

## EDITORIAL COMMENT

Artur Gibas

*Department of Urology, Medical University of Gdańsk, Poland*

Erectile dysfunction (ED) has been increasing worldwide, but the exact number of men with this problem is not yet known. It is assumed that every second man over 40 years of age can suffer from ED [1].

Over the last few decades there have been progressive changes in aspects of our diet, lifestyle, and environment. During recent years it has been shown that the incidence of ED has increased as a result of various factors such as pollutants, stress, and lifestyle.

In regards to lifestyle, factors such as tobacco smoking, smokeless tobacco chewing, alcohol consumption, obesity (often accompanied by diabetes, hypertension, hypercholesterolemia), and potentially some modern electronic gadgets have been shown to adversely affect erectile function.

Recent years have seen a very rapid development in cellular telecommunications based on the emission of electromagnetic waves (EMW). The cell phone has become an indispensable device in our daily life. It is estimated that the world has about five billion active users of mobile phones [2]. However, the health risks associated with their usage are often overlooked.

The effect of EMW on living organisms depends on their wave frequency and intensity. The hazardous effect of radio waves of high frequency (0.3–300 GHz) is associated with an increase in body temperature. The waves emitted by mobile phones are of at least 10-fold lower frequency. These waves may exert an effect on the state of polarization of the cellular membranes in the human body [3].

Recently, the adverse effects of EMW on the brain, heart, endocrine system, and DNA of humans and animals have been widely reported [4–8]. Furthermore, Kesari et al., in rats exposed to EMW, showed the devastating effects of this factor on Leydig cells [9].

The destruction of these cells may lead to a decrease in testosterone and thus impair erectile function. In addition, EMW lead to improper polarization of cell

membranes that results in their reversible deactivation [3].

This might be the pathogenesis of EMW in patients with ED using mobile phones, but it is still unknown. Today, studies of the effect of cell phones on the human body are especially justified, and may allow the development of possible prophylactic activities leading to the limitation of the potentially hazardous influence of cell phones on the human body.

Badereddin Mohamad Al-Ali et al. try to confirm the influence of EMW generated by mobile phones on the health of their users [10]. The author states in his analysis that the hours of mobile phone usage (not necessarily limited to call time) during the day have a negative impact on the user's erectile function.

In my opinion there are some limitations to this study. First, it is the number of patients. These small groups of patients without randomization who were analyzed are not enough to obtain significant results. Such small numbers may lead to significant bias. The second limitation is the short period of observation. Finally, the third one is that there is a problem with isolating various environmental factors from the particular one that may be caused by EMW. Various other appliances may emit the waves of the same frequency. The effect of the waves emitted by the phones in association with other factors can be considered, but it is very difficult to estimate their influence. It may be presumed that people who intensively use cell phones more often perform sedentary work. People who often talk on their cell phone may be exposed to a greater degree of stress, which by affecting the level of cortisol, prolactin, and testosterone may contribute to the ED [11].

In summary, the conclusions derived from this manuscript cannot be regarded as scientific proof; however, they can draw our attention to a significant problem.

## References

1. Feldman HA, Goldstein I, Hatzichristou DG et al. Impotence and its medical and psychosocial correlates: results of the Massachusetts Male Aging Study. *J Urol.* 1994; 151: 54–61.
2. Braune S, Riedel A, Schulte-Monting J, Raczek J. Influence of a radiofrequency electromagnetic field on cardiovascular and hormonal parameters of the autonomic nervous system in healthy individuals. *Radiation Research.* 2002, 158: 352–356.
3. Andersen AG, Jensen TK, Carlsen E, Jorgensen N, Andersson AM, Krarup T, et al. High frequency of sub-optimal semen quality in an unselected population of young men. *Hum Reprod* 2000; 15: 366–372.
4. Huber R, Graf T, Cote KA et al. Exposure to pulsed high-frequency electromagnetic field during waking affects human sleep EEG. *Neuroreport* 2000; 11: 3321–3325.
5. Oktem F, Ozguner F, Mollaoglu H, Koyu A, Uz E. Oxidative damage in the kidney induced by 900-MHz-emitted mobile phone: protection by melatonin. *Archives of Medical Research.* 2005; 36: 350–355.
6. Sandstrom M, Wilen J, Oftedal G, Hansson Mild K. Mobile phone use and subjective symptoms. Comparison of symptoms experienced by users of analogue and digital

- mobile phones. *Occupational Medicine (London)*. 2001; 51: 25–35.
7. Oftedal G, Wilen J, Sandstrom M, Koyu A, Uz E. Symptoms experienced in connection with mobile phone use. *Occupational Medicine (London)*. 2000; 50: 237–245.
8. IARCH public statement. May 2011.
9. Kesari KK, Kumar S and Behari J. Mobile phone usage and male infertility in wistar rats. *Indian J Exp Biol*. 2010; 47: 987–992.
10. Al-Ali BM, Patzak J, Fischereeder K, Pummer K, Shamloul R. Cell phone usage and erectile function. *CEJU*. 2013; 66: 75–77.
11. Sheiner EK, Sheiner E, Hammel R, Potashnik G, Carel R: Effect of occupational exposures on male fertility: literature review. *Ind Health*. 2003; 41: 55–62. ■

**Correspondence**

Dr. Artur Gibas, MD, PhD  
delins@gumed.edu.pl