PPOS VS ANTAGONIST PROTOCOL IN FREEZE ALL CYCLES- A RANDOMISED CONTROLLED TRIAL

i OBJECTIVE: To compare effectiveness of Progesterone vs GnRH Antagonist for pituitary suppression in controlled ovarian stimulation for patients of Freeze all IVF/ICSI cycles

ii MATERIALS AND METHODS: Prospective Randomised controlled trial conducted from 1st April 2021 to 28th March 2022 at a tertiary care infertility centre Akanksha IVF centre, New Delhi. 80 infertility patients age between 23-40years with normal uterine cavity by 2D ultrasound/ hysteroscopy were enrolled and randomized into 2 groups of 40 each by a computer generated program. Study Group (n=40) patients were given Tab medroxyprogestrerone acetate 10mg once daily from day 1 of stimulation. Control Group(n=40) received GnRH Antagonist Inj. Cetrorelix 0.25mg s/c on Day 6 of stimulation according to fixed protocol. TVS monitoring started on day 2 of menses along with gonadotropins. When > 2 follicles reached the size of 18 mm, all patients received Inj Leupride 2mg subcutaneously as trigger for final oocyte maturation. Oocyte retrievals were performed at 35 - 36 hours. Day 3 Frozen embryo transfers (3x 8cellA) was performed for all cases. The luteal phase support was with vaginal supplementation of 800 mg micronized progesterone. Serum beta hCG was performed after 14 days of embryo transfer. Primary outcome: Number of oocytes retrieved Secondary outcomes: Duration and Dosage of Gonadotropins, Number of MII oocytes, No. of fertilized oocytes, No. of cleaved and cryopreserved embryos, incidence of OHSS, Implantation rate, Clinical pregnancy rate, Miscarriage rate and Biochemical pregnancy rate. Data analyzed using SPSS version-17 and using chi-square test for categorical variables and unpaired t-test for continuous variables.

iii RESULTS: The number of oocytes retrieved were slightly more in PPOS group (12.4 ± 2.6) than in antagonist group (11.8 ± 2.2), difference was not statistically significant. Consequently the no. of mature oocytes, no. of fertilized, cleaved and cryopreserved embryos were also similar. The total dose of gonadotropins used and duration of stimulation were comparable in the 2 groups. No early ovulation was observed in either group. Although 1 patient in the antagonist group had symptoms of mild OHSS. Overall pregnancy outcomes were statistically comparable, implantation rate (29.67% in the PPOS group vs. 26.08% in the antagonist group), clinical pregnancy rate (38.6% in the PPOS group vs. 40.2% in the antagonist group), Biochemical pregnancy rate (54 % in the PPOS group vs. 50% in the antagonist group) and miscarriage rate (10.8% in the PPOS group vs. 11.4% in the antagonist group).

iv CONCLUSIONS: PPOS can achieve similar embryological and clinical outcomes while reducing the incidence of ovarian hyperstimulation syndrome (OHSS) as compared to Fixed Antagonist protocol. Hence, PPOS with MPA seems to be a patient friendly and cost effective choice for women undergoing ovarian stimulation without reducing oocyte quality.

v IMPACT STATEMENT: Progestins can adequately prevent premature LH Surge in ART cycles, with the additional benefit of having lowest OHSS Rate.

References: Kuang Y, Chen Q, Fu Y et al. Medroxyprogesterone acetate is an effective oral alternative for preventing premature luteinizing hormone surges in women undergoing controlled ovarian hyperstimulation for in vitro fertilization. Fertil Steril. 2015 Jul;104(1):62-70.e3.

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