Oral Presentation

1. A randomized controlled trial to compare the reproductive outcomes in three subsets of population with gonadotrophins alone or in combination with either clomiphene citrate or medroxyprogesterone acetate

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Aim: The aim of this study was to evaluate the effect of co-administration of clomiphene citrate (cc) and medroxyprogesterone acetate (MPA) with gonadotrophins (r-FSH) for controlled ovarian hyperstimulation (COS) in women undergoing IVF.

Materials and Methods: In a randomized pattern, 324 women who sought treatment for infertility at Indira IVF Pvt, New Delhi, between March 2016 and May 2017, were chosen and randomized into three groups. Group 1 (118) received only r-FSH for stimulation. Group 2 (101) received r-FSH + CC and group 3 (105) received r-FSH + MPA for stimulation. Antagonist protocol was followed and cetrorelix 0.25 mg was added only in group 1 from day-5 or when the leading follicle was 11 mm or larger. Rest two groups received placebo. The groups were compared in terms primary and secondary outcomes. Primary outcome was number of oocytes retrieved and number of M2 oocytes. Secondary outcomes were number of blastocysts, pregnancy rates, implantation rates, clinical pregnancy rates and gonadotrophin consumption.

Results: Our study found that group 2 had significant higher number of oocytes retrieved and number of M2 oocytes was also higher in group 2 (72.4% vs. 34.2%, $P < 0.001$). There was no significant difference between the oocytes number and M2 oocytes between group 1 and group 3 (72.4% vs. 69.2%, $P > 0.07$), which is not significant. Clinical pregnancy rates, number of blastocysts and implantation rates were comparable in all the three groups. However, gonadotrophin consumption was significantly lower in group 2 (difference of means, 395.1–654.9, $P < 0.001$) and so, supplemented with CC require shorter r-FSH protocols.

Conclusion: Co-administration of CC in women undergoing COS for IVF with r-FSH without adding antagonist yields significantly higher number of oocytes, higher number of M2 oocytes and reduced gonadotrophin consumption.

2. Effect of ovarian stimulation phase length (SPL) on oocyte maturity

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Objective: To study the relationship between stimulation phase length (SPL) and the maturity of oocytes (metaphase 2 oocytes).

Materials and Methods: The study is a retrospective study done at Morpheus Aakriti International IVF Center, Ayushman Hospital, Varanasi from November 2016 to June 2017.

After exclusion 64 patients were taken for the study who underwent IVF. Patients with polycystic ovary, poor ovarian reserve, endometriosis and severe male factors were excluded. Follicle development was monitored every 2–3 days during ovarian stimulation using transvaginal sonography. Once >3 follicles reached equal to or more than 17 mm, human chorionic gonadotrophin was administered. Oocyte retrieval was performed approximately 35 h after HCG. Baseline characters like age, BMI, total Antral follicle count, AMH, total dose of gonadotropins, no. of oocytes retrieved were compared. The stimulation phase length (SPL) was divided in 2 groups. Group A ($n = 34$) had SPL of 8–10 days and Group B ($n = 30$) had SPL of 11–13 days. Both the groups were compared with maturity of oocytes (metaphase 2 oocytes). Statistical significance was found by chi-square test. Data was analyzed by SPSS 16.0 software.

Results: The mean of baseline characters were comparable with no statistical significance except the total dose of gonadotropins (P value < 0.001).

Comparison of primary explanatory variable (SPL) with the primary outcome variable (no. of metaphase 2 oocytes) showed no statistical significance between the two groups (*P* value 0.909).

Conclusion: The ovarian stimulation phase length (SPL) is an indirect measure of mean follicular growth rate, but it does not seem to influence the oocytes maturity. Oocytes maturity may be influenced by intrinsic ovarian factors and not on duration of stimulation or drugs used for stimulation.

3. What is a good egg number in assisted reproduction?

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Study Question: Does number of oocyte retrieved have an impact on live birth outcome in assisted conception (IVF/ICSI)?

Summary Answer: Live birth occurrence was found to be associated with number of oocytes retrieved and live birth rate was highest when 10–20 oocytes were retrieved both in IVF and ICSI treatment.

Participants/Duration/Methods: The first fresh IVF and ICSI treatment cycles (96,721 IVF and 58,797 ICSI treatment cycles) from the UK's regulator, HFEA's long term anonymized data registry from 1991 to 2012 were analyzed by the binary logistic modeling technique for association between oocyte number as categorical variable and live birth occurrence. The statistical package SPSS (version 23) was used for analysis and results were considered to be statistically significant if the *P* value was <0.05.

Results and Observations: Taking >20 oocytes as the reference category, live birth rate was statistically significantly lower when oocyte number retrieved was 1–5 (OR 0.70, CI 0.66–0.75, *P* value 0.000 for IVF and OR 0.66, CI 0.61–0.71, *P* value 0.000 for ICSI treatment) and was significantly higher when oocytes retrieved were between 10 and 20 (OR 1.1, CI 1.03–1.8, *P* value 0.007 for 10–15 oocyte category in ICSI and OR 1.12, CI 1.06–1.20, *P* value 0.000 for IVF treatment).

Limitations, Reasons for Caution: Although the study was adjusted for female age, number of previous treatment cycles and use of donor gametes and surrogacy, compounding factors like BMI and smoking were not adjusted for as there was no information in HFEA data on these parameters.

Wider Implications of the Findings: Better live birth rates are associated with oocyte number between 10 and 15 and hence milder stimulation regimes are optimum.

Study Funding/Competing Interest(s): No funding was received.

Keywords: ICSI, IVF, oocyte number

4. Comparison of clinical, metabolic and hormonal parameters among clomiphene citrate sensitive and clomiphene citrate resistant PCOS women

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Study Question: Is it possible to predict the response to clomiphene citrate in women with PCOS related infertility?

Aim and Objectives: To compare the clinical, biochemical and metabolic parameters amongst clomiphene citrate sensitive and clomiphene citrate-resistant PCOS women.

Materials and Methods: In this prospective observational study, consecutive 164 women of age 18–35 years with PCO related infertility was recruited between July 2016 and September 2017. A range of potential clinical, metabolic and hormonal predictors were recorded before giving the escalating dose of clomiphene starting with 50 mg maximum up to 150 mg. The end point of the study was ovulation with maximum 150 mg CC.

Results: Out of 164 patients, 88 (53.7%) were CC-resistant and 76 (46.3%) were CC sensitive. Of the 76 (46.3%), patients who ovulated, 19 (11.6%) ovulated with 50 mg, 37 (22.6%) ovulated with 100 mg and 20 (12.2%) ovulated with 150 mg. Highly Significant differences were observed between the two groups in baseline FG score, BMI, OGTT, fasting insulin, HOMA-IR, lipid profile, serum testosterone and androstenedione levels, AMH, ovarian volume, AFC ($P < 0.001$). Significant differences were also

seen in SBP, waist circumference, WHR, weight, LH (d2), LH/FSH and vitamin-D levels ($P < 0.05$). No significant difference was observed in age, DBP, height, 17-OHP and FSH levels in the two groups.

Conclusion: Patient's baseline FG score, BMI, OGTT, fasting insulin, HOMA-IR, lipid profile, serum testosterone and androstenedione levels, AMH, ovarian volume, AFC influence the response to clomiphene citrate and can help guide treatment.

5. Frozen thawed embryo transfer with and without pretreatment with GnRHa agonist protocol: A comparative study

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Study Question: Is the use of GnRHa-agonist an optimal protocol?

Aims and Objectives: To compare the clinical reproductive outcome of artificial endometrial preparation with hormone therapy vs. pretreatment with GnRHa agonist for FET cycles.

Materials and Methods: It is a prospective case control study. A total of 148 women undergoing FET cycles were randomized. Group A ($n = 72$) received pretreatment with decapeptyl depot (3.75 mg) which was administered in the mid luteal phase and group B ($n = 78$) received hormone therapy only. All patients received estradiol valerate 4 mg daily from D2 to D5 and then 6 mg daily till the day of pregnancy test. Progesterone in injection form was started once the endometrial thickness was more than 7.5 mm. Implantation rates and chemical pregnancy rates were compared in both the groups.

Results: The pregnancy outcomes in both the groups showed no significant difference. The implantation rate in both the group A and group B were comparable (62.5% vs. 64.8%). the miscarriage rate in group A was 9.1% as compared to 7.1% in group B.

Conclusion: Any pretreatment with GnRHa agonists is not cost effective for frozen thawed embryo transfer. more studies will be needed for an optimum protocol

Keywords: Endometrial preparation, frozen thawed embryo transfer, GnRHa agonist, pregnancy outcome

6. Multi-marker assessment of ovarian reserve predicts oocyte yield after ovulation induction

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Study Question: The biochemical and ultrasonographic markers done before and during controlled ovarian hyperstimulation (COH) can predict oocyte yield which can help to individualize treatment protocols to achieve optimal response with minimizing safety risks.

Aims and Objectives: The main outcome of the study was to correlate these predictors with oocyte yield.

Materials and Methods: We conducted a retrospective observational study, including 1924 women undergoing COH in IVF/ICSI cycles in AIIMS, New Delhi, from January 2010 to June 2017. Data was collected from unit database, following information was collected: Age, BMI, D2 FSH, AMH, D2 AFC, amount of gonadotropins used for stimulation, E2 on day of trigger and oocyte yield.

Results: Univariate analysis showed that age, D2FSH, AMH, D2AFC, E2 on day of trigger were significant predictors of oocyte yield ($P < 0.05$). E2 on day of trigger had highest area under curve, ROC of 0.81, indicating good discriminating potential for predicting poor ovarian response, followed by age and D2 FSH. AMH and AFC had ROC of 0.53, 0.58 respectively ($P > 0.05$). The reason for poor predictability of AMH may be the different assays used for AMH measurement.

Conclusion: A combination of predictors demonstrated superior ability of predicting oocyte yield than compared with any single marker. age; D2 FSH and E2 on the day of trigger had significant predictive ability.

Keywords: Oocyte yield, ovarian reserve, S.AMH, S. FSH

7. Key performance indicators score (KPIS score) as prediction key can serve to establish benchmarks for internal quality control in art program

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Design: Prospective cohort.

Materials and Methods: All patients (771) undergoing IVF/ICSI cycles from May 2016 to September 2017 were recruited. Patient population: Inclusion criteria: (i) All women undergoing first IVF cycle; (ii) age 20–37 years; (iii) day 2/3 serum FSH (<10.0 IU/l); (iv) BMI 18–30 kg/m^2; (v) indication for IVF/ICSI; (vi) stimulation in GnRH antagonist protocol. Exclusion criteria: (i) donor cycles; (ii) surgical retrieval of sperms. KPIs score: Clinical KPIs (C-KPIs): number of dominant and intermediate follicles, endometrial thickness, number of metaphase-II oocyte; Embryology Laboratory KPIs (L-KPIs): fertilization rates, cleavage rates and morphological quality of embryos. The total KPIs score (C-KPIs + LKPIs) was correlated with clinical pregnancy; maximum of 25 points.

Results: The model of logistic regression (MLR) was used with respect to pregnancy as prediction key; total KPIs score [(280 clinical pregnancy/771 patients; odds ratio = 1.34 (95%CI ± 1.17 to 1.33)]. Clinical pregnancy probabilities (CPP) with total KPIs score as a predictor; KPIs score 25/CPP = 67% (95%CI 55–78%) and KPIs score 10/CPP = 8% (95%CI 5–15%).

Conclusions: The total KPIs score serves as benchmarks for clinical pregnancy and also provide insights about the clinical-laboratory interface.

8. Correlation of sperm DNA damage and epigenetic modifications with semen parameters and success of IUI

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In about 50% of cases of infertility, cause lies in male partner either solely or with female factor. When semen analysis is normal then genetic defects may be the true cause of infertility.

Objectives: To correlate semen parameters with sperm DNA damage detection by SCD test and also with epigenetic modification present in sperm, predict pregnancy rate after IUI at different cut-offs of DNA damage and epigenetic modifications and determine correlation between SCD test and epigenetic modifications.

Materials and Methods: In this prospective observational study 80 couples who underwent ovulation induction with IUI for various indications were included. Prewash and postwash samples evaluated for sperm count, motility, DNA fragmentation analysis by SCD test and epigenetic modification assessment by detection of percentage of 5 motile Count (mC).

Result: Overall success of IUI was 12.5%. Semen parameters showed statistically significant difference between prewash and postwash. DNA fragmentation and percentage of 5 mC in sperm DNA were significantly lower in pregnant group ($P = 0.00$). There was significant negative correlation of % of sperms with fragmented DNA with sperm motility ($r = -0.291$) and significant positive correlation between sperm count and percentage of 5 mC cytosine in sperm DNA ($r = 0.254$). No correlation found between epigenetic modification and SCD and also with semen parameters.

Conclusion: SCD can be recommended in cases of failed IVF/ICSI. Prewash SCD assessment may give better insight to the likely quality of postwash semen sample.

