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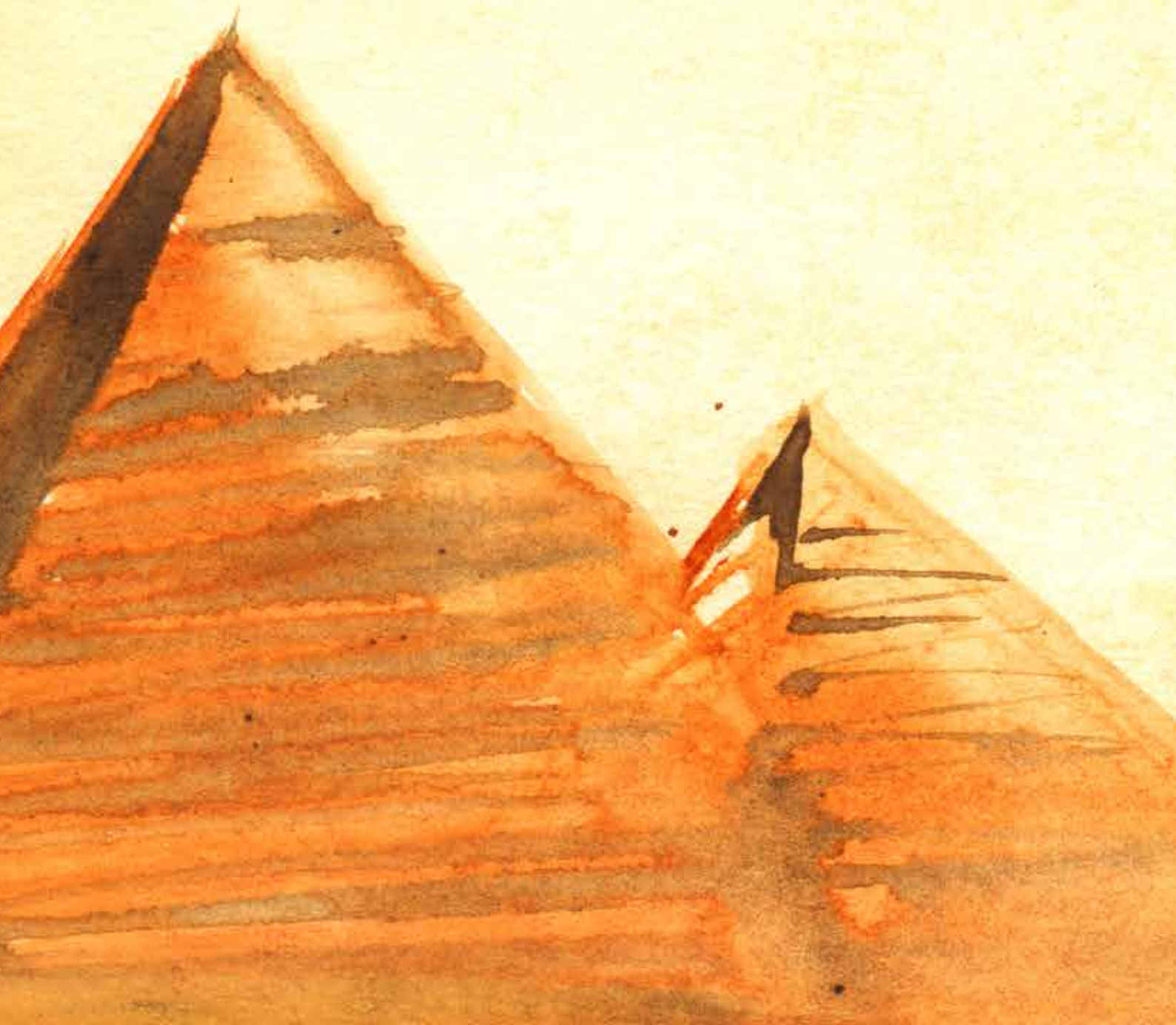

Abstract Book

Session: KEYNOTE LECTURE I:
The Professor AboulGhar lecture

O1 Uterine Tissue Engineering and the Future of Uterus Transplantation

Mats Brännström (Sweden)

CONCURRENT SCIENTIFIC SESSION 1:
Optimizing the Endometrial Milieu

O02 Does the endometrial receptivity array really provide personalized embryo transfer?

