

Effects of L-carnitine on Infertile Men's Spermogram; a Randomized Clinical Trial

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Abstract

Introduction: Male infertility is one of the most challenging problems in andrology. The common cause of male infertility is related to disorders in sperm production and its improvement is synonymous with better treatment outcomes. Although, the etiology of infertility is not clear in most cases but different treatment options have been suggested to increase sperm count and motility. L-carnitine, which is found in different food items and it is derived from lysine and methionine, is a substance essential for the oxidation of long-chain fatty acids in the mitochondria and protection of cell membranes from damages caused by free oxygen radicals. This study was done to evaluate the efficacy of L-carnitine in improving sperm quality in infertile men.

Materials and Methods: This double blind randomized cross-over, clinical trial was conducted on 30 infertile men attending Sari Imam Khomeini Hospital's Infertility Clinic during 2005- 2006. Subjects that had at least two abnormal spermograms, based on WHO criteria, with a two-week interval during four weeks and their gonadotropins, testosterone and prolactin concentrations were within normal range were recruited for the study. The exclusion criteria were composed of individuals with medical conditions other than infertility such as grade 3 or 4 varicocele, testicular atrophy, ejaculatory disorders, use of any medications in the past two months prior to the study, azoospermia, endocrinological disorders, ICSI candidacy for severe spermogram abnormalities or other causes of infertility. The patients were randomly allocated to two groups of A and B. Group A and B received L-carnitine and placebo 2g/day for 8 weeks respectively. After a washout period of 8 weeks, the two groups, changed place and received placebo and L-carnitine (2g/day×8w). Sperm analyses were done in four stages: Before and after the first intervention, at the end of washout period and after the second intervention.

Results: There were significant improvements in mean sperm concentration and progressive sperm motility upon two months of L-carnitine intake ($p < 0.05$) but no significant changes were found in sperm volume or morphology. The aforementioned changes retracted to the primary status after two months. No changes were seen following the intake of placebos in the cases.

Conclusion: L-carnitine intake effectively improved the mean sperm count and progressive sperm motility. However, confirmation of these results warrants more thorough clinical trials.

Keywords: Gonadotropin, L-carnitine, Male infertility, Oligoasthenospermia, Prolactin, Sperm analysis, Sperm motility, Testosterone.

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