Keywords: 5 methyl cytosine; sperm chromatin dispersion

9. Comparison of clinical features and biochemical values in lean vs. obese patients with polycystic ovarian syndrome

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Aims: Comparison of clinical features and biochemical values in lean vs. obese patients with polycystic ovarian syndrome.

Type of Study: Prospective study.

Material and Methods: Women diagnosed as PCOS by Rotterdam 2003 criteria. They were further divided according to their body mass index (BMI), overweight and obese with BMI >23 and normal weight and lean with BMI ≤23.

Result and Conclusion: Polycystic ovarian syndrome (PCOS) affects four to 12% women of reproductive age. In 1935, Stein and Leventhal first

described the association of polycystic ovaries, amenorrhea, hirsutism, and obesity. Chronic anovulation and hyperandrogenism are clinical hallmarks of women with PCOS. Owing to anovulation, the endometrium in PCOS is exposed to the prolonged mitogenic effects of estrogen, unopposed by the inhibitory effects of progesterone present in the luteal phases of normal menstrual cycles. PCOS, an ill-defined symptom complex need its due attention. More than half of the women were obese. The clinical features like menstrual disturbances, infertility, hirsutism, acne, and acanthosis nigricans were present in most of PCOS women irrespective of weight. Even though the hirsutism was comparable in both groups, however the degree of hirsutism was exaggerated in obese as noticed by higher FG score. Women presenting with oligomenorrhea should be further investigated for PCOS and treated accordingly. Central obesity was more common in obese PCOS than the lean PCOS.

10. Advanced endometriosis Is it appropriate to dismiss controlled ovarian stimulation and intrauterine insemination in the era of ART?

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Study Question: Place of controlled ovarian stimulation and intrauterine insemination after surgery in advanced endometriosis (stage 3 and 4).

Aims and Objectives: To highlight a few cases of successful pregnancy outcomes in patients undergoing controlled ovarian stimulation and intrauterine insemination after surgery for advanced endometriosis.

Materials and Methods: Retrospective record based study.

Results: Five patients were identified, who underwent laparoscopic surgery for endometriosis. Median age of the female was 30 years (range 22–33 years). Four cases presented with primary infertility while one was a case of secondary infertility. Findings in laparoscopy ranged from endometriotic spots on, with partially obliterated pouch of Douglas (POD) to large bilateral endometriomas and complete obliteration of POD, with median revised ASRM score of 44 (range 18–64). Fallopian tubes were patent and tubo ovarian relation was restored in all cases. Three patients conceived after first cycle of controlled ovarian stimulation with gonadotropins and intrauterine insemination, while two conceived after second cycle. Two have delivered, a singleton and twins respectively, while other three pregnancies are ongoing.

Conclusions: Although *in vitro* fertilization has gained prime importance in the management of advanced endometriosis, patients can be offered a trial of controlled ovarian stimulation and intrauterine insemination, after an adequate surgery has been done.

11. Knowledge and awareness regarding fertility and reproductive age limits in Indian females

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Study Question: Is there sufficient awareness of the factors associated with infertility in patients who have difficulty conceiving.

Aims and Objectives: To evaluate the awareness regarding limits of reproduction in relation to female age and menstrual cycle and available treatment options including the need for assisted reproductive technique.

Materials and Methods: Cross-sectional study of 205 infertile patients seeking treatment for infertility at our assisted reproduction unit between March and August 2017. Patients were interviewed with the help of structured questionnaire by health care professionals.

Results: Majority of women (59%) belonged to the age group of 20–30 years indicating a young age group in need of infertility evaluation. More than half (63%) of the patients were from the middle socio-economic strata. Even so, knowledge about fertility and reproduction was low: 85% missed the ovulatory period in the menstrual cycle, only 8% considered age more than 35 years as the most significant risk factor for infertility, approximately 60–80% were not aware when to seek treatment for infertility after trying for pregnancy. Patients also had limited

knowledge regarding artificial reproductive technique and need for donor oocytes in advanced age group.

Conclusion: There is significant gap in knowledge and awareness regarding the fertile period and effect of ageing on infertility. This can be improved by education interventions introduced at primary school level and at every contact with the healthcare professional regarding sexual health and reproductive age limits.

12. DHEA in poor functional ovarian reserve: A novel therapy to improve IVF outcome

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Introduction: Poor ovarian reserve remains one of most commonly encountered problem in infertility clinics. Managing this problem with aim to maximize outcome remains a challenging task. With various modalities used to treat this problem, pre-treatment with dehydroepiandrosterone sulphate (DHEA) has emerged as promising method to maximize IVF outcome.

Objectives: The aim of this study is to evaluate the role of dehydroepiandrosterone (DHEA) supplementation in patients with diminished ovarian reserve.

Study Design: A prospective trial was conducted on 25 patients with diminished ovarian reserve (DOR) Patients were pre-treated with DHEA 25 mg three times a day for minimum 6 weeks to maximum 10 weeks before proceeding with IVF/ICSI cycle. The results were compared with 25 control women with DOR who were not given DHEAS pre-treatment.

Results: Women pre-treated with DHEA has significantly clinical pregnancy rates ($P < 0.05$), ongoing pregnancy rates ($P < 0.05$). E2 level on the day of oocyte retrieval, no. of oocyte retrieved, excess embryos available for freezing, fertilization rate were similar in both groups.

Conclusion: Thus, DHEA has a significant effect in improving the pregnancy rate in poor responders and patients with abnormal ovarian reserve testing.

13. Low ovarian reserve... How common it is...

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Study Question: Low ovarian reserve – How common it is in women attending our infertility clinic? A growing concern in modern reproductive medicine, as these women are poor responder to conventional stimulation and need a diagnosis for counseling and satisfactory management.

Aims and Objectives: To study the prevalence of Low ovarian Reserve in patients attending infertility clinic in a tertiary care center.

Material and Methods: Present retrospective study was conducted in women attending infertility clinic. A total of 2836 cases were analyzed over a span of 5 years. Women with age <40 years and serum AMH level less than 1.1 ng/ml and AFC less than 7 were included in study (Bologna criteria). The total number of cases recorded was 52. Pattern of clinical presentation like primary or secondary amenorrhea, irregular cycles, H/o hypothyroidism, tuberculosis, and H/o tubo-ovarian surgery were recorded.

Observation and Results: Low ovarian reserve was found in 1.83% of women attending infertility clinic. Total 51.9% women had AMH less than 0.5 ng/ml while it was between 0.5 and 1.1 ng/ml in rest. Antral follicle count was less than 3 in 53.8%, 3–5 in 32.6% and 5–7 in 13.46% in of females 23.07% women with AMH less than 0.5 ng/ml were of age less 35 years while 28.8% were aged between 35 and 40 years. For the women with AMH between 0.5 and 1.1 ng/ml 11.5% were less than 35 while 36.5% were between 35 and 40 years.

Conclusion: Poor ovarian reserve is a great challenge to modern reproductive medicine. Early diagnosis is critical for further counseling and management.

14. Comparison of effect of metformin alone and its combination with myoinositol on *in vitro* fertilization outcome in polycystic ovarian syndrome patients

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Aim: Comparison of effect of metformin alone and its combination with myoinositol on *in vitro* fertilization outcome in polycystic ovarian syndrome patients.

Objectives: To compare the oocyte quality in the 2 groups receiving metformin, metformin and myoinositol combination and to compare implantation rate, fertilization rate, embryo quality in the 2 groups.

Methodology Study Design: Longitudinal observational descriptive study period of study: 5 months, July 2017 to October 2017. Infertile PCOS women who were willing to participate in the study and fit into our inclusion criteria were enrolled in the study. Written informed consent, complete history and examination, routine laboratory investigations were done. Then, they were either put on metformin alone or on metformin–myoinositol combination. There were 17 patients in the both the groups. Patients were seen on Day 2 of the cycle, and a baseline ultrasound was done to see antral follicle count. The antagonist protocol was used. Number of mature follicles, M-II oocytes retrieved, their quality in the 2 groups were noted and compared in the 2 groups. Fertilization rate, embryo quality and implantation rate in the 2 groups were also noted.

Results: Percentage of mature oocytes and the percentage of grade a embryos in the groups were almost the same, having no statistical significance.

Conclusion: A greater sample size is required to comment on the exact inference.

15. Post-trigger serum LH levels as an independent predictor To transfer or not to transfer

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Background: LH surges are the start of a period of endometrial receptivity. Missing these surges in a stimulated cycle might lead to incorrect timing of embryo transfer.

Objective: Can post-trigger serum LH levels be used as an independent predictor to transfer embryos in a fresh cycle or should freeze all policy be adopted in a specific group?

Materials and Methods: This is a prospective observational study of 100 patients. All patients received antagonist protocol and had embryo transfer in the same cycle. GnRHa trigger was used as the trigger for final maturation of the oocytes. Serum estradiol, LH and progesterone levels taken on the day of trigger and serum LH levels and serum progesterone levels taken 12 h after the trigger. Patients were divided into two groups depending on the serum LH levels post-trigger. Group I ($n = 50$) include those patients whose LH levels are <15 IU/L and group II ($n = 50$) patients having LH levels <15 IU/L. Primary outcome was taken as pregnancy confirmed by ultrasound. Results were analyzed using chi-square test. P value <0.05 considered to be significant.

Result: Clinical pregnancy rates in two groups were: group I 30% vs. group IIc 36.6%. However higher number of MII oocytes were retrieved 15.2 ± 5.6 in group II vs. 12.2 ± 3.6, leading to higher fertilization rate 10.8 ± 4.7 in group II vs. 8.3 ± 3.9 in group I though statistically nonsignificant.

Conclusion: Post-trigger LH levels can be taken as an independent predictor to take a decision regarding fresh transfer.

16. 3 day or 5 days progesterone supplementation? Before transfer of day 3 cleavage stage embryos in an artificially prepared FET cycle, which carries a better pregnancy outcome?

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Aim: This study was conducted to identify whether the physiological preovulatory rise of progesterone which is also biochemically documented have any clinical relevance in the transfer of day 3 embryos in FET cycles. The comparison was done with the existing practice of 3 days progesterone supplementation in FET cycles.

Materials and Methods: This is a prospective randomized control trial. Ninety-six patients of FET, who attended Southend Fertility and IVF between 1st October 2015 to 30th June 2016. Their embryos were frozen on day 2/3. They were randomly assigned into 2 groups: Group A – progesterone +5 and Group B – progesterone +3 before ET. Luteal support was given and beta HCG was done after 16 days. Pregnancy outcome as implantation rate, miscarriage rate, ongoing pregnancy, twins and live birth rates were calculated.

Results: After analysis both the groups showed a similar implantation rate (33–35%). Miscarriage rate

was higher in Group B (P+3). A higher ongoing and live birth rate was seen in Group A (P+5). Also there was seen a 15.3% incidence of twin pregnancy in Group A (P+5).

Conclusions: A high miscarriage rate is observed in the P+3 group and a high live birth and ongoing pregnancy rate is seen in P+5 group, a longer duration of progesterone supplementation prior to day 3 FET can be considered. But further research with a larger sample size is recommended.

17. To compare the effect of metformin plus myoinositol vs. metformin alone in terms of clinical pregnancy rate in infertile PCOS women

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Study Question: Whether metformin and myoinositol combined can act synergistically to improve clinical pregnancy rate as compared to metformin alone in infertile PCOS women.

Aim and Objectives: To evaluate effect of metformin plus myoinositol vs. metformin alone in terms of clinical pregnancy rate in infertile PCOS women.

Materials and Methods: In a randomized controlled trial (department of OBGYN, AIIMS, New Delhi), 120 PCOS infertile women were recruited. Group I ($n=60$) took tab metformin 500 mg + myoinositol 600 mg TDS for 3 months. Group II ($n=60$) received tab metformin 500 mg TDS for 3 months. All patients were advised to try for conception. After 3 months, those who did not conceive were advised to continue same drug for 3 more months. Ovulation induction was given with clomiphene citrate 50 mg with or without gonadotrophins for 3 cycles. Primary outcome was clinical pregnancy rate. Secondary objective was ovulation rate, ongoing pregnancy rate, OHSS, abortion rate, multiple pregnancy rate and improvement in clinical/metabolic profile of patients.

Results: Baseline characteristics were comparable in two groups. In initial 3 months, 14 patients group I and 8 patients in group II conceived. Overall clinical pregnancy rate in group I 63.3% and in group II was 33.3% ($P=0.001$). Improvement in HOMA-IR was comparable.

Conclusion: Combination of metformin and myoinositol had better outcome in terms of clinical pregnancy rate and ongoing pregnancy rate.

18. Ovarian stromal Doppler parameters as a predictor of follicular response to stimulation in IUI/IVF cycles in PCOS patients A comparative prospective study

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This prospective study aims to gain insight into the ovarian stromal blood flow in women with PCOS as compared with non-PCOS infertility patient with normal ovarian reserve and to predict the response to stimulation during IUI/IVF cycles.

