

Short Communication

Effect of Adding Luteinizing Hormone (lh) activity during Controlled Ovarian Hyperstimulation (coh) by adding Human Chorionic Gonadotropin vs. Low Dosage Human Chorionic Gonadotropin on Subsequent Pregnancy Rates Following Frozen Embryo Transfer

Jerome H. Check^{1,2*}, Brooke Neumann³, Donna Summers², Carrie Wilson² And Michael Sobel²

¹Cooper Medical School of Rowan University, Department of Obstetrics and Gynecology, Division of Reproductive Endocrinology & Infertility, Camden, NJ, USA

²Cooper Institute for Reproductive Hormonal Disorders, P.C. MT. Laurel, NJ, USA

³Inspira Health Network, Vineland, NJ, USA

*Corresponding author: JEROME H. CHECK, Cooper Medical School of Rowan University, Department of Obstetrics and Gynecology, Division of Reproductive Endocrinology & Infertility, Camden, NJ and Cooper Institute for Reproductive Hormonal Disorders, P.C. MT. Laurel, NJ, USA

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Abstract

There are some studies suggesting that the addition of luteinizing hormone (LH) activity to follicle stimulating hormone (FSH) stimulation for controlled ovarian hyperstimulation (COH) for in vitro fertilization (IVF) may increase the live delivered pregnancy rates (LDPRs). The study presented herein was not designed to prove or disprove the concept of whether adding LH activity does or does not improve the LDPRs, but instead to determine if LH activity is needed is it better to add human menopausal gonadotropins (hMG) to add LH activity or just use low dosage human chorionic gonadotropin (hCG) injections added to FSH stimulation. The latter is less expensive. To determine if one agent is superior to the other whether the benefit is related to creating better embryos or not. The study used frozen embryo transfer (ET) cycles so that an effect on the endometrium itself would be eliminated since the cycle of evaluation would be the next cycle after COH with just a graduated estrogen regimen followed by progesterone (P). The results showed no advantage of the more costly use of hMG vs. low-dose hMG.

Keywords: Frozen Embryo Transfer; Controlled Ovarian Hyperstimulation; Low Dose Human Chorionic Gonadotropin, Human Menopausal Gonadotropins

Introduction

Some studies suggest that higher pregnancy rates are achieved if one adds some LH activity to follicle stimulating hormone (FSH) stimulation which can be achieved by adding human menopausal gonadotropin (hMG) or using low dose hCG (LDhCG) (1,2). If one is superior to the other the question is whether the improved pregnancy rates is related to creating better embryos or a better endometrium. The objective of this study was to try to answer this question by evaluating live delivered pregnancy rates (LDPR) following frozen embryo transfer (ET) in which the same graduated estrogen/progesterone (P) regimen is the same for both groups and the cycle is removed from the stimulation cycle. A higher LDPR per transfer by one group would suggest the beneficial effect of that given therapy is on the embryo and not the endometrium.

Materials and Methods

Women undergoing in vitro fertilization (IVF) were divided into 4 age groups <35, 36-39, 40-42, 43-44. During their preceding controlled ovarian hyperstimulation (COH) they were either given FSH plus LDhCG or FSH and menopur. During the study cycle both groups received an oral graduated estradiol regimen followed by both IM P and vaginal P. All frozen ETs used 3 day old embryos.

Results

For age <35 the LDPR per frozen ET was 37.9% for LDhCG (n=243) vs. 41.1% for menopur (n=151). For age 36-39 the LDPRs were 39.4% (n=66) for LDhCG vs. 35.1% (n=77) for menopur. For age 40-42 the LDPR/transfer was 20.7% (n=29) for LDhCG vs. 11.8% (n=34) for menopur and for 43-44 the LDPR for LHhCG was 20.0% (n=5) vs. 0% (n=3) for menopur. No significant differences between groups were found.

Conclusions

At least as far as LDPRs from frozen ETs there is no advantage in using menopur vs. LDhCG in COH regimens.

Some patients, to save money use LDhCG instead of menopur to provide LH activity during COH. At least, based on the results of FET the use of menopur vs. LDhCG does not produce superior embryos. If a similar study was conducted with fresh ET and menopur proved superior to LDhCG then the beneficial effect would have to be on the endometrium not the embryo itself.

References

1. Wesevich VG, Seckin SI, Kelk DA, Kallen AN, Kodaman PH. hMG addition affects the change in progesterone level during IVF stimulation and LBR: a retrospective cohort study. *Reprod Biol Endocrinol.* 2023; 6: 117.
2. Check JH, Davies E, Brasile D, Choe JK, Amui J. A prospective comparison of in vitro fertilization (IVF) outcome following controlled ovarian hyperstimulation (COH) regimens using follitropin alpha exclusively or with the addition of low dose human chorionic gonadotropin (hCG) and ganirelix. *Clin Exp Obstet Gynecol.* 2009; 36(4): 217-218.