Abstract citation ID: bvac150.1362

Reproductive Endocrinology

ODP406

Effects of hormone replacement therapy on memory cognitive function in postmenopausal women: a systematic review and meta-analysis

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Objective: To investigate the effect of hormone replacement therapy (HRT) on memory cognitive function in postmenopausal women. Methods: PubMed, Cochrane, Embase, Chinese Biomedical Literature Database (CBM) and web of ClinicalTrials.gov were systematically searched for randomized controlled trials comparing the effect of HRT on memory function in postmenopausal women to Placebo. The primary outcome of interest is memory cognitive function (measured by tests used in the study). We assessed pooled data by using random-effects model. Results: Ten studies with 2818 participants were finally eligible for inclusion in the analysis. Compared with placebo, HRT showed no significant differences on logical memory including both immediate (weighted mean difference [WMD] 0.34, 95% CI: -0.73, 1.40) and delayed (0.99,
95% CI: -0.51, 2.48) recall in postmenopausal women, also no differences on short-delay (-0.00, 95% CI: -0.37, 0.37) or long-delay (-0.19, 95% CI: -0.69, 0.31) recall of California Verbal Learning Test, but yielded an a mean reduction in digit span forward of -0.20 (95%CI: -0.36, -0.03), with no significant difference in digit span total scores (-0.67, 95% CI: -1.58, 0.24) or backward (-0.10, 95% CI: -0.26, 0.05). In women within 5 years of menopause, HRT still shows no harmful or beneficial effects on immediate (WMD 0.45, 95% CI: -0.75, 1.65) or delayed recall (WMD 1.03, 95% CI: -0.93, 3.00) of logical memory, but no detrimental effects on digit span forward (WMD -0.11, 95% CI: -0.72, 0.50). **Conclusion:** This review suggests that HRT do not improve verbal memory in postmenopausal women, may even impair some domains of short-term memory. HRT may thus not be a potential therapeutic strategy to prevent memory decline in postmenopausal women.

**Presentation:** No date and time listed.