Aims and Objectives: (1) To assess the baseline intra ovarian stromal Doppler parameters in PCOS patients as well in normal ovulatory infertile patients. (2) To find out the predictive value of ovarian stromal blood flow for follicular response to stimulation in PCOS patients. (3) To compare the ovarian stromal blood flow indices among conception and non-conception cycles in IUI/IVF cycles in PCOS patients.

Materials and Methods: All patients underwent basic infertility evaluation and TVS on day 2 or day 3 of the menstrual cycle. After completion of evaluation, patients underwent superovulation in IUI and COH in IVF cycles. Monitoring of follicular growth as routinely done as well repeat Doppler studies after gonadotropin stimulation on day 6 in IVF and day 9 in IUI cycles and on the day of hCG administration.

Outcome Measures: (1) Number of mature follicles. (2) Number of oocytes retrieved. (3) Conception rate.

Results and Conclusion: It is an ongoing study in final stages. Results will be available soon.

19. Clinical effects of metformin versus combined therapy with metformin and myoinositol and D-chiro-inositol in women with polycystic ovary syndrome (PCOS)

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Introduction: Insulin resistance plays pivotal role in etiopathogenesis of PCOS. To prevent long term health consequences of PCOS, besides life style modifications, use of insulin sensitizers has been proposed. Recently inositols–myoinositol (MI) and D-chiro-inositol (DCI) – have shown to be efficient and safe alternative in PCOS management.

Aims and Objectives: To compare clinical effects of metformin (Group 1) versus combined therapy of metformin and MI and DCl (Group 2) in women with PCOS having insulin resistance.

Materials and Methods: Patients with PCOS were randomized into two groups, 30 in group I (metformin) and 32 in group II (metformin and MI and DCl). Group 1 received metformin 500 mg twice a day for 3 months and in Group 2 received receive metformin 500 mg twice a day along with myoinositol 550 mg + D-chiro-inositol 150 mg twice daily for 3 months. Clinical parameters like menstrual cycle regularity, acne, hirsutism, BMI, waist and hip circumference were compared at baseline and after 3 months of therapy.

Results: Baseline characteristics were similar in two groups. There was no improvement in acne score. However, after receiving treatment for 3 months statistically significant improvement was seen in Group 2 (metformin + MI + DCI) in their clinical parameters like weight ($P < 0.02$), waist circumference ($P < 0.0155$) and hip ratio ($P < 0.00045$).

Conclusion: Using a comprehensive, detailed endocrinological assessment of clinical parameters our study shows beneficial effect of metformin in combination with MI + DCI in women with PCOS and insulin resistance. Combined therapy may have a therapeutic and promising role in women with PCOS.

20. Does vaginal sildenafil improve ET in women with previous poor endometrial development in FET cycle

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Study Question: Does vaginal sildenafil improve ET in women with previous poor endometrial development.

Aims and Objectives: To study the effect of vaginally administered sildenafil citrate on ultrasono graphic ET in women with poor endometrial development.

Materials and Methods: Thirty patients less than 40 years of age and with good quality grade 1 frozen embryos were included. They must have had at least 1 previous FET cycle postponed due to ET less than 7 mm on the day of ET. These 30 patients were divided into 2 groups. Fifteen were given estradiol valerate, by step-up method with the onset of menstruation while other 15 were given vaginal sildenafil citrate 25 mg, four times a day with estradiol valerate from day 1 of cycle till progesterone was started.

The following were excluded: (1) Women with history of hysteroscopic surgery. (2) History of endocrine diseases.

The ET was evaluated on day 7, 10 and 14th day of menstrual cycle by TVS by a single investigator.

Results: The ET was higher in the sildenafil citrate group.

Conclusions: The routine use of vaginal sildenafil citrate in patients with a failed IVF due to thin endometrium needs to be evaluated by a larger study.

21. To determine AMH cut off level for pregnancy

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Aim: To determine the AMH cut off levels for pregnancy in poor ovarian reserve (POR) females.

Materials and Methods: A total of 380 patients were observed during time period July 2017 to October 2017. Forty patients of POR (based on Bologna criteria) were enrolled into the study, and analyzed and divided into two groups. Group 1 included $n = 20$ patients of POR only. Group 2

included $n = 20$ patients with POR + other factors of infertility. Controlled ovarian stimulation was done for all patients with gonadotropins, followed by embryo transfer to all. AMH levels were done in all patients on D2/D3 of periods. Outcome was taken as clinical pregnancy, defined as-presence of Gestational-Sac on USG.

Results: An ROC curve was drawn to get the AMH cut off value with max sensitivity (75%) and specificity (41.6%) for getting pregnancy in POR group. The value was 0.57 ng/ml. The cut off of AMH levels in patients of AMH + other factors was 0.89 ng/ml, suggesting higher AMH requirement to get pregnancy in patients with multiple etiologies.

Conclusion: AMH of 0.57 ng/ml appears to be a meaningful threshold for predicting CPR in women with POR at our practice. This information can be crucial during the per cycle counseling of women with POR.

22. Association of subclinical hypothyroidism, insulin resistance and hyperhomocystenemia in young infertile women with PCOS

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Introduction: Polycystic ovary syndrome (PCOS) is one of the most common endocrine metabolic disorder related with infertility in about 40% of women. Overall it affects 5–10% of women of reproductive age. It is a heterogeneous disorder characterized by oligo-anovulation, menstrual disturbances, and androgen excess.

Objective: To evaluate relationship between clinical metabolic and endocrine parameters of young infertile women with polycystic ovarian syndrome in relation with subclinical hypothyroidism, insulin resistance and hyperhomocystenemia.

Design: Observational study.

Setting: Milann Fertility Centre Bengaluru Patient(s): 200 infertile women with PCOS (group I) and 200 infertile women without PCOS (group II). Intervention(s): recording of demographic, clinical, biochemical, hormonal parameters of patients. Main outcome measure(s): whether subclinical hypothyroidism, hyperhomocystenemia and increased HbA1C levels in infertile patients have any association with PCOS.

Result(s): The two groups were comparable in age, race, marital status, height, weight, and body mass index. Group 1 women has increased findings of increased TSH leaves, homocysteine levels and HbA1C levels.

Conclusion(s): PCOS patients have an inclining trend toward hyperhomocysteinemia; hypothyroidism and insulin resistance and thus adding up to the brunt of infertility management

Keywords: HbA1C levels, hyperhomocysteinemia, subclinical hypothyroidism

23. Correlation between DNA fragmentation index (DFI) and embryo quality and pregnancy outcome A single center experience

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High DNA fragmentation index is associated with poor outcome after IVF. This study was carried out at a single center from North India. The study period was 6 months (January–June 2017). Total of 400 patients underwent semen analysis. DFI was calculated in 100 out of 400 patients (25%). Thirty-three out of 100 patients with moderate-severe oligoteratozoospermia underwent IVF-ICSI, 47 patients with mild oligozoospermia underwent IUI while 20 patients were lost to follow-up. Based on DFI value patients were divided into three groups: Group I DFI <15% (3 patients), Group II DFI 15–30% (6 patients) and Group III DFI >30% (24 patients). Fertilization rate and embryo quality (grade A and B) in three groups were not statistically significant while clinical pregnancy rate was higher in group I. The sample size of the present study was small thus a larger sample size is required to confirm the findings.

24. Correlation between progesterone level on the day of HCG trigger and the pregnancy outcome in fresh IVF antagonist cycle

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Akanksha IVF Center, India

Background: Incidence of premature elevation of progesterone despite an effective suppression of LH by GnRH analogue in IVF cycle varies from 5 to 35%. Excessive follicular development leads to supraphysiological increase in estradiol which results in increase in late follicular phase progesterone. This further leads to premature closure of implantation window leading to asynchrony between endometrium and developing embryo.

Objectives: To evaluate the correlation between progesterone level on the day of HCG trigger in fresh GnRH antagonist cycles and clinical pregnancy rate.

Materials and Methods: Prospective single center cohort study at Akanksha IVF center including 100 women undergoing IVF antagonist cycles with fresh transfer on day 3 of 2 good grades embryos. All participants were grouped based on their progesterone level on the day of HCG trigger: (1) <1.2 ng/ml; (2) 1.2–1.4 ng/ml; (3) >1.4–1.6 ng/ml; (4) >1.4–1.6 ng/ml; (5) >1.8 ng/ml.

Number of retrieved oocytes, Number of resulting embryos and clinical pregnancy rate was compared between the groups.

Result: Though the numbers of oocytes retrieved were higher in the groups with higher progesterone levels on the day of trigger, the numbers of resulting embryos were comparable in each group. There was also significantly lower number of pregnancies in the groups with progesterone value >1.4 ng/ml on the day of trigger.

Conclusion: Progesterone elevation on the day of HCG administration is associated with decreased probability of pregnancy in fresh IVF.

25. Real-time monitoring and identification of events to improve the culture conditions in G185 tri-gas incubator

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Medicover Fertility, India

Study Question: Is it possible to monitor and identify unexpected events in the G185 tri-gas incubator real-time 24 × 7 to improve the culture conditions?

Aims and Objectives: Our aim to understand and identify changes in the carbon dioxide (CO_2), oxygen (O_2) percentage, and temperature in real-time from G185 tri-gas incubator for improvement of culture conditions and better embryo development.

Materials and Methods: Retrospective preliminary study conducted at Embryology department, Medicover Fertility India from August to September 2017. Real-time data was collected from G185 tri-gas K-System incubator using K-Systems Logger v1.4.0 software and analyzed using different multivariate analysis. The real-time data was collected and analyzed to 1. Identify time taken to recover CO_2, O_2 and temperature each time and multiple times opening of incubator chamber 2. Identified unexpected events from real-time data of G185 tri-gas incubator 3. Finally we proposed effective way of usage G185 incubator for better culture conditions and improve the embryo development.

Results and conclusion: Our results were showed that it could be monitored real-time changes in the CO_2, O_2, and temperature 24/7 along with gas flow rate in G185. Moreover, our findings helped us to identify recovery time of CO_2, O_2, and temperature in different time points based on number of times opening incubator chambers. the findings underline the importance of real-time evaluation of culture environment in the IVF laboratory to improve the embryo development and pregnancy outcome.

Keywords: Embryo development, G185 tri-gas incubator, real-time monitoring

26. Different PCOS phenotypes and their effect on IVF outcome

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Aim: To study the different PCOS phenotypes and their effect on IVF outcome.

Objectives: To study the effect of different PCOS phenotypes on oocyte quality, pregnancy rate and other parameters in an IVF cycle.

Materials and Methods: Study design: prospective observational study; period of study: 6 months, April to September 2017; sample size: 65, divided into 4

categories of PCOS phenotypes; setting: Ridge IVF center.

Inclusion criterion: All PCOS patients (according to Rotterdam criterion) coming to us for IVF were included.

Exclusion criterion: (1) Associated severe male factor; (2) Associated severe tubal factor; (3) Diminished ovarian reserve; (4) Endometriosis; (5) Smokers and diabetics. All patients coming to our OPD who fit into our inclusion/exclusion criterion and who were willing to participate in the study were included. They were thoroughly examined and routine laboratory investigations for their profile were done. All parameters including their demographic details, clinical and hormonal profile, their oocyte number and quality, embryo quality and clinical pregnancy rates were studied. Then the results were analyzed using Kruskal–Wallis test.

Results: The pregnancy rates were significantly higher in group D phenotype. also family history almost reached significance; being higher in group A and D. other parameters including BMI, PP insulin, FSH, LH and AMH values, oocytes retrieved, their quality and fertilization rates were almost similar in all groups.

Keywords: PCOS, phenotype, pregnancy rate

27. Dual ovarian stimulation in same IVF/ICSI cycle for poor ovarian responders: A case report

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Background: Advances in cell culture media have led to a shift *in vitro* fertilization (IVF) practice from cleavage stage embryo transfer to blastocyst stage transfer. The rationale for blastocyst transfer is to improve both uterine and embryonic synchronicity and enable self selection of viable embryos, thus resulting in better implantation rates.

Objectives: To determine whether blastocyst stage (day 5) embryo transfers improve the implantation rate, and other associated outcomes, compared with cleavage stage (day 3) embryo transfers.

Study Design: Prospective study. We compared the clinical results of frozen embryo transfer on day 3 (cleavage stage) or day 5 (blastocyst stage) after oocyte retrieval, implantation rates.

Materials and Methods: Total patients were 30. We divided 15 patients in each groups. Group I: where embryos were frozen at day 3 and thawed on day of transfer and immediately. Group II: where embryos were frozen at day 5 and thawed on day of transfer and immediately. Main outcome measures were implantation rate and clinical pregnancy rate.

Results: In the frozen embryo transfer group for cleavage stage vs. blastocyst stage, respectively, implantation rates were 41 and 46%.

Conclusion: Our results confirm that blastocyst transfer is better than cleavage stage in frozen embryo cycles.

