, because of their use in close vicinity to the human brain. The effects of electromagnetic fields on biological systems have been extensively investigated over the last years and particular attention has been given to the effects of microwave exposure on the central nervous system.[1] A cellular phone is a low-power, single-channel, two-way radio. Cell phone base stations are low-power multi-channel two-way radios. Therefore, base stations produce radio-frequency radiation, and they expose people near them to radio-frequency (RF) radiation. Health effects of radiofrequency radiations (RFR) including mobile phone technology and the adequacy of their safety standards remain uncertain.

Case reports of peripheral neurological effects of RFR describe mainly disturbances of noxious sensation (dysaesthesia). Cases associated with other RFR sources as well as mobile phone technologies are examined seeking insights into neurophysiological mechanisms and safety levels. Cases have arisen after exposure to much of the frequency range (low MHz to GHz). In some instances symptoms are transitory, but may be lasting in others. After very high intensity exposures, nerves may be grossly injured. However, after lower intensity exposures which may result in dysaesthesia, ordinary nerve conduction studies demonstrate no abnormality although current perception threshold studies may. It is concluded that RFR from mobile phones can cause peripheral neurophysiologic changes in some persons.

The effects occur at exposure levels below the present safety levels for RFR.[2] There are two direct ways by which health could be affected as a result of exposure to RF radiation. These are thermal (heating) effects caused mainly by holding mobile phones close to the body and also as a result of possible non-thermal effects.[2] Mobile phones may cause adverse health problems such as headache, sleep disturbance, impairment of short term

memory and more seriously significant increases in the frequency of seizures in epileptic children, brain tumors and high blood pressure amongst users of mobile phones. In addition, mobile phones can cause discomfort, lack of concentration, dizziness, worm on ear and burning skin. Therefore adequate preventive measures and safety norms should be practiced to minimize the hazardous effects of mobile cell phones.

Rajiv Saini, Santosh Saini[1], Sugandha Sharma[2]

Departments of Periodontology & Oral Implantology, [2]Prosthodontics, Rural Dental College-Loni, Maharashtra, [1]Microbiology, Rural Medical College-Loni, Maharashtra, India

Address for correspondence:
Dr. Rajiv Saini, Departments of Periodontology and Oral Implantology, Rural Dental College- Loni, Tehsil - Rahata, District - Ahmednagar, Maharashtra - 413 736, India.
E-mail: drperiodontist@yahoo.co.in

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References

1. Balikci K, Cem Ozcan I, Turgut-Balik D, Balik HH. A survey study on some neurological symptoms and sensations experienced by long term users of mobile phones. Pathol Biol 2005;53:30-4.
2. Westerman R, Hocking B. Diseases of modern living: neurological changes associated with mobile phones and radiofrequency radiation in humans. Neurosci Lett 2004;361:13-6.