

Prospective randomized comparison of human chorionic gonadotropin versus intramuscular progesterone for luteal-phase support in assisted reproduction.

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OBJECTIVE: The purpose of the study was to determine the impact of two forms of luteal-phase supplementation, human chorionic gonadotropin (hCG) and progesterone (P), during gonadotropin releasing hormone agonist (GnRh-a)/controlled ovarian hyperstimulation (COH) cycles.

DESIGN AND PATIENTS: The study was a prospective, randomized evaluation of 77 patients. Group 1 patients (n = 38) received 2000 IU of hCG, injected subcutaneously, on days 3, 6, 9, and 12 after transvaginal aspiration of the oocytes (TVA = day 0). Group 2 patients (n = 39) received 50-mg daily injections of intramuscular (i.m.) P from days 2 to 14 after TVA. Blood tests were performed on days 0, 5, 8, and 12 after TVA.

SETTING: The in vitro fertilization program of a tertiary care institution was the study setting.

MAIN OUTCOME MEASURES: The main outcome measures were (1) pregnancy and implantation rates; (2) serum estradiol (E), P, and hCG levels; and (3) occurrence of side effects.

RESULTS: Clinical pregnancy and implantation rates in group 1 versus group 2 were similar (36.7 vs 35.3 and 12 vs 14%, respectively). Regardless of pregnancy occurrence, on days 8 and 12 after TVA, serum E and P levels were higher in group 1 than group 2 but the resulting E/P ratios were similar. Five of 38 patients (group 1) developed moderate to severe ovarian hyperstimulation syndrome (OHSS) right after the first or second supplementary hCG injection. In these patients, the mean serum E level on the day of hCG trigger injection was about 3250 pg/ml and the number of follicles was between 9 and 17. In 6 of 39 patients (group 2) allergic reactions were observed at the P injection sites.

CONCLUSIONS: Based on our data, hCG administration as a form of luteal supplementation did not translate, in comparison to P, into significant benefits for the patients. At the same time, it significantly increased the risk of ovarian hyperstimulation. We suggest that whenever, during COH cycles, serum E levels are over 2500 pg/ml and the number of follicles exceeds 10, luteal support with hCG should be excluded.