28. Assessment of window of implantation in patients with Grade 3/4 endometriosis with implantation failure using era test

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Introduction: Endometriosis is benign, progressive, debilitating gynecological disorder which causes pain and infertility. 25–50% of infertile women have endometriosis and 30–50% of women with endometriosis are infertile. One of the reasons for endometriosis-associated infertility is believed to be diminished endometrial receptivity and defective implantation. Profound transcriptomic changes during the window of implantation in eutopic endometrium appear to create an inhospitable environment for an implanting embryo thereby leading to implantation failure.

Aim and Objective: To study the endometrial receptivity transcriptomics in women with Grade 3/4 endometriosis with one or more implantation failure undergoing IVF.

Materials and Methods: Retrospective study was carried out for a period 15 months (2016–2017) at Mother and Child Hospital, Defence Colony. Women with Grade 3/4 endometriosis and 1 or more implantation failure who had undergone ERA test were included in the study group. An equal number of women without endometriosis and with

1 or more implantation failure comprised the control group. Patients with endometriosis associated with severe adenomyosis, intrauterine pathology (Fibroids/Polyp/Adhesions), genital tuberculosis, communicating hydrosalpinx were excluded.

Results: Eleven women with Grade 3/4 endometriosis were compared with 11 women in control group. Demographic parameters in both the groups were similar. Five out of 11 (45.45%) women in study group had altered endometrial receptivity. All the 5 women with altered ERA showed late receptive endometrium. In the control group only one women had altered ERA (pre-receptive).

Conclusion: ERA is a valuable test in women with Grade 3/4 endometriosis with implantation failure.

Keywords: Endometrial receptivity, endometriosis, implantation failure

29. Association of ABO blood type with ovarian reserve in Indian women with subfertility

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Ovarian reserve reflects both the quantity and quality of oocytes available for procreation, and is affected by many known and unknown factors. ABO blood type is related to a number of infertility processes, but it is unclear whether and how ABO blood type affects ovarian reserve. Here, we explored the relationship between ABO blood type and ovarian reserve in Indian women with subfertility. Day-3 serum follicle-stimulating hormone (FSH) levels and blood type were examined in 200 women who underwent infertility evaluation. Blood type proportions in the patient population were as follows: 18.0% type A; 39.5% type B; 5.5% type AB; and 31.0% type O. Further results will be presented at the time of presentation.

Keywords: Blood type, FSH, infertility, ovarian reserve

30. Does instillation of intrauterine human chorionic gonadotropin enhances implantation in women undergoing fresh embryo transfer?

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Introduction: Implantation failure is the cause of more than half of the pregnancy failures in ART cycles. Implantation is a complex process that is regulated by many autocrine and paracrine factors. Multiple effects appear to precede the classical endocrine role of the HCG and could be directly involved in the regulation of embryo implantation. So study question is whether instillation of HCG during oocyte retrieval improves implantation rates in women undergoing fresh embryo transfer.

Aims: To study the effect of intrauterine administration of human chorionic gonadotropins (hCG) immediately after oocyte retrieval on IVF outcome. Primary objective: Implantation rates and clinical pregnancy. Secondary objective: Ongoing pregnancy, pregnancy loss.

Materials and Methods: The study conducted at tertiary center of IVF and human reproduction from January 2017 to December 2017. It is a prospective randomized single blinded placebo control study. Fifty patients were assessed for the eligibility criteria. Twenty-five patients were allocated to saline group and other 25 patients were allocated to HCG group. Patients with <6 oocytes retrieved or endometrium <7 mm on day of oocyte retrieval were excluded from the study.

Results: Comparison of results between the two groups (saline and HCG) and the results obtained. Implantation rate of 30% achieved in HCG group and around 29% in saline group.

Conclusion: Instillation of intrauterine HCG during oocyte retrieval does not have any additional benefit on implantation rates and pregnancy rates in fresh embryo transfer group.

Keywords: Fresh embryo transfer Ferti-2017-2547, intrauterine human chorionic gonadotrophin, oocyte retrieval

31. Delayed blastulation and pregnancy outcomes A retrospective analysis

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Study Question: Does delayed blastocyst formation affect embryo-endometrial synchrony and impact pregnancy outcomes in frozen embryo transfers (FETs)?

Aims and Objectives: To identify the impact of delayed blastulation on implantation of embryos and pregnancy outcomes for FET cycles.

Materials and Methods: Retrospective data was analyzed for FETs of Day 5, Day 6 and a combination of Day 5/6 blastocysts. Six hundred and fifty-nine embryos were transferred for 332 patients and their subsequent pregnancy outcomes were compared. Their ongoing pregnancy was followed up till 12 weeks of gestation. Rates of implantation (IR), pregnancy (PR), biochemical pregnancy (BPR), miscarriage (MR) and, ongoing pregnancy (OPR) were calculated by using Fisher's two-tailed exact test.

Results and Conclusions: Day 5 FETs had a significantly lower (0.003) BPR than Day 6 FETs. Day 5 FETs also had a statistically significant increase (0.0228) in I.R. than Day 5/6 FETs. There was no significant difference in the IR, PR, BPR, MR and OPR of Day 6 and Day 5/6 FETs. Day 6 and Day 5 FETs also had no significant difference in IR., PR, MR and OPR.

Collectively, these results highlighted that the Day 5 and Day 6 embryos in FETs had an equivalent PR and similar synchrony with the endometrium. However, a combination of a Day 5 blastocyst with a delayed blastocyst on Day 6 of an FET cycle could cause a mismatch of the embryos with the endometrium and affect their mutual implantation potential in contrast to transfer of only Day 5 embryos. This study also discouraged prolonged culture of embryos till Day 7 unlike some literature reviews.

Limitations of this study were the small sample size for the Day 5/Day 6 fets. this data only considered fets and hence; no correlation of delayed blastulation could be established with fresh embryo transfers.

Keywords: Delayed blastulation, frozen embryo transfers

32. Demographic and sperm parameters affecting DFI An observational study

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Study Question: Do standard semen parameters, BMI and Age impact sperm DNA fragmentation index (DFI)? Can we establish a set guideline for a group of patients for whom sperm DFI should be analyzed?

Aims and Objectives: To identify an independent correlation of semen parameters, BMI and age with sperm DNA fragmentation index (DFI).

Materials and Methods: Twenty-five patients advised IVF treatment were asked to provide ejaculated fresh sample with an abstinence period of one day. Their sample was liquefied, analyzed and processed by sperm chromatin dispersion (SCD) to determine their percentage of fragmented sperms and calculate a DFI value. CANfrag kit was used to perform the test. The DFI values were categorized into ≤25% (normal) and >25% (not normal). The sperm count and motility were categorized as per WHO (2010) criteria. Male age and BMI were categorized into <35 years and ≥35 years and ≤30 and >30, respectively. The statistical correlations of semen parameters, BMI and, age with DFI were calculated by using Fisher's two-tailed exact test.

Results and Conclusion: The standard sperm parameters of count and motility had insignificant correlation with DFI. BMI also did not have any positive correlation with DFI unlike literature reviews. However, age had a significant correlation (0.0456) with DFI. This established a single guideline for advising DFI test for patient ≥ 35 years. Collectively, this study indicated that count and motility did not have inter-dependence with DFI and were not affected by it. Hence, we need to analyze both these qualitative and quantitative parameters individually before deciding upon the treatment plan for patients.

Limitations of this study were the small sample size and subjectivity in assessment of DFI. as this is an interim data of an ongoing study; the conclusions are variable.

Keywords: Age, male infertility, sperm chromatin dispersion, sperm DNA fragmentation

33. Best site for embryo transfer? Study of relation of embryo fundal distance with pregnancy rate in ICSI-ET cycle

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Study Question: Numerous studies have been done on the embryo-fundal distance and the success of IVF cycle, but the optimum distance at which the embryos should be placed for success in IVF is still a major question.

Aim: To find the optimum range of embryo-fundal distance in which the pregnancy rates are higher.

Materials and Methods: This study includes retrospective analysis of 400 cases over the period of May 2016 to September 2017. This study involved patients undergoing their first IVF–ICSI cycle with fresh embryo transfers at our IVF Unit. All patients were stimulated using 2 antagonist protocol, starting gonadotrophins from Day 2/3 of menses. Gamate donation, embryo donation and frozen embryos were excluded from the study.

Results: The clinical pregnancy rate was highest (55%) in group 2 when the embryo-fundal distance was more than 10 mm but less than or equal to 15 mm. In group 3 where embryos were placed beyond 15 mm distance from the funds the clinical pregnancy rate was 33%. The lowest pregnancy rate was in group 1 (28%) embryo-fundal distance <1 mm.

Conclusion: Our study demonstrates that higher pregnancy rates are obtained if the embryos are selectively placed at a distance between 10 and 15 mm from fundo-endometrial surface.

34. Extended culture of poor quality day 3 embryos: An effective strategy for improving clinical outcomes

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Study Question: What is the clinical efficacy of culturing poor quality cleavage stage embryos in terms of blastocyst formation rates and clinical pregnancy rates?

Aim: To examine the clinical efficacy of blastocysts derived from good and poor quality day 3 embryos.

Materials and Methods: Study is a prospective observational cohort study performed on 1928 embryos in 301 patients undergoing IVF cycle. On the basis of morphology day-3 embryos were segregated into Group A (802) with good and average quality embryos and Group B (1126) with poor quality embryos. Embryos in both groups were cultured till day 5 and 6, and clinical outcomes compared.

Result: The blastulation rate and blastocyst utilization rate per embryo was found to be significantly higher in group A as compared to group B (69.1 vs. 40.4%, $P < 0.001$; 46.3 vs. 40.2%, $P < 0.05$, respectively). However, the blastocyst utilization rate per cycle was found to be similar between group A and B (51.1 vs. 46.7%, $P = 0.49$). No difference was found in the clinical pregnancy rate and implantation rate between both the groups (55.1 vs. 53%, $P = 0.82$; 39.4 vs. 50.9%, $P = 0.20$). In cycles, with no good quality embryos on day 3, extended culture (110 embryo) resulted in a blastulation rate of 25.5% and blastocyst utilization rate per cycle of 28% which resulted in 2 clinical pregnancies in 3 cycles. In cycles where all good quality embryos were utilized on day 3, leaving only poor quality embryos (239 embryo) for extended culture, the blastulation rate, utilization rate per cycle, clinical pregnancy rate was found to be 33.5, 33.8 and 52.9%, respectively.

Conclusion: This present study shows that extended culture of poor morphology cleavage stage embryos seems to be equivalent in terms of their ability to form blastocysts with high implantation potential, compared to good quality day 3 embryos.

35. Is letrozole an answer in PCOS women who fail to respond to clomiphene citrate and gonadotropins: A pilot study

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Aim: To study the response of letrozole in women with PCOS related infertility who did not respond to 150 mg clomiphene citrate and gonadotropins.

Materials and Methods: A prospective observational study was conducted in PGIMER on PCOS women not responding to clomiphene and gonadotropins of age group 20–35 years in the year 2016–2017. The study population was given a trial of clomiphene citrate maximum dose 150 mg. In clomiphene citrate resistant patients, gonadotropins were given. If there was no ovulation, they were stimulated with 7.5 mg letrozole (2.5 mg TDS) and response was recorded as ovulation.

Results: Of the total 21 patients enrolled in the study, 9 (42.86%) were clomiphene citrate resistant and 12 (57.14%) did not ovulate with both clomiphene and gonadotropins. These women were already given metformin and myoinositol and all had failed to show ovulation. Ovulation with letrozole was seen in 19 (90.48%) of the women. However, 2 (9.52%) women did not ovulate with letrozole (7.5 mg) also. Conception with letrozole was seen in only 5 (26.31%) of the women who actually ovulated.

Conclusion: Letrozole appears to be a suitable option in clomiphene and gonadotropin resistant PCOS women.

Keywords: Clomiphene citrate, gonadotropins, letrozole, ovarian drilling, PCOS

36. Role of hysteroscopy before IVF/ICSI cycle

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Study Question: In which patient hysteroscopy before IVF/ICSI cycle should be done?

Aim: To analyze the data of patients who underwent hysteroscopy before IVF/ICSI cycle and compare it with the patients who did not have hysteroscopy before IVF/ICSI.

Materials and Methods: This is a retrospective case control study of patients in whom hysteroscopy was performed before IVF/ICSI during November 2016 to October 2017. The patients included had grade 1 cleavage stage embryo transfer and stimulated with flexible antagonist protocol. Fifty patients were selected as controls that did not undergo hysteroscopy before IVF/ICSI. Both groups were comparable in age, etiology, number of oocytes retrieved, number of embryo transferred. The outcomes compared between the groups were positive beta hCG, biochemical pregnancy, clinical pregnancy and miscarriage rate.

Results: Sixty-eight patients underwent hysteroscopy and 61 met the inclusion criteria. The most common indication was polyp on ultrasound. Thirty-four of 61 patients (55.7%) had findings on hysteroscopy. Most common was fundal adhesions. The pregnancy rate, and clinical pregnancy rate was higher in patients who had undergone hysteroscopy (62.2% vs. 54%) and (57.3% vs. 48%) respectively. The abortion rate was lower in the study group (6.5% vs. 8%). The positive beta hCG rate (80% vs. 53.3%) and clinical pregnancy rate (70% vs. 46.6%) was higher in patients who had previous IVF failure and hysteroscopy than patients who had previous IVF failure and no hysteroscopy.

