OBJECTIVE & DESIGN

Between known causes, varicocele is considered as the first cause of male infertility; a general prevalence of 15% in the healthy male population and 40% in infertile men, is reported. Sperm is vulnerable to lack of energy and excess amount of reactive oxygen species, which can impair its function, leading to immotility, acrosomal reaction impairment, DNA fragmentation and cell death. For this reason is required that essential nutrients are available for spermatozoa when they develop, capacitate and acquire motility.

To evaluate, utilizing a randomized double-blind placebo controlled trial, the effect of supplementation with selected naturally compounds on subjects with oligoasthenoteratozoospermia with or without varicocele and history of difficulty conceiving. Results have been interpreted dividing the population in two age and body mass index (BMI) classes.

MATERIALS & METHODS

This trial investigated the effect of 6 months of supplementation with l-carnitine, acetyl-l-carnitine and other micronutrients on sperm quality in 104 subjects with oligo-and/or astheno-and/or teratozoospermia with or without varicocele. Spermogram evaluation was done at the beginning of treatment and at the end. In addition to what presented in the statistical report as main analyses (sperm count, concentration, motility and morphology), which were the ones forecasted by the study protocol, the present post-hoc analyses were carried-out on the sample categorized by age and BMI. The analyses were performed considering two age classes (patients below and above 35 years old) and two BMI classes (patients below and above 25 of BMI).

RESULTS

In 94 patients who completed the study, sperm concentration was significantly increased in supplemented patients compared to the placebo ($p = .0186$). Total sperm count also increased significantly ($p = .0117$) in the supplemented group as compared to the placebo group. Both, progressive and total motility were higher in supplemented patients ($p = .0088$ and $p = .0120$, respectively). As for the single classes of age, a significant difference was observed in the <35 years class for the total motility ($p = .0385$). As for the single classes of the BMI, a significant difference was observed in the BMI <25 class for the total sperm count ($p = .0295$), for the progressive motility ($p = .0220$) and for the total motility ($p = .0385$).

As for the analyses on the combined classes (age & BMI), a statistical significance was observed in the total motility ($p = .391$).

CONCLUSIONS

The present post-hoc analysis highlighted that the supplementary product seems to be more effective in subjects aged less than 35 years and with a normal weight (i.e. below 25 BMI).

Oxidative stress is a cause of male infertility with significant negative effect on semen parameters and varicocele is an additional cause of poor sperm quality. In conclusion, supplementation with metabolic and antioxidant compounds could be efficacious when included in strategies to improve fertility.