

Comparison of the Combination of Recombinant Follicle-Stimulating Hormone and Recombinant Luteinizing Hormone Protocol Versus Human Menopausal Gonadotropin Protocol in Controlled Ovarian Stimulation: A Systematic Review and Meta-Analysis

Yuning Wang, M.M.^a, Ling Li, Ph.D.^a, Ke Deng, M.S.^a, Jiali Liu, Ph.D.^a, Yanmei Liu, M.M.^a, Kang Zou, B.S.^a, Guimin Hao, M.D.^b, Xin Sun, Ph.D.^a

^a Chinese Evidence-based Medicine Center and CREAT Group, West China Hospital, Sichuan University, Chengdu, 610041, P.R China

^b Center of Reproductive Medicine, the Second Hospital of Hebei Medical University, Shijiazhuang, 050000, P.R China

Corresponding author, Guimin Hao, Email: haoguimin@163.com; Xin Sun, Email: sunxin@wchscu.cn, sunx79@hotmail.com, Phone: +86 028 85164187

OBJECTIVES: Controlled ovarian stimulation (COS) is a technology used to induce multiple mature oocytes and increase the probability of pregnancy. Our study aims at systematically comparing the efficacy of the combination of recombinant folliclestimulating hormone (rFSH) and recombinant luteinizing hormone (rLH) protocol with human menopausal gonadotropin (hMG) protocol in COS.

METHODS: PubMed, EMBASE, Cochrane Central Register of Controlled Trials, China National Knowledge Infrastructure, and Wanfang Data were searched from inception to January 2019. Studies comparing the efficacy of the combination of rFSH and rLH protocol with hMG protocol were included. Main outcome was clinical pregnancy rate. Review Manager 5.3 software was used for statistical analyses.

RESULTS: There were 2,767 patients from nine studies. The results showed that among patients aged over 30 years and on IUI, the combination of rFSH and rLH was superior to hMG alone in clinical pregnancy rate per patient and endometrial thickness (relative risk [RR]: 1.47; 95% confidence interval [CI]: 1.02–2.12 ; P=0.04; mean difference [MD]: 0.34; 95% CI: 0.04–0.64; P=0.03, respectively). In patients aged over 30 year and on IVF, the results tended to favor the combination of rFSH and rLH in clinical pregnancy rate per patient and live birth rate per started cycle (RR:4.48; 95% CI: 1.15–17.46; P=0.03; RR: 1.69; 95% CI:1.96–2.71; P=0.03, respectively). In patients aged less than 30 and on IVF, the combination of rFSH and rLH was superior to hMG in number of retrieved oocytes (MD: 3.70; 95% CI: 3.27–4.13; P<0.00001) ,and inferior to hMG in number of high quality embryos (MD: -0.60, 95% CI: -0.91–-0.29; P=0.0002).

CONCLUSIONS: The systematic review showed the combination of rFSH and rLH might have better efficacy than hMG alone in COS. However, considering the limited number and sample size of the included studies, the current evidence remains not definitive. Thus, additional carefully designed and well conducted trials are warranted.