Conclusions: In patients with a day 3 grade 1 embryo transfer done after hysteroscopy, pregnancy rates are higher and miscarriage rates are lower. In patients with a history IVF failure, hysteroscopy may play a significant role in improving the outcomes as pregnancy rates were significantly improved compared to patients without hysteroscopy.

Keywords: Clinical pregnancy, hysteroscopy, recurrent IVF failure, tuberculosis

37. Is TESTI-ICSI a better surrogate to ejaculate-ICSI to maximize reproductive outcome?

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Study Question: Is TESTI-ICSI a better surrogate to ejaculate-ICSI to maximize reproductive outcome?

Aims: To compare the embryo number, embryo quality and reproductive outcomes following ICSI of oocytes using Testicular sperm and ejaculate sperms.

Objectives: To investigate the effectiveness of ICSI (intra cytoplasmic sperm injection) using testicular

sperm in improving reproductive outcome in men with high sperm DNA fragmentation (SDF), poor sperm morphology, previous ICSI failures, severe oligoasthenoteratozoospermia (SOAT) and recurrent implantation failures (RIF).

Materials and Methods: A retrospective, observational, cohort study was conducted between February 2017 to August 2017 at Craft Hospital and Research Centre, Kodungallur, Thrissur, Kerala. Total of 129 couples undergoing ICSI and frozen embryo transfer whose male partner had any of the following parameters like high sperm DNA (SDF), poor sperm morphology, previous ICSI failures, SOAT and RIF. Couples were divided into two groups: TESTI-ICSI group ($n = 67$) and ejaculate-ICSI group ($n = 62$). Fertility rates, embryo numbers, embryo quality, beta HCG positivity and clinical pregnancies were compared in two groups.

Result(s): For TESTI-ICSI group versus ejaculate ICSI group respectively, fertilization rate was 43.27 and 29.11%, beta HCG positivity was 50.74 and 12.90%, the clinical pregnancy rate was 23.88 and 6.45%.

Conclusion(s): ICSI outcomes were significantly better in the group of men who had testicular sperm used for ICSI compared with those with ejaculated sperms. Our results suggest that TESTI-ICSI is an effective option to maximize reproductive outcomes in men with high SDF, poor sperm morphology, previous ICSI failures, SOAT and RIF.

Keywords: Ejaculate sperms, intracytoplasmic sperm injection, sperm DNA fragmentation, testicular sperms

38. Comparison of efficacy of open and closed system for embryo vitrification in cryo-embryo transfer cycles: A study at tertiary care center in North India

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Study Question: Is there any difference in efficacy between closed and open system for embryo vitrification?

Aims and Objective: To assess, the efficiency of closed system in comparison to open system for embryo vitrification on survival rate and clinical pregnancy outcome in cryoembryo transfer cycles.

Materials and Methods: Retrospective observational study conducted between August 2015 to October 2017 which includes evaluation of 204 vitrified-warmed embryo transfer cycles, based on two different embryo vitrification methods/techniques. A total of 354 embryos of 101 women were vitrified by using closed system (Rapid I TM, Vitrolofe, Sweden) whereas 361 embryos of 103 women vitrified on open system (McGillTMCryoleaf, Origio, Denmark) on day 3 at 6–8 celled stages. Women were worked-up and endometrial preparation was synchronized, accordingly embryos were warmed and cultured up to next 2 days for development and subsequent transfer of blastocyst(s). Both the groups were also compared in relation to demographic profile, cycle characteristics like hormonal profile, endometrial thickness, embryo survival, embryo grading, number of embryos transferred and pregnancy outcome. Statistical significant differences were calculated with student's *T*-test, Fisher exact test and chi-square test as appropriate.

Results: Upon warming, no statistically significant differences in embryo survival rate and clinical pregnancy rate between closed and open system embryo vitrification group of women (94.4% vs. 97.6%; $P = 0.231$ and 45/101, 44.55% vs. 44/103, 42.71%; $P = 0.564$ respectively) were observed.

Conclusions: With good expertise and understandings of different approach and methods for embryo vitrification; almost equal clinical pregnancy rate can be achieved. The closed system vitrification method, not only provided, evidence of almost equal rate of successful pregnancy outcome in cryoembryo transfer cycles but also substantiated as safe, easy and secure approach of embryo cryopreservation in comparison to open method.

Keywords: Closed system, cryoembryo transfer, cryopreservation, open system, pregnancy

39. Atosiban in repeated implantation failure: A retrospective study

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Study Question: Can administration of Atosiban (Oxytocin Antagonist) around IVF/ICSI embryo transfer improve the pregnancy outcome in patients with repeated implantation failure.

Aims and Objectives: The study aimed to investigate impact of Atosiban around IVF/ICSI-Embryo transfer on pregnancy outcomes in patients with history of repeated implantation failure.

Materials and Methods: In this retrospective observational study a total of 143 patients with repeated implantation failure undergoing IVF/ICSI embryo transfer were included. Patients were divided into two groups; Group A which received Atosiban ($n=62$) and Group B which did not receive Atosiban ($n=81$). Atosiban was given 30 min before the embryo transfer with a bolus dose of 6.75 mg followed by continuous infusion at the rate of 18 mg/h for 1 h. The dose of Atosiban was then reduced to 6 mg/h after embryo transfer and the infusion was continued for another 2 h (total dose of 37.5 mg). Outcome variable included positive pregnancy test, clinical pregnancy rate, and ongoing pregnancy/live birth rate.

Results: There was no significant difference between the two groups in terms of demographic characteristics. The group receiving Atosiban had significantly better positive pregnancy test (52.3% vs. 35.8%, $P=0.016$), clinical pregnancy rate (48.38% vs. 30.8%, $P=0.038$) and ongoing pregnancy/live birth rate (40.1% vs. 23.4%, $P=0.043$). Rate of miscarriage, ectopic and multiple pregnancies was similar in both the groups.

Conclusion: Use of atosiban can improve pregnancy outcome if administered around embryo transfer in IVF/ICSI patients with repeated implantation failure.

Keywords: Atosiban, clinical pregnancy, implantation failure, IVF

40. Pregnancy in patient with Swyer syndrome

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Swyer syndrome is a rare disorder characterized by the failure of sex glands to develop. It is disorder of sex development (DSD), which encompasses any disorder in which chromosomal, gonadal or anatomic sex development is abnormal. Girls with Swyer syndrome have an XY chromosomal makeup instead of an XX chromosomal makeup. Instead of sex glands, women with Swyer syndrome have "gonadal streaks", in which the ovaries do not develop properly and are replaced by functionless scar (fibrous) tissue.

Case Summary: Patient is 24 years old female with inability to conceive since 3 years.

Patient took 4 cycles of IVF-D egg in November 2015, January 2016, August 2016 and March 2017. Took AKT for 6 months in 2016.

Examination: General appearance – normal, P/S – cervix normal, P/V – uterus A/V, normal size. Secondary sexual characters – normal investigations – FSH – 55.48 mIU/ml, LH – 26.75 mIU/ml, E2–<9 pg/ml.

MRI Pelvis (2015): Ut. small without cervix, ratio length of uterine body and cervix is approximately 1:1. ET lining appears thin measuring approximately 3 mm. B/L streak ovaries. No definite follicles seen on either side.

Chromosomal Analysis (20.06.2009): Karyotype-46, XY (male genotype).

Diagnosis: Primary infertility with Swyer syndrome with previous failed IVF-OD cycle. IVF-OD cycle done. Patient conceived.

41. Do all roads lead to Roam? Comparison of the influence of different delivery routes of estrogen therapy in frozen thawed embryo transfer (FET) cycle

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Study Question: Does different delivery routes of estrogen therapy have a role in clinical outcome of FET cycles?

Aims and Objectives: To compare the clinical outcome of oral, vaginal and transdermal estrogen

therapy in FET cycle and assess the safety and suitability of these three different routes of administration in FET.

Materials and Methods: Review of literature 2007–2017. A data base search was performed in pubmed using keyword "Estrogen", "Oral", "vaginal", "Transdermal", "FET", and "Endometrial Preparation". The search included articles from 2000 to 2017 and was performed using MEDLINE. It yielded 43 full text articles, which were evaluated. Outcome of interest were clinical pregnancy rate, implantation rate, biochemical pregnancy rate.

Result: Out of 43 publications, 30 articles were included in the final review. For all comparisons, no difference in the clinical pregnancy rate, implantation rate, chemical pregnancy rate and ongoing pregnancy rate could be found. Based on the information provided in the articles no conclusions could be drawn with regard to cycle cancellation rate.

Conclusion: Based on the current literature it is not possible to identify one route of estrogen therapy for endometrial preparation in FET as being more effective than others. Therefore, all the route of estrogen therapy appears to be equally successful in terms of clinical pregnancy rate. However, since transdermal route is as effective as oral route in endometrial preparation and it has more systemic favorable effects, it should be an option offered to all women with (1) high risk of VTE, (2) spontaneous/estrogen induced hypertriglyceridemia, (3) obese women with metabolic syndrome. Transdermal estrogen therapy should be seriously considered in (1) smokers, (2) women with hypertension, (3) possibly in women with impaired sexuality prospective RCTS addressing these issues are needed.

Keywords: Endometrial preparation, estradiol, frozen embryo transfer (FET), pregnancy rates, transdermal patches

42. Successful pregnancy after PGD-FISH for carriers of balanced translocation

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Aim: To report live birth after successful PGD-FISH for carriers of balanced translocation (robertsonian/reciprocal).

Materials and Methods: Three carriers of BT Patient A-46XX, t(15;16)(q22;13.1), B-46XX, t(13;14)(q10;q10), C-46XY, t(5;15)(q13.3;11.2). Under went multiple COS, embryo pooling followed by ICSI, PGD-FISH for D3 embryos followed embryo transfer of normal embryo at Craft Hospital Kodungallur, Kerala.

Results: Blastomeres biopsied from patient A – 22, patient B – 12, patient C – 12 embryos. Among them 2–Pt A, 2–Pt B, 1–Pt C were diagnosed transferable. Patients A and B have delivered by cesarean at 38 weeks. Patient C has an on going pregnancy.

Conclusion: Though many new technologies with better sensitivity and specificity have evolved till date FISH based PGD for translocation still remains gold standard especially in secondary infertility and translocations causing implantation failures.

43. A study on the impact of elevated estradiol levels (E2) levels in frozen embryo transfer cycles on pregnancy rates

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Aim: A study on the impact of elevated estradiol levels (E2) levels in frozen embryo transfer cycles on pregnancy rates.

Aims and Objectives: To study the relationship between elevated estradiol levels (E2) before progesterone supplementation in frozen embryo transfer (FET) cycles on pregnancy rates.

Materials and Methods: A retrospective analysis of 242 FET cycles conducted at Southend Fertility and IVF center between September 2014 and April 2017 was done. In all the patients, a baseline day 2 pelvic scan was done and endometrial preparation was done as per six different protocols.

Table 1: Protocols and methods of endometrial preparation

Protocol	Method	No. of cycles
1	Oral hormone replacement	11
2	Injectable hormone replacement	119
3	Down regulated cycles with oral hormone replacement	85
4	Down regulated cycles with injectable hormone replacement	13
5	Natural cycle	10
6	Ovulation induction	4

After an endometrial thickness of more than 7 mm was observed, estradiol levels were measured prior to progesterone supplementation and the impact of elevated estradiol levels on pregnancy outcomes was evaluated in six different protocols [Table 1]. Statistical analysis was done by using Mann–Whitney test and paired *t* test. Pregnancy outcome was evaluated by measuring serum beta HCG levels 16 days after embryo transfer.

Results: A total of 242 FET cycles were evaluated. In this study, mean age of the patient was 34.6 ± 0.17 (mean ± std. error of mean) and BMI was 25.6 ± 0.15 (mean ± std. error of mean). Mean day 2 FSH levels were 4.99 ± 0.12 (mean ± std. error of mean). Estradiol levels were measured before progesterone supplementation in six different protocols used for endometrial preparation (oral and injectable), and the impact of elevated estradiol levels was evaluated in both the groups, pregnant and nonpregnant. On statistical analysis, it was found that elevated estradiol levels (E2) had no significant effect on pregnancy rates in different study protocols.

Conclusion: Elevated estradiol levels (E2) had no statistically significant impact on pregnancy rates in six different study protocols (oral and injectable) used for endometrial preparation.

Keywords: Estradiol, FET

44. An intrauterine insemination (IUI) audit of occupational workers undergoing infertility treatment at tertiary care hospital: A five-year's retrospective analysis of 800 IUI cycles

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Study Question: There are many variables that may influence success rates of IUI treatment. Therefore a regular audit program is needed and statistics needs to be presented on a regular basis to the entire infertility unit for planning effective treatment.

