

Does Radiations Emitted from Cell Phone Effects Orofacial Structures and Dental Implants?

Sir,

Enormous use of mobile phone communications in the society in ultra-high frequency range of 300–3000MHz had raised a concern that whether the electromagnetic field emissions with mobile phones or base transceiver station are linked to cancer or other health hazards. Nonionizing radiations are electromagnetic radiations (EMR) in the range of 1 Hz to 1 THz and they do not have sufficient energy to change the chemical bonds of the tissues. EMR above 1 THz is called as ionizing radiations and having the potential to cause genetic alteration of the tissues by break down of chemical bonds on prolonged exposure.^[1,2] Specific absorption rate (SAR) is a measure of the thermal effects of radiofrequency in terms of the amount of temperature elevation. The International Commission on Nonionizing Radiation Protection has set frequencies up to 300 GHz as limitations for exposure and followed national regulations by many countries. The limit of mobile phone use is the SAR of 2 W/kg for the human head.^[3]

Fujii^[4] in his case study found balance difficulty in a patient having titanium dental implant due to EMR emitted from cell phones. Fujii^[5] in his another case study found improvement of systemic symptoms such as lumbago, shoulder stiffness, neck pain, hip joint pain, and facial pain in a patient after the removal of titanium implants from the oral cavity. These dental implants collect harmful EMR from cell phones due to their antennae like activity and effect the cerebral blood flow in the patients and caused systemic effects. Avoiding harmful EMR is considered to reduce these physical symptoms and concomitantly improve physical abilities.

Mishra *et al.*^[3] in their systematic review on effects of cell phone radiations on orofacial structures found that cell phone emitted radiations had their adverse effect on salivary glands, oral mucosal cells, and facial nerves. Cell phone radiations cause changes in salivary flow rate due to alteration of the cytokine expression profile of the salivary gland in heavy cell phone users. Cell phone-emitted radiation causes nuclear abnormalities of the oral mucosal cells. Cell phones increase the temperature of the surrounding tissues and cause facial nerves dysfunction.

Studies had found adverse effects of cell phone on orofacial structures and also its systemic effect due to dental implants. Cell phone used is held very close to the orofacial structures and precautionary measures should be taken to prevent the harmful effects of EMR on these structures till the uncertainties remain, and the situation is clarified with further research.

Financial support and sponsorship

Nil.

Conflicts of interest

There are no conflicts of interest.

Sunil Kumar Mishra, Ramesh Chowdhary^{1,2}

Department of Maxillofacial Prosthodontics and Implantology, Peoples College of Dental Sciences and Research Centre, Bhopal, Madhya Pradesh, India, ¹Branemark Osseointegration Centre, Bengaluru, Karnataka, India, ²Department of Maxillofacial Prosthodontics and Implantology, Rajarajeswari Dental College and Hospital, Bengaluru, Karnataka, India

Address for correspondence: Dr. Sunil Kumar Mishra, Department of Maxillofacial Prosthodontics and Implantology, Peoples College of Dental Sciences and Research Centre, Bhopal, Madhya Pradesh, India. E-mail: drsunilmishra19@gmail.com

REFERENCES

1. Wood AW. How dangerous are mobile phones, transmission masts, and electricity pylons? *Arch Dis Child* 2006;91:361-6.
2. Yadav K, Prakash NR. Harmful effects of electromagnetic field (EMF) radiation from mobile towers and handsets on humans: A review. *Int J Eng Bus Ente Appl* 2015;12:99-103.
3. Mishra SK, Chowdhary R, Kumari S, Rao SB. Effect of cell phone radiations on orofacial structures: A Systematic review. *J Clin Diagn Res* 2017;11:ZE01-5.
4. Fujii Y. Sensation of balance dysregulation caused/aggravated by a collection of electromagnetic waves in a dental implant. *Open J Antennas Propag* 2014;2:29-35.
5. Fujii Y. Improvement of systemic symptoms after dental implant removal. *Open J Stomatol* 2016;6:37-46.

This is an open access article distributed under the terms of the Creative Commons Attribution-NonCommercial-ShareAlike 3.0 License, which allows others to remix, tweak, and build upon the work non-commercially, as long as the author is credited and the new creations are licensed under the identical terms.

Access this article online

Quick Response Code:



Website:
www.ijehe.org

DOI:
10.4103/ijehe.ijehe_2_17

How to cite this article: Mishra SK, Chowdhary R. Does radiations emitted from cell phone effects orofacial structures and dental implants?. *Int J Env Health Eng* 2018;7:1.

Received: 20-02-2017, **Accepted:** 16-12-2017

© 2018 International Journal of Environmental Health Engineering | Published by Wolters Kluwer - Medknow