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INTRODUCTION

Progressive motility (PM) and vitality of spermatozoa are positively associated with fertilization and pregnancy rates in conventional in-vitro fertilization and intrauterine insemination. Therefore, the enhancement of progressive motility and vitality is a main goal during sperm processing.

In this project, the effect of NGFβ on PM and vitality of human spermatozoa, by adding this growth factor in the culture medium during sperm processing, was studied.

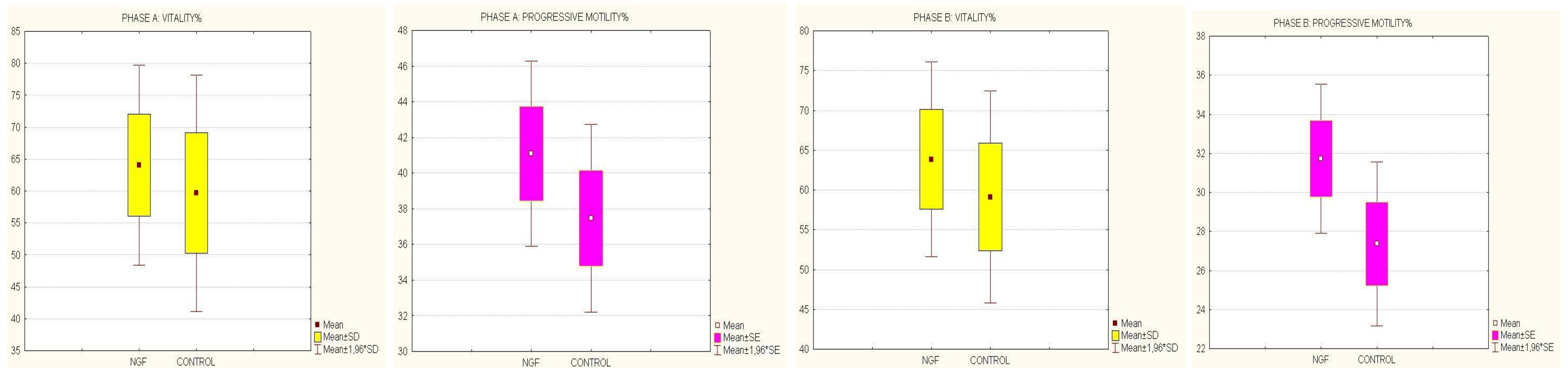
MATERIALS & METHODS

The study was conducted in the Laboratory of Physiology, Democritus University of Thrace, in the context of the research project "Study of the effects of growth factors on the motility and vitality of human spermatozoa" (MIS 5049528). The study was approved by the Ethics Committee of Democritus University.

Forty three male volunteers gave semen samples by masturbation after 2-3 days of sexual abstinence. Each sample, after basic semen analysis, was processed with density gradient centrifugation and sperm washing. The pellet was divided into 3 aliquots. An aliquot containing 1 million of progressively motile spermatozoa was incubated for one hour (37°C) in standard culture medium (control group) and two aliquots with the same number of progressively motile spermatozoa were incubated in culture medium supplemented with NGFβ. The study had two phases; in Phase A, a concentration of 0,5ng/ml NGFβ was used whereas in Phase B, the concentration of NGFβ was 5ng/ml.

RESULTS

NGFβ significantly increased PM and vitality in comparison to control either at the low or the high concentration. However, this increase was not dose-dependent; although both parameters were higher with the high concentration there was no significant difference of the increase of PM or vitality between high and low concentration of NGFβ.



CONCLUSION

The enhancement of PM and vitality of human spermatozoa by NGFβ opens new ways for the improvement of sperm processing and consequently for the improvement of the outcomes during IUI and IVF. Further research is needed to determine the most effective concentration of NGFβ.

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