Aims and Objectives: The main objective of the study was to identify the crucial predicting factors affecting the IUI success.

Materials and Methods (Including Study Design): A retrospective analysis was done in 800 IUI cycles from January, 2013 to August, 2017 in 648 couples with various etiologies of infertility including female factor, tuboperitoneal, anovulation, male factor, combined and unexplained. Ovarian stimulation was done via clomiphene citrate cycle, clomiphene citrate with gonadotropins or through pure gonadotropins cycle. IUI was then performed after 36 h of human chorionic gonadotropins (hCG) trigger if at least one follicle measuring >18 mm and an endometrial thickness of >7 mm were obtained. The double density gradient method was the preferred method of sperm preparation technique.

Results: The overall clinical pregnancy rate (CPR) achieved in IUI cycles was 14.1%. The CPR was higher in women in younger age groups ≤25 years (18.9%), duration of infertility ≤5 years (15.1%) and with primary infertility (14.5%). Increased conception rate was observed with BMI <25 (14.1%). CPR was 21.2% in women with anovulatory cycle. IUI success rate was high in first cycle (14.6%) followed by second cycle (14.0%).

Conclusion: IUI audit enable the characterization of prognostic factors to achieve improved pregnancy rate.

Keywords: Audit, controlled ovarian stimulation (COS), intrauterine insemination (IUI), pregnancy rate

45. Effect of combination of a good grade embryo with a poor grade embryo on clinical pregnancy rates: A retrospective observational study

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Background: To improve pregnancy rates, there is always the desire to transfer more embryos. The aim of this study was to see whether by transferring two different grade embryos, there is a negative impact of poorer grade embryo on implantation of good grade embryo.

Type of Study: Retrospective observational study.

Materials and Methods: This study is ongoing and is been performed on FET cycles at Oasis Centre for Reproductive Medicine, Hyderabad. Data was collected in patients undergoing FET cycles from January 2016 till June 2017 where the endometrium was hormonally prepared. Either one or two blastocyst were transferred. Patients with previous failed transfers, recurrent miscarriage, submucous myoma, adenomyosis or myomectomy were excluded from the study. Total of 100 patients were included in the study. All the FET cycles were divided into 8 groups depending on number and grade of embryos being transferred. Group A – grade (1 + 1), group B – grade (1 + 2), group C – grade (2 + 2), group D – grade (2 + 3), group E – grade (3 + 3), group F – grade 1, group G – grade 2, group H – grade 3 embryo transfer.

Results: The clinical pregnancy rate was 68% in group A, 70.6% in group B, 63.7% in group C, 38.1% in group D, 49.1% in group E, 58% in group F, 58.6% in group G and 1% in group H.

Conclusion: Combination of grade 1 and grade 2 embryos have best pregnancy rates followed by either a single transfer of a grade 1 or grade 2 embryo. Combination of two poor grade embryos still has a reasonable pregnancy rate. Therefore a poor grade embryo should not be discarded because it can still result in reasonable chances of a pregnancy. By adding a poor grade embryo, the chances of implantation of good grade embryo also reduces. However there is a need for larger well designed randomized trials to generate robust data in order to evaluate the effects of combining a poor grade embryo to a good grade embryo.

46. In unexplained infertility, is laparo-hysteroscopy mandatory before COS + IUI?

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Objective: To assess the diagnostic benefit of laparo-hysteroscopy in infertile women with unexplained infertility.

Study Design: Charts of 355 infertile women that underwent complete infertility evaluation between 2014 and 2017 were retrospectively. Twenty-seven patients with normal semen analysis, documented ovulation and patent tubes and who underwent laparo-hysteroscopy were included in the study.

Results: Among 27 patients, 16 had bilateral patent tubes on HSG and 11 had a suspected unilateral tubal pathology. All were assigned controlled ovulation induction and intrauterine insemination (IUI). Thirteen (48.14%) patients were found to have absolutely normal laparoscopic and hysteroscopy findings that did not necessitate any change in the original treatment plan. In fourteen patients (51.86%), abnormalities were discovered at laparoscopy and in seven (25.92%) patients, hysteroscopy revealed abnormalities. Five (18.52%) of these patients conceived. Four of these following COS + IUI and one was a spontaneous conception. Two (7.4%) cases had absolutely normal findings on laparo-hysteroscopy. In one case, few powdery burnt areas and scarring was detected however adhesions were flimsy. In the fourth case, adhesions were found inside the cavity on hysteroscopy and adhesiolysis was done and corneal cannulation was done in the fifth case.

Conclusions: Laparoscopy may be omitted in women with normal ovarian reserve, HSA, HSG or suspected just a unilateral distal tubal pathology on HSG, since it has not shown to change the original treatment plan in these patients and has 18.52% chance of conception with COS + IUI which is much cost effective. However, laparoscopy should be recommended in cases with suspected bilateral tubal occlusion on HSG and should not be delayed in older age groups as well, since it may alter the original treatment plan to a straightforward IVF.

47. Effect of length of stimulation on oocyte quality and ICSI outcome A prospective study

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Background: In IVF/ICSI cycles, follicular diameter and estradiol levels are conventional primary markers to determine maturity of the follicle and oocyte prior

to OPU. It is not practical to monitor the serial growth of individual follicles during assisted reproduction. The ovarian stimulation phase length (SPL) is an indirect measure of mean follicular growth rate. However the effect of length of stimulation on development of oocyte, embryo and resulting pregnancy during stimulation are unknown. Present study was undertaken to see the effect of short or long stimulation on oocyte quality and ICSI outcome.

Objective: To study the effect of length of stimulation on oocyte quality and ICSI outcome and to find out if it can be used to predict the outcome in ICSI patients.

Materials and Methods: One hundred women planned for ICSI were included. Individualized COS was started as per diagnosis and to get desired response of at least 3 follicles of 18 mm. OPU done after 36 h of trigger. Sixteen ET was done day 3–day 5 depending on number and quality of embryos. Data was analyzed with respect to no. of days of stimulation, no. of oocytes, no. of M2 oocytes, fertilization, cleavage and embryo grading. Association between SPL, age, follicle, oocyte, embryo and pregnancy outcomes were evaluated (SPSS version 17.0).

Results: Maximum no. of patients required an average of 10 day stimulation irrespective of etiology, patients with DOR, endometriosis and PCOS required prolong stimulation to achieve desired response. No significant difference was noticed on no. of mature oocytes, fertilization rates and cleavage rate. However few pregnancies were seen in patients who required a prolong stimulation across the groups.

Conclusion: Ovarian stimulation phase length cannot be used to predict follicular maturity, oocyte maturity, fertilization, cleavage, embryo development however fewer pregnancies are achieved if prolong stimulation is required.

48. Assessment of endometrial receptivity using doppler ultrasonography on the day of trigger in controlled ovarian stimulation

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Objectives: (1) To evaluate endometrial and subendometrial blood flow parameters in controlled ovarian stimulation cycles. (2) To assess the relationship between endometrial, subendometrial, perifollicular blood flows and pregnancy outcome. (3) To evaluate follicular vascularity in controlled ovarian stimulation cycles.

This is a prospective study of 74 women (38 years or younger) undergoing IUI/natural contact. Endometrial thickness, echo pattern and blood flow, perifollicular flow on transvaginal ultrasonography were recorded prior to hCG administration. The patients were divided into three groups: A ($n = 24$) with undetectable endometrial blood flow; B ($n = 12$) with sub-endometrial blood flow; C ($n = 38$) with both endometrial and sub-endometrial blood flow. According to pregnancy outcomes, all patients were re-divided into three groups: 1 non-pregnancy ($n = 64$); 2 intrauterine pregnancy with live fetus ($n = 8$); 3 others ($n = 2$ including biochemical pregnancy, ectopic pregnancy and miscarriage). Intrauterine pregnancy with live fetus in Group C (60%) was much higher than that in Group A and B (0 and 20%). The patients with detectable endometrial blood flow had higher clinical pregnancy rates and implantation rates. Evaluation of serum progesterone levels and endometrial parameters by three-dimensional ultrasound and power Doppler angiography on the day of trigger for the prediction of pregnancy during fresh *in vitro* fertilization cycles.

49. Self-prostatic massage as an alternative to surgical sperm recovery in spinal cord injury men with an ejaculation

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Objective: We present the first case report where with the help of self-prostatic massage sufficient sperm were recovered from the ejaculate of a man with spinal cord injury, to undertake ICSI with successful outcome, avoiding surgical sperm recovery.

Materials and Methods: The spinal cord injury patient was seen in the Bristol Centre for Reproductive Medicine, Southmead Hospital for surgical sperm recovery for an ejaculation. Following discussion with the patient, it was realized that daily self-bowel evacuation was

needed to be undertaken by the gentleman and a small amount of ejaculate was noted from the penis on each occasion. On laboratory assessment, sperm were noted in small quantities which were not suitable for freezing. Although a formal urological prostatic massage was undertaken, this was unsuccessful in recovering sperm, but the man himself was successful in obtaining sufficient ejaculate by self-prostatic massage. Laboratory provided an open appointment to bring in samples until suitable sperm for freeze were obtained.

Result: Thirteen semen samples were analyzed over a period of 6 weeks. Volumes ranged from 0.1 to 1.5 ml. Most samples showed many immotile sperm, but occasional motile sperm. A total of 4 ampules were frozen. They conceived in the second ICSI cycle and have delivered a baby.

Conclusion: It may only be suitable for men who can undertake self-bowel evacuation thereby indirectly undertaking self-prostatic massage. Prostatic massage appears to be an easy, noninvasive and risk-free method to obtain spermatozoa from selected spinal cord injury patients avoiding surgical sperm recovery.

50. Comparative study of efficacy and adverse effects of different doses of vaginal misoprostol for cervical ripening 10–12 h before diagnostic hysterolaparoscopy

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Objective: To compare the efficacy and complications of different doses of vaginal misoprostol for cervical ripening 10–12 h before diagnostic hysteroscopy.

Study Design: Prospective and interventional, double-blinded randomized comparative study.

Materials and Methods: Sixty women, fulfilling the inclusion criteria, requiring diagnostic hysteroscopy for evaluation of infertility were enrolled. The study subjects randomly received either 200 µg (group 1) or 400 µg (group 2) of vaginal misoprostol 10–12 h before hysteroscopy with equal number of subjects in both the groups. Hysteroscopy was performed with a standard rigid 6 mm and 30 degree hysteroscope. The largest dilator that could be inserted without resistance was recorded as the baseline cervical dilatation. The ease of dilatation was recorded on a 5 point Likert scale. Procedural time was measured as time taken from the beginning of cervical dilatation to the visualization of the uterine cavity.

Results: The mean base line cervical width in group 1 was 6.41 ± 0.29 mm while in group 2 it was 6.43 ± 0.21 mm ($P = 0.084$). In group 1, 26.6% patients had very easy entry, 53.4% had easy entry while in group 2, 30% patients had very easy entry, 43.4% had easy entry. The mean procedural time 35.5 ± 6.9 s in group 1 and 33.2 ± 6.8 s in group 2 ($P = 0.212$). Adverse effects like abdominal pain, vaginal bleeding, shivering and fever were observed more often in group 2 compared to group 1 ($P = 0.038$).

Conclusion: Two hundred microgram of vaginal misoprostol is safer and equally effective as 400 µg for cervical ripening when used 10–12 h before diagnostic hysteroscopy.

Keywords: Cervical width, hysteroscopy, misoprostol

51. Genxpert: Is it the new gold standard for detection of genital tuberculosis

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Background: Female genital tuberculosis (FGTB) is a leading cause of Infertility. Its diagnosis still remains an enigma. Disease remains mostly untreated until the female fertility is compromised. Genxpert has been described as a rapid, highly sensitive and specific test for detecting DNA of MTB. Hence Genxpert can diagnose FGTB at an earlier stage. It also detects resistance to Rifampicin, so MDR-TB cases can be detected and treated accordingly.

Aims and Objective: This study compares the result between histopathology, BACTEC culture and Genxpert in endometrial tissue to diagnose FGTB.

Study: Observational study.

Materials and Methods: A observational study was conducted from December 2015 to August 2017 in the Department of Obstetrics and Gynaecology, GSVM Medical College Kanpur. Data was collected and reviewed, results were tabulated and analyzed by Med Cal software 2016.

Results: A total of 130 endometrial tissue samples were collected from women and tested for genital tuberculosis (FGTB) by culture, histopathology and Genxpert. Sensivity and specificity of Genxpert was 100 and 99.04% respectively taking culture as gold standard. Disease prevalence 20%, negative predictive value 100%.

Conclusions: Even though genxpert is a very valuable tool in diagnosing genital TB. The routine application of endometrial TB genxpert assays in addition to clinical and laparoscopic evaluation carries greater potential in improving diagnosis of genital TB.