Robert F Casper MD

In the human, the uterus becomes receptive during the mid luteal phase of the menstrual cycle (days 19-23), commonly known as the window of implantation (WOI). Recently, a new endometrial biopsy technique has been developed using a customized microarray and bioinformatics as a way to identify endometrial receptivity. The endometrial receptivity array (ERA) is based on analysis of expression of 238 endometrial genes that are thought to be involved in implantation. Results are expressed as pre-receptive, receptive or post- receptive. If the result is non-receptive, the embryo replacement timing is adjusted in a subsequent cycle, thereby enabling personalized embryo transfer. The ERA test is offered commercially but appears to be based on a relatively small number of samples.
The aim of the present study was to determine the percentage of good prognosis (0-2 prior FETs) infertility patients who were determined to have a non-receptive endometrium according to the ERA test and to examine whether adjusting the suggested day of transfer according to the ERA test increased the pregnancy rate compared to a control group of women without ERA testing. Our results showed that 64% of 53 good prognosis patients had a non-receptive endometrium and when we adjusted the timing of the subsequent FET based on the ERA result, the ongoing pregnancy rate was 39%, which was not significantly different from the control group (35%) who did not have the ERA test. Our results suggest that performing the ERA test in a mock cycle prior to an FET does not seem to improve the ongoing pregnancy rate in good prognosis patients. A large, randomized validation study of the ERA test is required in both good prognosis patients and in patients with recurrent implantation failure.

O03 Luteal Phase Support (LPS): New challenges for FETs

D. de Ziegler, P. Pirtea, C. Tran, R. Abi Younes, M. Poulain, JM Ayoubi

Dept of Obstetrics and Gynecology and Reproductive Sciences, Hopital Foch

LPS has been provided in ART ever since ovarian stimulation (OS) became an inherent part of ART, in the very first days of IVF. In OS, LPS is meant to compensate for the lack of proper support of the corpus luteum due to alterations of the pulsatile production of LH by the anterior pituitary. The latter is caused by the use of GnRH analogues (agonists and antagonists), high levels of E2 and use of hCG for triggering ovulation.
All the existing products commercially indicated for LPS – Crinone®, Utrogestan®, Endometrin® – have been tested in OS for their ability to sustain fresh embryo transfers. In fresh transfers, LPS support can be stopped at the time of the 1st ultrasound at 6-7 of theoretical amenorrhea or, even at the time of the positive pregnancy test. Yet many teams – it includes ours – stop LPS at the time of the luteo-placental shift at approximately 10 wks of pregnancy.
In frozen embryo transfers (FET), the challenge is different. When substitution cycles are used, as most commonly performed, there are no corpus luteum and therefore LPS has to be pursued to the luteo-placental shift. Also, in the early weeks of pregnancy – 4th to 6th – there is a normal increase in progesterone production by the corpus luteum. Data from fresh transfer – the context in which all preparation were tested – cannot answer whether this increase in progesterone supply is necessary or not. And, as said above, none of the product available has been formally tested for LPS in FETs.
Recent data in FETs suggest that the vaginal progesterone product – Endometrin® – is not sufficient for sustaining optimal pregnancy rates. On the contrary, IM progesterone or combo regimens associating vaginal and IM allow to contain miscarriage rates with normal limits (Devine et al.). Great care about LPS in FET is of paramount importance, as today more and more ART cycles are associated with freeze all and deferred embryo transfer.

