EDITORIAL COMMENT

Piotr Paweł Świniarski

Clinical Department of Urology and Urological Oncology, 10th Military Clinical Hospital, Bydgoszcz, Poland

One of the most recently explored scientific field in andrology is infertility caused by a male factor. The semen parameters analyzed according to WHO guidelines would be qualified as normal (fertile men) or as below lower reference limits (subfertile men). Nevertheless, even a good result of routine semen analysis is not sufficient to estimate male fertility potential and some men with normal semen parameters may be subfertile [1].

Unfortunately there is a multiplicity of factors that may influence spermatozoa quality and quantity (e.g. total sperm number, sperm concentration, total sperm motility, progressive sperm motility, vitality, normal morphology), their migration, capacitation, and thus fertilizing potential. Seminal oxidative stress, which results from an imbalance between reactive oxygen species production and their scavenging by seminal antioxidants, is nowadays one of the most investigated factors influencing sperm function. However, the role of antioxidants in male fertility that were featured in the commented paper, beside many studies, is still not known precisely.

In common day practice, diagnostics and treatment of male infertility is difficult and usually based on exclusion algorithm. Among the anatomical etiologies we include varicocele, testis atrophy, vas deferens obstruction, and seminal vesical cyst [2]. But surgical treatment does not ensure the achievement of fertility in all cases [3]. Lifestyle changes seem to be crucial elements at the first stage of infertility treatment caused by a male factor. It includes BMI normalization, smoking cessation, limitation of alcohol consumption, and physical activity increase as well as changes in dietary habits. A diet modification based on reducing highly processed products that contain high amounts of sugar, fat, preservatives, and chemical food-stuff smell, taste and color correctors and replacing them with low processed products such as fruits, vegetables, and fish. An inappropriate diet affects not only semen quality but also erectile function. High caloric intake, highly refinedcarbohydrates, and high fructose corn syrup (HFCS) content together with less satiety are the main factors responsible for metabolic disorders contributing to erectile dysfunction (ED) refined carbohydrates [4, 5]. Natural sources of antioxidants like fruits, vegetables, and fish will result in increased levels of natural antioxidant factors in blood and semen.

The influence of prostate secretion on sperm quality, especially those included in the first portion of ejaculate is undisputed. It contains higher concentrations of ingredients supporting the spermatozoa in their survival in the female reproductive tracts as well as in in vivo and in vitro egg fertilization. The higher magnesium and calcium concentration in first portion of semen was proven [6], which may also suggest that the higher concentration of antioxidant agents originated from the prostate in the first split of ejaculation. However, the lack of effective and precise research methods makes it difficult to label which man should be assigned to antioxidant supplementation and in what doses. Therefore, the clinical implication of research results concerning the effect of antioxidants on spermatogenesis, sperm quality, and their fertilizing potential resulting in live birth should begin with the suggestion to change the patient's lifestyle and dietary habit and only then followed by taking a pill with antioxidants.

It is of paramount importance to perform a randomized controlled trial concerning the supplementation with antioxidant agents in comparison with consumption of natural antioxidants (proper diet) and decreasing production of ROS because of the lifestyle change.

References

1. Różański W, Szymczak W, Wójt M, Sobakiewicz S, Lipiński M, Marchlewska K, et al. Semen quality in men from subfertile couples from the region of Łódź (Poland) according to the new reference values recommended by WHO 2010. CEJU. 2011; 64: 34–38.
2. Nieschlag E, Behre HM, Nieschlag S. Andrology. Male Reproductive Health and Dysfunction, 3rd Edition. Springer–Verlag Berlin Heidelberg 2010.
3. Benyó M, Berczi C, Jozsa T, Csanadi G, Varga A, Flasko T. Fertility preservation in cases of laparoscopic treatment of seminal vesicle cysts. CEJU. 2012; 65: 144–145.
4. Olszewska–Słonina D. Editorial comments to paper published in this issue on pgs. 140–143 The article: "Is there a link between soft drinks and erectile dysfunction?". CEJU. 2011; 64: 139.
5. Adamowicz J, Drewa T. Is there a link between soft drinks and erectile dysfunction? CEJU. 2011; 64: 140–143.
6. Valsa J, Skandhan KP, Khan PS, Sumangala B, Gondalia M. Split ejaculation study: semen parameters and calcium and magnesium in seminal plasma. CEJU. 2012; 65: 216–218.

Correspondence
Dr. Piotr Paweł Świniarski, MD, PhD
piotr.swiniarski@hotmail.com