Keywords: Culture, endometrial biopsy, genital tuberculosis, genxpert

52. To compare clinical outcome of sibling oocytes in PCOS patient using time lapse versus standard incubator

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Objective: To quantify the effect on reproductive outcome of culturing and selecting embryos using a time-lapse vs. standard incubator in PCOS.

Materials and Methods: One hundred ICSI cycles were performed at the clinic for PCOS in a period 6 months. Sibling embryos were equally divided for culturing in standard incubation in box incubator and time lapse incubator. Informed consent was taken for the same. Selection of embryo was done on the basis of morphology (Istanbul consensus) for standard incubation and morph kinetic parameters. Embryos were frozen and transferred in the frozen thaw natural or stimulated cycle.

Results: Time lapse machine seems to be superior to the standard incubator in PCOS. However more studies will be needed.

53. Medical management of tubal ectopic pregnancy A novel approach to add mifepristone when mithotrexate fails or alone

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In the era of IVF and IUI, we are facing sudden increase in number of ectopic. Medical management plays important role for preserving fertility of patient and also helps to decrease operative morbidity. Mifepristone is a partial antgonist at progesterone receptors. It is given orally and has plasma half-life of 21 h. It is having very minimal side effect and can be used in lactating mothers. Methotrexate is folate antagonist, most widely used antimetabolite in cancer chemotherapy. Main action of folate antagonist is to interfere with thymidylate synthesis. It can be given orally intramuscularly. Intravenously, it is actively taken by folate transport system and retained in cells for weeks or even for months in some cases. Unwanted side effects are bone marrow depression, hepatotoxicity. Methotrexate is known teratogenic.

We used mifepristone 600 mg orally in 10 cases. Inclusion criteria, that is, patients were hemodynamically stable, to mass size less then 4 cm, b hCG value between 1500 and 4000 iu. Exclusion criteria was hemodynamically unstable patient, higher b hCG. Among them 2 cases was having failure with methotrexate given at other center with consistently high b hCG. We succeed with fall in b hCG and resolving of to mass in 9 cases. In one case patient showed downfall in starting but later on had static hCG at level around 345 iu starting from 2200 iu and developed tenderness. She was taken for laproscopy. Since this is a small pilot study statistical analysis could not be done.

Conclusion: With mifepristone, pregnancy can be planned even before 3 month, which is very important for art. It can be used in nonresponder with methotrexate and lactation. In our study patients were benefited with avoidance of surgical morbidity without any side effect. But this study is small it needs further verification by trial with larger sample.

54. The golden egg

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Study Question: To study the requirement criteria for oocyte donors by intending parents and psychosocial impact on intending couples who undergo IVF cycles with oocyte donors in urban Indian population at International Fertility Center (IFC), New Delhi.

Aims and Objective: To study and compare the requirement criteria for oocyte donors by intending parents before starting the IVF cycle and studying the psychology of the parents up till 3 months after the birth of the baby.

Materials and Methods: Retrospective analysis of 50 cases. Setting: Center-based IVF program (at International Fertility Centre, New Delhi). Patients: Recipient couples and oocyte donors. Inclusions: female patients 35–45 years AMH <0.8. Exclusions: male factor infertility any medical illness in female patients.

Results: Majority of the intending couples were concerned about the educational status, medical history and physical characteristics of the oocyte donors. Majority of the parents accepted the baby wholeheartedly with love and affection after birth.

Conclusion: In urban Indian population, majority of parents embraced parenthood with grace as their as their self-borne child.

55. Should gonadotrophins be used as first line ovulation inducing agent in IUI for unexplained subfertility?

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Aims and Objectives: Heterogenous trials indicate the superiority of gonadotrophins over clomiphene citrate (CC) as ovulation inducing agent in IUI for unexplained subfertility. The aim of this prospective study was to compare the efficacy of gonadotrophins versus CC when used for ovulation induction for IUI in unexplained subfertility based on the pregnancy rate per cycle.

Material and Methods: This was a prospective observational study conducted over a period of June 2016 till October 2017 included 34 cycles of IUI. There were two study groups comprising of women less than 40 years of age who visited Clinic Nirvana for treatment of unknown subfertility and who agreed to undergo IUI. All the ladies were given the options of CC and gonadotrophins. Success rate as per the available worldwide data so far and the pros and cons including cost of both were discussed. The lady was stimulated by the drugs of her choice. In 21 cycles gonadotrophins were used while in 13 cycles the drug was CC. The primary aim of the study was to compare the pregnancy rate per cycle which was accepted as an ultrasound at around 6 weeks suggestive of a pregnancy intrauterine or extrauterine. Six cycles in the gonadotrophin group had intrauterine pregnancy. In CC stimulated cycles, one intrauterine and one ectopic pregnancy was reported.

Result and Conclusions: Though the sample size is small, gonadotrophins seems more effective than CC with an efficacy rate of 28.57–15.38% respectively. It seems prudent to use gonadotrophins over CC for controlled ovarian stimulation for IUI in patients of unexplained subfertility who can afford the medicine.

56. Primary amenorrhea: A report of 328 cases over 10 years from a tertiary center in North India

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Background: Primary amenorrhea is defined as the absence of spontaneous menstruation by 15 years of age in the presence of normal growth and development of secondary sexual characteristics, whereas evaluation is warranted even earlier in the absence of sexual development or obstructive symptoms. Gonadal dysgenesis, mullerian agenesis, hypogonadotropic hypogonadism (hypothalamic/pituitary), physiological delay, and anovulation are some of the common etiologies.

Aim: To study the etiologies for patients presenting with primary amenorrhea in a tertiary center in Northern India over period of 6 years.

Materials and Methods: It was a retrospective record based study, performed using the medical records of 328 women with primary amenorrhea (excluding cryptomenorrhea) who attended the Gynecologic Endocrinology Clinic (Department of Obstetrics and Gynecology) and Endocrinology Outpatient Department of Postgraduate Institute of Medical Education and Research, Chandigarh from January 2008 to November 2017.

Results: The three most common causes of primary amenorrhea in the index population were hypogonadotropic hypogonadism (117/328–35.7%), gonadal dysgenesis (99/328, 30.2%) and mullerian agenesis (53/328, 16.2%). Amongst gonadal dysgenesis 48 cases had abnormal karyotype with Turner or its variant in 46 cases and Swyer syndrome in 2 cases. Less common causes were constitutional delayed puberty ($n = 19$) polycystic ovarian syndrome/anovulation ($n = 13$), androgen insensitivity syndrome ($n = 7$), chronic illness ($n = 5$), hyperprolactinemia ($n = 4$) and Asherman's syndrome ($n = 4$).

Conclusion: Hypogonadotropic hypogonadism is the most common cause in our study in contrast to gonadal dysgenesis and mullerian anomalies reported in earlier studies. It is one of the largest studies reported from India. It may be attributable to racial – genetic or environmental factors as well as reporting bias – as our study did not include cases of cryptomenorrhea.

57. Tamoxifen for ovulation induction in infertile PCOS women with CC failure

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Study Question: Is tamoxifen effective for ovulation induction in women with PCOS who failed to conceive with a minimum of 3 cycles of CC?

Aims and Objectives: (1) To assess ovulatory pregnancy rates and side affects of tamoxifen in CC failure PCOS. (2) To determine the effective dosage schedule for the same.

Materials and Methods: Prospective interventional study which included 74 infertile PCOS women who did not conceive after receiving a minimum of 3 cycles clomiphene citrate. Tamoxifen was given orally from day 2 to 6 of the menstrual cycle at 40 mg dose in the first cycle and 80 mg in the subsequent 2 cycles. Follicular monitoring and endometrial thickness was determined by transvaginal ultrasound from day 10 and every alternate day till the day of ovulation or till 20th day of cycle.

Statistical Analysis: Ovulatory and pregnancy rates and side affects were expressed in percentages. Ovulation rates with different doses of tamoxifen were compared using McNemar test. Kruskal–Wallis test was used to find out differences in maximum follicular diameter and endometrial thickness (ET).

Results: The ovulatory rates were 42, 60 and 73% and the mean ET was 8.9 ± 1.79, -9.06 ± 1.58 and 9.24 ± 1.55 mm in first, second and third cycles, respectively. Increasing the dose of tamoxifen in cycles 2 and 3 resulted in a statistically significant increase in the ovulatory rates and not in ET. There were no clinical pregnancies and minor side effects occurred in 14%. Mean increase in the maximum follicular diameters with 80 mg was higher when compared to 40 mg (P value -0.000).

Conclusions: Tamoxifen increased ovulatory rates with increasing doses without resulting in pregnancies. Optimum endometrial thickness is achieved with 40 mg and this did not increase with 80 mg. The optimum dosage is 80 mg. Hence tamoxifen is not effective for CC failure infertile PCOS.

58. Role of Il-6–Il-8 in endometriosis associated infertility Noninvasive diagnostic modality

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Introduction: Inflammatory mediators are involved in endometriosis associated infertility. IL-6–IL-8 play a significant role in the growth and maintenance of ectopic endometrial tissue not only by chemo attracting and stimulating leukocytes to secrete growth factors and cytokines but also by directly affecting endometrial cell proliferation.

Study: Prospective cohort study.

Aims and Objective: To find out the levels of IL-6–IL-8 in serum and peritoneal fluid in patients of infertility in predicting endometriosis severity of disease.

Materials and Methods: A total of 50 cases of infertility were studied. Measurement of cytokines IL-6–IL-8 in serum and peritoneal fluid was done with cytokine specific enzyme linked immunosorbent assay (ELISA). Data was collected and reviewed results were tabulated and analyzed by Med Cal software 2016.

Results: Of all the 50 cases infertility, all underwent laparoscopy and 27 cases were found to have endometriosis. Serum and peritoneal fluid levels of IL-6 −16.62 pg/ml, IL-8 of −22.16 pg/ml, IL-6 of −8.65 pg/ml, and IL-8 of −7.98123 pg/ml respectively provided a sensitivity of 100% and specificity of 100% and can be used as a cutoff value for diagnosis of endometriosis. A serum level of IL-6 of −86.64 pg/ml serum IL-8 level of −67.85108 pg/ml (both sensitivity and specificity of 100%) and can be used as cut off value for severity. A peritoneal fluid level of IL-6 of −16.19 pg/ml (sensitivity 100% specificity of 94.43%) peritoneal fluid IL-8 level of −17.65161 pg/ml (sensitivity–specificity 100%) and can be used as cut off value for severity.

Conclusion: Levels of serum and peritoneal fluid IL-6–IL-8 can be used in diagnosing endometriosis; its severity of infertile patents.

Keywords: Interleukin, peritoneal, peritoneal fluid, serum

59. Evaluation of thyroid profile in relation to menstrual cycle in subfertile women

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Introduction: Thyroid disorder is ten times more common in women than men. It has significant effect on reproduction and pregnancy. There seems to be an association of thyroid dysfunction with menstrual disturbances in subfertile women.

Aim: This study was undertaken to review the impact of thyroid status on menstrual function and fertility of subjects.

Materials and Methods: One hundred and sixty women with primary infertility attending gynae OPD in 6 months period were evaluated. One hundred and sixty fertile women with similar age and socioeconomic status were taken as controls. The association of thyroid dysfunction and serum prolactin with their menstrual status was reviewed.

Results: Menstrual disorders were observed in 43% of infertile women. Serum T3 and T4 level were significantly decreased in subfertile females as compared to fertile females. Increase in serum TSH level in subfertile females was also significant.

Conclusion: In our study, there was high prevalence of thyroid disorder in infertile women which may have lead to their menstrual irregularities resulting in infertility.

Keywords: Menstrual disorder, prolactin, subfertile, thyroid disorder

60. Correlation between number of mature eggs retrieved and pregnancy rate in IVF treatment

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Introduction: The association between the number of oocytes retrieved and *in vitro* fertilization (IVF) outcomes after embryo transfer is still unclear. There have been many studies but results have been conflicting. The objective of this study is to assess the relationships between the number of oocytes retrieved and the prospects of pregnancy after both fresh and frozen embryo transfer.

Materials and Methods: This research is a prospective study on IVF outcomes of 100 patients undergoing IVF treatment at Primus Super Specialty Hospital, Delhi during the time period July 2017 to November 2017. SPSS 7 and stratified analyses were used to explore the relationships between the number of oocytes retrieved type of embryos (fresh /frozen) transferred and the IVF outcomes.

Results: There is a strong association between the number of eggs and pregnancy rate (PR). Maximum PR in patients where 5–15 eggs were retrieved. No case of severe OHSS and 3 cases of moderate OHSS in the group where more than 15 eggs were retrieved.

Conclusion: The relationship between the number of oocytes and pregnancy rate across all female age groups suggests that the number of oocytes is a robust surrogate outcome for success in IVF. The results showed a non-linear relationship between the number of eggs and PR following IVF treatment. The number of eggs to maximize the PR is between 5 and 15. The incidence of OHSS is more when the number of oocytes retrieved was more than 20.

61. Cervical ectopic pregnancy: A case report

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Aims and Objectives: Reporting a case of cervical ectopic pregnancy and fertility sparing management of the same successfully.