O04 Uterine transplantation and fertility preservation

Mats Brännström (Sweden)

CONCURRENT SCIENTIFIC SESSION 2:
Reproductive Endocrinology

O05 Progesterone and reproduction - insight into related controversies

Yacoub Khalaf (UK)

The focus of this talk is on the relationship between raised late follicular progesterone and ART outcome. In 2007, it was suggested the best available evidence then does not support an association between progesterone elevation (PE) on the day of hCG administration and the probability of clinical pregnancy in women undergoing ovarian stimulation for IVF.

A few years later (2013) a different position was assumed that PE on the day of hCG administration is associated with a decreased probability of pregnancy achievement in fresh IVF cycles. In the same year, it was suggested that EP does not have any adverse effect on IVF outcome in high responders. A couple of years later, a multivariate analysis accounting for the number of retrieved oocytes as confounder, no linear effect of progesterone rise was seen. Live birth rate was only affected with few oocytes.

The lecture will critically appraise the available literature in this area, shed some light on the possible explanation for these contradictory results and put in context the clinical implications of progesterone rise on day of ovulation triggering and clinical outcome.

O06 Progesterone supplementation for frozen embryo transfer: is it surely effective?

Pr J.N. Hugues. Reproductive Medicine - University Paris XIII – France

The critical role of Oestradiol and Progesterone (P) in the process of implantation has been well recognized and the concept of implantation window subsequently developed. However, the optimal serum P value for a successful implantation is still uncertain due to and this is partly due the pulsatile pattern of P secretion during both mid and late luteal phases.
The issue of P supplementation is becoming highly relevant with the recent enthusiasm for the freeze all strategy and the subsequent need for organizing frozen embryo replacement.
Three different approaches have been proposed for endometrial preparation before transfer of frozen embryos: natural cycle (NC), stimulated cycle (SC) and hormonal replacement therapy (HRT).
Several published studies and meta-analyses could not demonstrate any difference between the different treatments in terms of live birth rate. However, it does not mean that their efficacy cannot be improved. One of the major issues is likely to be related to the optimal value of serum P at the time of transfer. Is there any interest in measuring serum P level and at what time?
The first studies examined the relationship between serum P values at the time of ß hCG test and the chance of pregnancy in NC and HRT cycles. The P threshold to get pregnancy seems to be between 10-15 ng/ml. More clinically relevant was the objective to find out the P threshold at the time of transfer. Some retrospective studies reported that serum P value lower than 9.2 or 10 ng/ml on the day of transfer may be observed in 25-33 % women receiving vaginal P supplementation and are associated with low pregnancy and high miscarriage rates. These studies also emphasized the huge difference in serum P values between women, reflecting a large inter-individual variability in P vaginal absorption. When P is administered intra-muscularly, the P threshold is likely to be higher (about 20 ng/ml). The next issue to be addressed for women whose serum P values are below these thresholds is to decide whether to cancel the cycle or to increase the daily P dose and postpone the transfer. However, it is still uncertain whether this strategy is actually effective.
Finally, some recent data from the Sweden registry suggest that the presence of corpus luteum is a major determinant of the cycle outcome. Indeed, both maternal and neo-natal risks seem to be higher following HRT than NC or SC. Further studies are required to better identify the specific need for corpus luteum function in the overall success rate.

O07 Progestins for pituitary suppression in ART

Baris Ata (Turkey)

CONCURRENT SCIENTIFIC SESSION 3:
Fertility preservation

O8 NEW EVIDENCE: FERTILITY PRESERVATION OUTCOME IN WOMEN WITH CANCER

Togas Tulandi MD, MHCM.
Professor and Chair of Obstetrics & Gynecology, Milton Leong Chair in Reproductive Medicine, McGill University, Montreal, QC, Canada

The presence of malignancy affects fertility preservation outcome. It appears that ovarian stimulation in women with cancer is associated with decreased number of oocytes. However, none of the studies evaluated the effects of cancer grade.

