Comparison of ICSI results in a group of patients with and without oral L-carnitine, acetyl-L-carnitine and nutrients supplementation

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ABSTRACT

Introduction: Many animal and human studies show that certain metabolic compounds and nutrient supplementation play an important role in oocyte and embryo development. Nutrients such as vitamin C are important in human fertilisation. In vitro experiments with zinc and royal jelly demonstrate beneficial effects on both preimplantation and embryonic development in ovine models. L-carnitine and acetyl-L-carnitine are known to facilitate fertility-related processes in men by improving sperm motility and quality. However, the effects of using these substrates and nutrients to improve ICSI outcomes are not clear. **Objective:** The aim of this study is to demonstrate the effect of oral supplementation with L-carnitine, acetyl-L-carnitine and nutrient supplementation on ICSI results. **Materials and Methods:** The study consisted of treating a group of patients with a specific formulation (Proxeed Women) during the two months preceding the ICSI cycle. These patients had already done a cycle of ICSI without treatment by supplements. The group of patients underwent hormonal treatment followed by follicular aspiration, intra-cytoplasmic spermatozoa injection and embryo transfer. For each couple, we calculated the rate of oocyte maturation, fertilisation rate, cleavage rate, and top embryo rate and the presence or absence of pregnancy. **Results:** The average age of the patients and the duration of infertility were, respectively, 35±2.1 and 2.8±1.3 years. We obtained from the first cycle of ICSI (without supplementation) an average oocyte maturation rate of 69%, fertilisation rate of 55%, segmentation rate of 58% and a good embryo rate of 40%. These results were compared with the results of the 2nd cycle of ICSI with supplementation. We found a significant improvement in the oocyte maturation rate (84%), good embryo rate (65%), Blastocyst rate (45%) and top Blastocyst rate (45.2%). **Conclusion:** The significant improvement in one or more biological results of ICSI after treatment with the association of L-carnitine, acetyl-L-carnitine and nutrients could be beneficial in the overall rate of pregnancy in couples with male infertility.