

Abstract

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Evaluation of superoxide dismutase activity and its impact on semen quality parameters of infertile men.

Murawski M, Saczko J, Marcinkowska A, Chwiłkowska A, Gryboś M, Banaś T.

1st Department of Gynecology and Obstetrics, Medical University of Wrocław, Poland.

OBJECTIVE: The evaluation of superoxide dismutase (SOD) activity, as one of the most important antioxidative defence enzymes, in seminal plasma of patients consulting for male infertility was presented in the article.

METHODS: The study included also the determination of its influence on selected human semen quality parameters. The material represents semen samples obtained from 15 men, which were divided into two groups: Group I (n=10) including patients consulting for infertility and Group II (n=5) containing healthy sperm donors as a control. All of the semen samples were cryopreserved and stored in liquid nitrogen. The frozen samples were thawed at the same time and then SOD activity was determined spectrophotometrically.

RESULTS: The analysis of the investigations results indicates a significantly lower semen SOD activity detected in oligoasthenozoospermic patients, comparing to the activity found in normospermic men. The study showed a positive correlation between SOD activity in seminal plasma and semen quality parameters--sperm concentration and overall motility, which are regarded as the most important for normal fertilizing ability of the spermatozoa. Significantly lower SOD activity in seminal plasma of infertile patients, comparing to healthy sperm donors, as well as positive correlation and beneficial impact of SOD activity on human semen quality parameters seem to confirm the observations, that decreased seminal plasma scavenger antioxidant capacity, particularly in form of low SOD activity, can be responsible for male infertility.

CONCLUSION: This trial shows that SOD activity survey in seminal plasma could be a useful tool for determining sperm fertilization potential and could improve the diagnosis of male infertility.

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