We recently found that compared to women with low grade cancer, those with high grade disease had significantly lower number of retrieved oocytes as well as the number of vitrified embryos (Human Reprod, 2019). This effect is not associated with the cancer stage. Since breast cancer is the most common malignancy is women of reproductive age, we also evaluated the effects of stage and grade of malignancy on fertility preservation outcome in these women. We also found that high grade breast cancer has a negative effect on ovarian stimulation response (In Press). Subsequently, we studied different hormonal receptors in breast cancer women undergoing fertility preservation including receptors of estrogen, progesterone and human epidermal growth factor. The triple negative breast cancer (TNBC) status (negative for all those receptors) has a negative effect on fertility preservation outcome. A more intense stimulation protocol could compensate the negative effect of cancer grade in general including breast cancer and particularly those with TNBC.

O09 Uterine transplantation from deceased donors: The French experience

Jean Marc Ayyoubi (France)

O10 Fertility preservation in the twenty-first century

Botros Rizk (USA)

CONCURRENT SCIENTIFIC SESSION 4:
Assisted Reproductive Technologies

O11 Recurrent Pregnancy Loss –an update on evaluation and management

Lubna Pal, MBBS, MS, FRCOG, FACOG.

Abstract
Recurrent pregnancy loss (RPL) is an uncommon and yet highly burdensome occurrence. This presentation will aim to provide an overview on the prevalence, known etiologies, and guide the audience through a systematic workup. O
Learning objectives: The goals of this presentation are to familiarize the audience with:

- Terminology & Etiologies of Recurrent Pregnancy Loss (RPL)
- Work up of RPL
- Management approaches and rationale

O12 Ovarian reserve and reproductive performance

Baris Ata (Turkey)

O13 Ovarian reserve as a guide to ovarian stimulation

Hassan Sallam (Egypt)

CONCURRENT SCIENTIFIC SESSION 5:
Infertility

O14 Unconsummated marriage as a cause of infertility: Middle East perspective case study

AbdelMaguid Ramzy
Prof. Of Ob. Gyn., Cairo University

Objectives: To test the patient compliance and effectiveness of local injection of Botulinum Toxin A in the perineal muscles as a part on an integrated program including handled gradual vaginal introitus dilatation in addition to psychological support and sex education sessions on the treatment of refractory cases of vaginismus
Methods: Injection of Botulinum Toxin A in the perineal muscles in 350 refractory cases of vaginismus presenting to us with infertility as a result of unconsummated marriage due to apareunia. All our patients tried other methods including genital handling, Kegel exercises, psychotherapy, tranquilizers, alcohol, muscle relaxants, local anaesthetic gels, religious clerks, as well as surgical interventions. All these measures failed, or even made the condition much worse. The patient is instructed to attend the integrated program sessions in the clinic, in the presence of the husband. We then followed up our patients with regular marital life for 12 months for recurrence of vaginismus.
Primary Outcome Measure: success of repeated penetration of the penis through the vaginal introitus into the vagina without pain or with acceptable pain [time frame: up to four weeks following the last session of the program.]
Secondary Outcome Measure: successful sexual relationship [time frame: within twelve months after the last session of the program]
Results: 333 patients (95.3%) succeeded in having sexual intercourse within the first 4 weeks of follow up after our treatment program. 275 patients (78.6%) remained having sexual intercourse with variable amount of pain for the following twelve months.
Conclusion: Injection of Botulinum Toxin A in the perineal muscles in refractory cases of vaginismus is an effective way of treatment only if it is part of a

program including psychological support and handling of the patient tailored to her individual needs during the subsequent vaginal dilatation session carried out by a well trained passionate, understanding and patient team who addresses those needs. Involvement of the husband is crucial in the subsequent success of the program.

