CARNITINES AND ESSENTIAL NUTRIENTS AMELIORATE SPERM VITALITY AND DNA FRAGMENTATION INDEX WHICH ALSO PREDICT IMPROVEMENT IN PROGRESSIVE SPERM MOTILITY

S. Micic¹, N. Lalic¹, N. Bojanic², D. Djordjevic², GM. Busetto³, A. Virmani⁴, A. Agarwal⁵

¹ Uromedica Polyclinic, Andrology Department, Belgrade, Serbia.
² Clinical Center of Serbia, Urologic Clinic, Belgrade, Serbia.
³ Gynecology and Urology Clinic, La Sapienza University, Rome
⁴ Sigma tau Health Science, Innovation - Research and Developement, Utrecht, The Nederlands
⁵ American Center for Reproductive Medicine, Andrology Center, Cleveland, USA.

OBJECTIVE
Sperm DNA damage has been associated with adverse reproductive outcomes and has been increasingly used in the management of male infertility (in the era of IVF and ICSI). Sperm vitality refers to the percentage of live sperm in the semen sample. This is especially important to measure if sperm motility is low, so differentiate between live non-mobile sperm and dead sperm. L-carnitine (L-C) is essential for the normal mitochondrial oxidation of fatty acids, protects cell membrane and DNA against damage induced by free oxygen radicals.

RESULTS
The values at different timepoints were: sperm vitality (%): T0=0.52 (0.43±0.60), T3=0.57 (0.46±0.64) and T6=0.56 (0.47±0.65) FIG.1; DFI (%): T0=38.50 (32.00±48.75), T3=35.50 (25.50±44.00) and T6=31.00 (25.00±41.00).

The effect of the percentage of change of the DFI, after the 6 months therapy on increase of the progressive sperm motility greater than 10% was shown by ROC in FIG.2, the progressive sperm motility (%): T0=28.00% (12.00±38.00), T3=30.00% (12.00±39.00) and T6=31.00% (20.00±41.00); all parameters showed significance of p<0.001 by Friedman test.

The increase of spermatooza vitality has the best predictive and diagnostic characteristics and those men who have increased this parameter by 1% have 1.119 times more likely to have a progressive motility of spermatozoa greater than 20% after six months of therapy.

If the spermatozoa vitality, after six months of therapy increases by 5.9% and more (cut of value), the probability that sperm motility will be greater than 10% or 20% is 100% (PPV=100%).

If DFI drops by more than 3% (cut-off), after 6 months of therapy, it can be expected, with moderate accuracy, that men have sperm motility greater than 10% (ACU=0.793; p<0.001), DFI reduction (odds ratios=1.106 with 95% confidence intervals) independently increases the likelihood that sperm motility is >10%.

In placebo group there was no significant difference in sperm motility, vitality and DFI, between T0 and T6.

CONCLUSION
This DBPC study demonstrated that increase of percentage of sperm vitality and decrease of DFI are good predictors of improvement of progressive sperm motility in oligoasthenospermic men treated with antioxidant therapy.

MATERIAL AND METHODS
Analysis of ejaculate was done according to WHO 5th guideline. Progressive sperm motility (A+B grade of rapid) was determined manually. DFI was evaluated by Halosperm kit (Halotech DNA, S.L.) and sperm vitality was done by the one-step eosin-ni-grosin technique.

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