

Alpha Lipoic Acid: An Antioxidant for Infertility

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Abstract : Objective: Infertility is an increasingly frequent health condition, which may depend on female or male factors. Oxidative stress (OS), resulting from a disrupted balance between reactive oxygen species (ROS) and protective antioxidants, affects the reproductive lifespan of men and women. In this review, we examine if alpha lipoic acid (ALA), among the oral supplements currently in use, has an evidence-based beneficial role in the context of female and male infertility. Methods: We performed a search from English literature using the PubMed database with the following keywords: 'female infertility', 'male infertility', 'semen', 'sperm', 'sub-fertile man', 'alpha-lipoic acid', 'alpha lipoic acid', 'lipoid acid', 'endometriosis', 'chronic pelvic pain', 'follicular fluid' and 'oocytes'. We included clinical trials, multicentric studies, and reviews. The total number of references found after automatically and manually excluding duplicates was 180. After the primary and secondary screening, 28 articles were selected. Results: The available literature demonstrates the positive effects of ALA in multiple processes, from oocyte maturation ($0.87 \pm 0.9\%$ of oocyte in MII vs $0.81 \pm 3.9\%$; $p < .05$) to fertilization, embryo development (57.7% vs 75.7% grade 1 embryo; $p < .05$) and reproductive outcomes. Its regular administration both in sub-fertile women and men has been shown to reduce pelvic pain in endometriosis ($p < .05$), regularize menstrual flow and metabolic disorders ($p < .01$), and improve sperm quality ($p < .001$). Conclusions: ALA represents a promising new molecule in the field of couple infertility. More clinical studies are needed in order to enhance its use in clinical practice.

Keywords : alpha lipoic acid, endometriosis, infertility, male factor, polycystic ovary syndrome

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