O15 Timing of hCG-OPU interval and effects on fertility

Rawad Basssil (Leb)

O16 Prof Samir Abbas best research Award: The effect of follicular fluid pesticides and polychlorinated biphenyls concentrations on intracytoplasmic sperm injection (ICSI) embryological and clinical outcome

Tarek Farghalya (Egypt)

CONCURRENT SCIENTIFIC SESSION 6:
Assisted Reproductive Technologies

O17 PLATELET RICH PLASMA (PRP) IN REPRODUCTIVE MEDICINE: CURRENT STATUS

Aboubakr Elnashar

Objective: PRP is an innovative therapeutic modality, affordable, simple and easily performed. To review current uses of PRP in reproductive medicine.
Design: A literature review.
Materials and Methods: A literature search for English articles, related to uses of PRP in reproductive medicine, including articles published in Pub Med. Keywords included: PRP, ICSI, endometrium, ovary, from 2000 to March 2019.
Results: 19 studies were obtained, classified into intraovarian (5 studies, all are case series) and intrauterine (14 studies: 3 RCT, 9 case series and one case report). Data from clinical studies are limited. Intraovarian uses of PRP are 1. Diminished ovarian reserve. 2. Poor responders. 3. Premature ovarian failure. Intrauterine uses of PRP are 1. Refractory endometrium, 2. Repeated implantation failure. 3. Chronic endometritis. 4. Asherman syndrome.
Conclusion: PRP is a feasible and promising experimental tool. There is a need for standardization of PRP preparation methods for clinical use. Well-designed, large RCT to confirm its efficacy and safety in reproductive medicine are required before recommending PRP as a therapeutic modality.

O18 Recurrent implantation failure: Gynecologist perspective

Eman El Gindy (Egypt)

O19 Is there a place for biosimilar rec. FSH in the IVF treatment cycles? Systematic review and meta-analysis

Mohamed Youssef (Egypt)

ORAL PRESENTATIONS SESSION 1:

O20 impact of coasting on the clinical outcome in ART cycles

Bushaqer N., AlAnazi H, Mohawash W., Alrakaf F., Algaffli M., Rawah H., Alasmari N., Ayoub H., Dayoub N.

Keywords: Coasting, IVF, ART, pregnancy rate, miscarriage rate.
Study question: How does coasting affect clinical outcome in ART?
Study answer: Patients with coasting in ART cycles had a higher implantation and clinical pregnancy rates than patients without coasting.
What is known already: Coasting is one of the most interventions studied. The process involves postponing the HCG trigger until estradiol (E2) level decreases into a safer level. It is based on the fact that larger follicles are resistant to atresia and continue to grow even when follicle stimulating hormone (FSH) level declines but smaller follicles will undergo selective regression reducing the granulosa cell mass and vasoactive substances causing OHSS. OHSS remains a challenging malady in IVF and preventive methods should be taken to avoid it but at the same time not affecting the outcome negatively.
Objective: to evaluate the impact of coasting on the clinical outcome in ART cycles.
Study design, size and duration: retrospective cohort study. 941 cycles of IVF/ICSI between November 2012 and March 2015.
Setting: IVF unit at Prince Sultan Military Medical City, Riyadh, KSA.
Participants, setting & Methods: the files of patients total of 941 cycles were included in the analysis reaching the stage of embryo transfer between

November 2012 and March 2015. 837 ART cycles were without coasting and 104 cycles with coasting.
Main outcome: clinical pregnancy and miscarriage rates.
Results: female patients with coasting had lower BMI, higher primary infertility, and higher PCOS. Male characteristics were same in both groups including age, smoking, sperm count and motility, and need of surgical retrieval of sperm.
Studying stimulation process, coasting group had higher AFC, serum LH, and prolactin levels. They had mostly the long agonist protocol, lower stimulation dose, longer stimulation duration, higher number of follicles 14 mm and above day of trigger, and higher serum estradiol and progesterone day of trigger.
In the group of patients who had coasting compared to patients without it, the number of collected, mature, and fertilized oocytes were higher. There were more embryos cleaved with same number of embryos transferred and frozen. They also had later embryo transfer. They had higher implantation and clinical pregnancy rate, but they had similar miscarriage and ectopic rates.
Limitations, reasons for caution: more studies needed for conclusion with higher number of patients recruited.
Wider implications of the findings: avoid cycle cancelation and do coasting instead. Cycle cancellation is becoming less widely practiced in the prevention of OHSS as it has negative impact on the couple emotion and finance

Study funding: nil

O21 Embryo Cryopreservation Collection in Simple Ovarian Stimulation Protocol

Yousef, S.O.