Materials and Methods: Cervical pregnancy is a rare entity <1% of all ectopic pregnancies. A 35-year-old primigravida patient infertility treated married life 9 years reported at our hospital on 4 August midnight with complaints of pain abdomen and bleeding per vaginum since 4 h. She was a booked case of a tertiary hospital. Her USG on 4 July 2017 was 8 weeks cervical pregnancy with cardiac activity on 4 August 10 weeks cervical pregnancy with cardiac activity. Patient did not take any treatment up till then. Her vitals were BP 90/60 mmHg and pulse rate 100/min. After counseling and informed consent under local anesthesia cervical curettage was done followed by insertion of no 18 Foley's catheter inflated with 40 ml saline for tamponade. Postoperative period was uneventful. She was given one dose of injection methotrexate 50 mg/m^2. Her beta hCG declined and she resumed her periods after 2 months.

Results and Conclusion: Histopathology report confirmed presence of chorionic villi and decidual tissue with cervical stroma and glands. Use of assisted reproductive technologies are causing increased incidence of it. The success of conservative treatment depends on the timely diagnosis and management and thus avoiding the need of hysterectomy.

62. Comparison between intrauterine insemination versus intrauterine tuboperitoneal insemination in clinical pregnancy rate

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Introduction: Infertility is defined as one year of unprotected intercourse without conception during childbearing age. Intrauterine insemination with husband's semen is a widely used technique for infertile couples which is an intermediate procedure between the simpler ovulation induction and more advanced *in vitro* fertilization. A new method called intrauterine tube peritoneal insemination has been introduced which ensures presence of higher sperm densities in the fallopian tubes at the time of ovulation than standard IUI.

Aims and Objectives: (1) To assess the clinical pregnancy rate of IUTPI and IUI in the treatment of infertility. (2) To compare the clinical pregnancy rate between these two procedures.

Materials and Methods: This study was a randomized controlled study conducted in the Department of Obstetrics and Gynaecology, SMS Medical College. One hundred and eighteen cases were required in each group and constituted infertile couples attending infertility clinical after meeting inclusion and exclusion criteria. Patients were subjected to IUTPI/IUI randomly by tossing the coin and subsequent patients were alternatively allocated in respective groups. Patients were called after 2 weeks for UPT and if positive was considered clinical pregnancy and thereafter at 6 weeks by the last menstrual period to confirm pregnancy by TVS. Statistical analysis was done by SPSS 18.0 software and *P* value was calculated.

Results: The study involved 236 patients, 118 in each group with 15 positives in IUI and 27 positives in IUTPI giving a pregnancy rate of 12.71% (IUI) and 22.8% (IUTPI) respectively (*P* 0.039). The difference was statically significant. Thus IUTPI was found to be a better technique for achieving pregnancy in infertile patients in our study. Majority of the patients (41.95%) were in the age group 26–30 years. Younger age of the patient was associated with better pregnancy outcomes in both groups. Majority of the husbands (35.17%) were in age group of 31–35 years. Younger age of the husband was related to better pregnancy outcome.

Conclusion: The study found IUTPI to have better pregnancy rates than IUI, with both the methods being comparable at baseline with respect to various variables when analyzed statistically.

63. Hysteroscopic evaluation of uterine cavity: Our experience at St. Stephen's hospital

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Uterine factors are found in 2–3% of infertile women but intrauterine lesions are much more common

in this setting (40–50%). Hysteroscopy is considered the gold standard for evaluation diagnosis and treatment of intrauterine pathologies. WHO recommends hysteria opt only for women with suspected intrauterine abnormalities on clinical complimentary tests or failed IVF. Objective of our study was to determine the role of hysteria opt in diagnosis and management of intrauterine abnormalities pre-ART.

Materials and Methods: We conducted a retrospective observational study in reproductive medicine unit at St. Stephen's Hospital over a period of 2 years.

Results: On hysteroscopy uterine septum was found in 12 patients, no findings in 28 patients fluffy endometrium in 6 patients acuate uterus was noted in 6 patients, periosteal fibrosis in 5 patients, submucous fibroid 3 was found in 3 patients, polpoidal endometrium was noted in 6 patients, uterine polyps were seen in 5 patients and intrauterine adhesions were noted in.

Conclusion: Our study has demonstrated that pre-ART hysteroscopy has a pivotal role in diagnosis and treatment of infertility. Number of patients and is an excellent diagnostic and therapeutic tool with minimal complications.

64. Comparison of the efficacy of Gene Xpert MTB with conventional methods in diagnosis of genital TB among infertile women

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Study Question: Is there any difference in sensitivity and specificity of Cartridge Based Nucleic Acid Amplification Test (CBNAAT) against conventional methods in diagnosis of genital-tuberculosis (TB) among infertile women.

Aims and Objective: To assess CBNAAT Gene XpertMTB/RIF Sensitivity in diagnosing female genital-TB to assess its performance with other traditional methods like AFB culture DNA-PCR radiological imaging laparoscopy and hysteroscopy.

Materials and Methods: Prospective observational study conducted between May 2016 and September 2017. A total of 278 suspected infertile women who underwent endometrial biopsy procedure to detect genital TB through AFB culture DNA-PCR-histo-pathological findings and cartridge based nucleic acid amplification test (CBNAAT: Gene Xpert MTB/RIF platform, Cepheid, Sunnyvale, CA) were included. The performance of CBNAAT was compared with individual conventional method. Statistical significant differences were calculated with student's *t*-test, Fisher exact test and chi-square test as appropriate.

Results: Among 278 women only 02 (0.71%) had CBNAAT positive diagnosis of genital tuberculosis (TB) and out of them one woman was also found positive in DNA-PCR testing. A total of 12 (4.3%) women were found positive in DNA-PCR-04 (1.4%) women were AFB stain positive, 03 (1.1%) were AFB culture positive and 02 (0.71%) women were found positive in histopathological examinations for diagnosis of genital-TB.

Conclusions: CBNAAT sensitivity in diagnosis of female genital tuberculosis was found lower in comparison to DNA-PCR and AFB culture. The gene xpert-MTB/RIF is substantiating as specific test but not a sensitive test in our study.

Keywords: CBNAAT, conventional-methods, genital-TB, infertility, sensitivity, specificity

65. Effect of luteinizing hormone dynamics in the follicular phase on clinical outcomes of patients undergoing *in-vitro* fertilization and intracytoplasmic sperm injection cycles with elevated basal luteinizing hormone

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Study Question: To study the effect of luteinizing hormone dynamics in the follicular phase on clinical outcomes of patients undergoing *in-vitro* fertilization and intracytoplasmic sperm injection cycles with elevated basal luteinizing hormone.

Aims and Objectives: To study the effect of luteinizing hormone change in early follicular phase

on oocyte quality, fertilization rate, embryo quality and pregnancy rates in antagonist IVF-ICSI cycles with elevated basal LH.

Materials and Methods: It is a prospective cohort study conducted in Sir Ganga Ram Hospital between July and October 2017 where 118 women undergoing GnRH antagonist IVF-ICSI cycles with basal LH >8 IU/L on day 2 of starting controlled ovarian stimulation (COS) were included. For all the women LH was noted on day 2 and again on day 6. Also change in LH was recorded. Against the LH levels on day 2–day 6 and change in LH the following outcome measure were recorded which included number of oocytes retrieved maturation rate fertilization rate top quality embryo rate positive beta hCG rate and clinical pregnancy rate. Correlation curves were drawn to find out any correlation.

Results: A total of 118 patients were studied. No correlation has been found between day 2 levels on IVF outcome. Also there is no impact of LH levels on day 6 on the clinical outcomes of IVF cycle. Any change in the LH levels during follicular phase either decreases or increase does not change the IVF outcome.

Conclusion: No correlation has been found between the levels of LH on day 2–day 6 or change in LH levels during follicular phase on IVF outcome. So we do not need to monitor LH levels in IVF-ICSI antagonist cycles. Also too low or too high levels of LH should not bother the clinicians or lead to any intervention.

Keywords: Clinical outcomes, IVF-ICSI cycles, LH levels

66. Is hysterolaproscopy necessary before IUI in unexplained infertility

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Background: Laparoscopy is considered as the preferred modality for the diagnosis of pelvic pathology but its timing and use in evaluating unexplained infertility with bilateral patent tubes in hysterosalpingography is an area of debate.

Objective: This study aimed at evaluating the role of hysterolaproscopy in the management of unexplained infertility. Study period: September 2015 to August 2017.

Materials and Methods: The study comprised of 140 couples who had attended the infertility clinic of Guru Teg Bahadur Hospital diagnosed with unexplained infertility with normal hystero-salpingography. Fifty-nine patients (group A) underwent laparoscopy followed by ovulation induction and IUI for 3 cycles and 81 patients (group B) directly underwent ovulation induction and IUI for 3 cycles. Hysterolaproscopic findings were analyzed in form of presence of adhesion, endometriosis, and any tubal or uterine pathology.

Results: Clinical pregnancy rate in group A was 11.8% and in group B was 12.34% and difference was not statistically significant. Laparoscopy had detected abnormalities in 27.1% of the cases while hysteroscopy findings were noted in 11.8% of cases. Most common laparoscopic abnormality was adnexal adhesion (18.6%) while on hysteroscopy 6.7% had adhesion and 2 patients have septum. Together hysterolaproscopy has detected abnormality 35.5% of cases but only one patient had conceived after surgical correction of abnormality.

Conclusion: We concluded that laparoscopy can be postponed when proceeding in the management of unexplained infertility until ovarian stimulation and IUI had been found to be unsuccessful in achieving pregnancy.

67. The predictive value of fertilization rate on pregnancy outcome in IVF/ICSI cycles

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Objective: Poor fertilization in IVF leads to a decreased chance of pregnancy. The objective of the study was to evaluate the effect of fertilization rate on pregnancy outcome.

Study Design: It was a retrospective observational study of seventy-three patients at First Step IVF from January 2017 to October 2017. The study aimed to predict the pregnancy outcome in relation to the fertilization rate. Patients were empirically divided on the basis of percentage of oocytes fertilized (A) <40%, (B) 40–60%, (C) 60–80%, and (D) 80–100%.

Materials and Methods: The study evaluated fertilization rate in 73 patients undergoing IVF ($n = 40$) or ICSI ($n = 33$). Fertilization was assessed 17–19 h postinsemination and ICSI. Zygotes were cultured in sequential media under appropriate lab environment. Patients with no fertilized oocytes were excluded. We compared the implantation rate and pregnancy rates among cycles with high versus low fertilization rate. Data were analyzed using chi-square test using SPSS version 17 software.

Results: There was significantly higher clinical pregnancy rate as percentage of oocytes fertilized increased. The CPR was 44.5% when fertilization rate was more than 80% and was only 14.3% when the fertilization was <40%. A higher implantation rate was also observed as the percentage of 2PN increased.

Conclusion: These findings suggest that patients with higher fertilization have a better clinical pregnancy rate. Fertilization rate can be used as a marker to assess the potential clinical success in patients undergoing IVF/ICSI. However, a larger number is needed to further substantiate our conclusion.

68. Ovarian stromal Doppler parameters as a predictor of follicular response to stimulation in IUI/IVF cycles in PCOS patients A comparative prospective study

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This prospective study aims to gain insight into the ovarian stromal blood flow in women with PCOS as compared with non-PCOS infertility patient with normal ovarian reserve and to predict the response to stimulation during IUI/IVF cycles.

Aims and Objectives: (1) To assess the baseline intra ovarian stromal Doppler parameters in PCOS patients as well in normal ovulatory infertile patients. (2) To find out the predictive value of ovarian stromal blood flow for follicular response to stimulation in PCOS patients.

Materials and Methods: All patients underwent basic infertility evaluation and TVS on day 2 or day 3 of the menstrual cycle. After completion of evaluation, patients underwent superovulation in IUI and COH in IVF cycles. Monitoring of follicular growth as routinely done as well repeat Doppler studies after stimulation on day 6 in IVF and day 9 in IUI cycles and on the day of hCG administration.

Outcome Measures: Primary: (1) Baseline ovarian stromal Doppler parameters and changes on stimulation in both groups. (2) Number of mature follicles >18 mm on USG and number of oocytes retrieved in IVF cycles. Secondary: (1) Conception rate (assessed by demonstration of cardiac activity on USG).

Results: In our study we analyzed data of 60 patients (30 each group). Baseline ovarian stromal PSV and RI was significantly higher in PCOS group as compared to non-PCOS group. On stimulation there was significant increase in ovarian stromal PSV and decrease in SD, RI and PI in both the groups. Doppler changes seen were more pronounced on the dominant follicle side. Number of oocytes recovered and conception rate were significantly higher in PCOS group.

Conclusion: Ovarian stromal Doppler can be used to predict follicular response in infertility patient.

Access this article online

Quick Response Code:

Website: www.fertilityscienceresearch.org

DOI: 10.4103/fsr.fsr_2_18

How to cite this article: Oral Presentation. Fertil Sci Res 2017;4:35-65.