



Bone & Joint Research

Pijls BG, Sanders IMJ, Kuijper EJ, Nelissen RGHH. Non-contact electromagnetic induction heating for eradicating bacteria and yeasts on biomaterials and possible relevance to orthopaedic implant infections: *in vitro* findings. *Bone Joint Res* 2017;6:323-330.

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Sir,

We read this paper with interest.¹ It claims that the method proposed by the authors for non-contact induction heating of metallic implants is feasible and appears to be effective *in vitro* to limit the survival of various bacteria (including spore-forming bacteria) and yeast. Although the paper addresses a challenging issue, it has some shortcomings. The first is that the authors did not compare the advantages and disadvantages of their proposed modality with other more effective and convenient methods. For example, it is well documented that ultrasound interactions with metallic objects can lead to increased temperature.^{2,3} Therefore, it seems that non-contact heating of implants by ultrasound would also be effective in reducing bacterial load *in vitro*.

However, over the past years, we have shown that bacteria may become more resistant to chemical or physical stresses due to the induction of an “adaptive response” after pre-exposure to low levels of the same or other types of stress.⁴ Recently, we have shown that exposure to radiofrequency electromagnetic fields (RF-EMFs) can make microorganisms resistant to antibiotics.⁵ As the response of bacteria to different antibiotics after exposure to RF-EMFs is non-linear,⁶ any use of RF-EMFs on bacteria should be undertaken with caution. Therefore, any unjustified use of RF-EMFs in the management of infection can threaten our lives through induction of these adaptive phenomena.

S.M.J. Mortazavi, Professor,
Visiting Scientist,
Fox Chase Cancer Center,
Philadelphia, PA, USA.
S.A.R. Mortazavi, Medical Student,
Shiraz University of Medical Sciences,
Shiraz, Zand, Iran.

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Conflict of interest: None declared