Key words: Embryo Cryopreservation, Poor Ovarian Reserve, Premature ovarian failure, AMH, Clomphine citrate
Study question: Does embryo collection in poor ovarian reserve improve pregnancy rate?
Summary answer: A new approach for ovarian stimulation and embryo collection over a few cycles gives hope for poor ovarian reserve patients.
Study design, size, duration:
Prospective observational study was conducted on 58 patients of poor ovarian reserve according to the bologna ESHRE working group, over a period of one year, using DHEA and low dose Aspirin two months before starting the stimulation using CLomophine citrate and FSH 75 iu daily from day 2 to day 10. Collecting of oocytes, ICSI, embryo frozen over two to three cycles and transferred at a later stage,
Participants/materials, setting, methods:
This study was conducted at Al-Amani Medical Centre to evaluate and implement effective and simple method for inducing ovulation in POR and the outcome of pregnancy. This study was undertaken in a period of one year April 2018- April 2019. Patients between the ages of 36 and 45 years with low AMH and high FSH less than 15 mil/l were included in the study. Patients were given 200 mg of Clomophine citrate and 75iu FSH daily from day 2 to day 10. Follow up was done by ultrasonography. Follicular growth was achieved, between 1-3 follicles per cycle. Follicles were collected over 2 and in some patients 3 cycles. ICSI was performed; embryos were frozen, replaced at later stage {blastocyst} according to patient's response and age.
Main results and the role of chance:
Of fifty eight patients included in the study, diagnosed with POR, were given CC and low dose FSH. One patient was lost to follow up.
All patients were followed up by vaginal ultrasonography for follicular growth and maturity. The response was 1-3 follicles for each patient. Follicles were retrieved and inseminated using ICSI. Grade A embryos were frozen by vitrification method. The cycle was repeated twice, sometimes three times, for the patient. Endometrium was prepared using oral estrogen. The embryos were transferred under ultrasound guidance.
A total of 130 treatment cycles, the majority of patients {41} received two cycles, {16} patients received three cycle. The treatment cycle was considered successful when follicular size reached 18-20mm.
Out of 57 patients in the study, 17 patients conceived. Three had abortions, one intrauterine fetal death, four delivered successfully and nine patients have ongoing pregnancy.

- Average pregnancy rate: 20.5%

Limitations, reasons for caution:

- Number of patients was small
- Some patients needed more than two cycles of ovulation induction to achieve 1 or 2 follicles

Wider implications of the findings:
Call for multinational centres to undertake the same approach and discuss the findings and results at a later annual meeting.
Study funding/competing interest(s): Self-funded.
Trial registration number: Approval of the Ethical Committee at the research centre.

O22 Towards ICSI without PVP; a potential risk to gametes and embryos

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Key words: Polyvinylpyrrolidone; embryonic development; outcome-intracytoplasmic sperm injection; fertilization rate.

Study question: Is PVP-ICSI really affecting spermatozoa, oocyte, and subsequent embryonic development?, Other alternative methods would be applicable?

Summary answer: PVP outcome similar or tends to be less (but not significant) than ICSI without PVP. Moreover, the long-term risk to the children born through ICSI with using PVP is not estimated and we expect that absence of PVP exposure to spermatozoa and oocyte will be more safe and applicable.

What is known already: PVP is used in medicine, pharmacy, cosmetics, and Industries (Haaf et al., 1985). There is no documentation regarding PVP function in vivo in the reproductive systems. It was remained localized injected embryos, and exerted damage to the capacity of development (Kato, Nagao 2009). It caused lower fertilization, obstacle to embryogenesis, transferred t organs and caused organelle damage and induced cell death and it found to be related with miscarriage (Kato, Nagao 2012). Alternative methods are used; hyaluronan-containing media (Balaban et al., 2003), and immobilization by laser (Montag et al., 2000). However it was reported that the PVP, limited PVP, and PVP-free outcomes were the same (Iwaszko et al., 2005).

