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P139. Effect of astaxanthin on human sperm capacitation: in vivo and in vitro studies

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Context: Infertility, the failure to achieve a pregnancy after 12 months or more of regular and unprotected intercourse, is a condition that affects 15-20% of couples in reproductive age. Among these, the male factor is present in about 50% of cases and despite improvements in diagnosis and understanding of the pathophysiology of male infertility, in about 40% of cases it is not possible to find a cause of this condition.

Some couples are unable to achieve conception although it is not detected any factor of infertility in both subjects. This points out the requirement of further studies, to improve knowledge in this area, and the introduction of additional parameters for the evaluation of male infertility. Our research group has focused on the study of capacitation and acrosome reaction as indexes of sperm fertilizing capacity and prerequisites for the egg fertilization.

Astaxanthin (Asta), a carotenoid with a very high antioxidant activity, is used as dietary supplement in order to enhance the fertilizing capacity of spermatozoa.

Objective: The purposes of this study are evaluate Asta effects in vivo and in vitro and compare them.

Methods: We recruited 40 male patients with couple's infertlity problems treated at the Centre of Assisted Reproduction - U.O.C. Obstetrics and Gynaecology Clinic. Thirteen were analyzed before and after the taking of Fertylor15 with dosage 1 capsule/day for 30 days. The sample obtained from 27 patients was incubated in the presence/absence of Asta. Then all samples were evaluated about capacitation and acrosome reaction.

Results: Asta enhances in vivo and in vitro fertilizing capacity of sperm and the first study also revealed a positive effect on sperm morphology. In the in vitro study, the incubation with Asta increases the percentage of capacitated sperm of 19%, while hiring for 30 days Fertylor15 involves an increase of this percentage of 18%.

Conclusions: Asta is configured as a molecule functional to the improvement of the fertilizing capacity both in couples with idiopatic infertility, that in infertile couples in which the male factor is not causal. The addition of Asta in capacitation buffers, seen its in vitro effects on the sperm, could increase the possibility of success in Medically Assisted Procreation treatment.

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