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Radiofrequency Radiation and Human Ferritin

Sir,

The recent report on effect of radiofrequency radiation and human ferritin is very interesting. Fattahi-asl *et al*. concluded that "Radiofrequency electromagnetic waves emitted from cell phones may lead to oxidative stress and rapid diffusion of the human ferritin level in an *in-vitro* enzymun assay"[1] and further imply for concern on mobile phone usage. This finding is very interesting. Indeed, side-effect of mobile phone is widely discussed. At least, some unwanted effects on germ cell are confirmed.[2] Nevertheless, there are some facts to be mentioned.

First, most of previous studies including to the present report by Fattahi-asl *et al*. are *in vitro* study. Hence, the exact *in vivo* situation cannot be concluded. In the real *in vivo* case, there are many tissues that can deviate and affect the radiofrequency radiation. In an actual *in vivo* case, the dosage of radiation must be very different from the simple *in vitro* study. Briefly, in the present report, the study focuses on serum, which is already separated from blood drawn from venous system. The radiofrequency radiation is directly applied to collected serum and the ferritin levels in those sera were studied. In a human body, ferritin can be detected in blood, which is regularly flown within the blood stream with continuous production and reabsorption metabolisms.[3] The static contact to the radiofrequency radiation, as applied in the present model study, cannot be possible. Furthermore, there is no chance that direct radiation can attack serum without passing and absorption by tissues on the pathway (skin, subcutaneous part, perivascular part as well as blood cells within the blood stream).[4]

Second, whether the radiation affects the human ferritin or diagnostic property of the diagnostic tool should be carefully investigated. There is an interesting report indicating that the ultrasonic radiofrequency signal had no effect on ferritin level in thalassemia patients.[5] However, there is no study on effect of mobile phone. Of interest, the radiofrequency might also directly interfere the direct diagnostic system of the assay and cause spurious results. At present, there is only evidence that the radiofrequency does not affect the serum analytical equipment at a far distance (1.4 m)[6] but there is no data for the closed contact. Protection of the laboratory analyzer from radiofrequency interference is important.[7]

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