

Potential roles of carnitine in patients with polycystic ovary syndrome: a systematic review.

Abstract

Polycystic ovary syndrome (PCOS) is recognized as the most prevalent endocrinopathy in reproductive-aged women. This systematic review was performed with focus on the current knowledge on carnitine concerning metabolic variables in PCOS. PubMed, Scopus, Embase, ClinicalTrials.gov and Google Scholar databases were searched from inception until May 2018. All clinical trials and observational studies published in English-language journals were eligible.

Studies that provided insufficient outcomes, animal and in vitro studies were excluded. Out of 451 articles identified in our search, only six articles were eligible for analysis. Two observational studies evaluated the association of serum carnitine levels with metabolic variables, and four clinical trials examined the effect of carnitine supplementation in patients with PCOS. Serum carnitine levels had inverse relationship with glycemic status, body mass index (BMI) and waist circumference.

Also, carnitine supplementation resulted in improved weight loss, glycemic status, oxidative stress, follicles and size of ovarian cells; no significant effects were reported on sex hormones and lipid profile. According to the current evidence, carnitine might improve weight loss, glycemic status and oxidative stress. However, to explore the exact mechanisms of carnitine role in patients with PCOS, further studies are recommended.