Study design, size, duration: Prospective randomized controlled trial, in which two different media were compared during ICSI in order to assess their effect on fertilization and blasulation rates. In first group, we used conventional ICSI using PVP 10% (group 1), and the second group PVP-free protocol was used in all steps, only buffer media in both immobilization and ICSI (group 2). Totally (19) cycles were included, during Jan. to Oct. 2018.

Participants/materials, setting, methods: cases have been chosen included less teratology of spermatozoa, and high number of mature oocytes. The oocytes of the same case were divided into two groups; oocytes of group 1 were injected first, injection pipette washed, and then oocytes of group 2 were injected. Same manipulator, tools, dishes, media, and embryologist were performed the protocols in both groups. Fertilization and blasulation rates were compared. Blastocysts were graded starting from early expansion. Study setting: private IVF Centre.

Main results and the role of chance

Total 19 cases were statistically analyzed. In Group1 (PVP group) total MII = 85, average= 4.47, median= 4.0, standard deviation= 2.0. Total fertilization rate was74.1%, and blastulation rate was 58.7%.

In Group2 (buffer media group) total MII = 81, average= 4.26, median= 4.0, standard deviation= 2.18. We reported higher fertilization, and blastulation rates for the same case (total fertilization rate was 85.1%, and blastulation rate 68.1%).

To assess the difference between two groups we used Mann-Whitney U test.It revealed in fertilization 160.5 while critical value of U was 123 at P <0.05. Therefore, the result was not significant. In blastulation difference U-value was 143.5 and critical value was 123 at P < .05 the result was not significant also

Limitations, reasons for caution Low sample size in which only (19) were included, time consuming during ICSI since difficulties of manipulation without PVP, lack of comparison between the two groups after child birth.

Wider implications of the findings: it is aimed more safety to children born by ICSI, perform ICSI without PVP, pull PVP first then buffer media as long as PVP cannot touch gametes, or select a lower concentration of PVP as possible.

Study funding/ competing interest: none to declare

References

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CONCURRENT SCIENTIFIC SESSION 6:
Reproductive Endocrinology II
Menopause Special Interest Group

O24 SPERM SPECIMEN WITH INITIAL POOR AND BORDERLINE SPERM MORPHOLOGY EXHIBITED SIGNIFICANT IMPROVEMENT POST DENSITY GRADIENT

PREPARATION WITH GOOD cIVF CYCLE OUTCOME

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Keywords: Sperm, Morphology, Poor, Borderline, Improvement

Study question: Can sperm morphology (SM) be improved by density gradient with concomitant improvement in functionality? The lingering question was whether this would compromise fertilization and cycle outcome?

Summary Answer: Density gradient significantly and universally improved SM and functionality that fertilization and pregnancy were not compromised in poor and borderline SM following cIVF.

What is known already: With the advent of strict criteria patients with sperm of poor and borderline (low) SM are treated by ICSI. Outcome of semen analysis in particular SM is the deciding factor in determining whether cIVF or ICSI be performed. In the 5th edition of the WHO 2010 Semen Manual, the lower reference limit for SM is 4%. Most adherent centers comply strictly with this cut-off point to decide on either cIVF or ICSI. It has long been established sperm preparation especially with density gradients significantly improved SM especially with density gradient centrifugation.

Study design, size, duration: A prospective study was undertaken to determine whether SM is improved by density gradient in IUI patients. When it became apparent in IUI patients SM is improved, we undertook cIVF amongst patients (n=11), where five (n=5) of them had SM below 4% (2%=1; 3%=4). cIVF was performed with informed consent due to disrepair of ICSI machine. Day 2 embryos are graded: range 4=excellent to 1=poor. Statistical calculations were performed using the statistical software Statistix®.

Participants/materials, setting, methods: Sixty eight (n=68) IUI and 12 cIVF patients of which 5 had poor/borderline SM at a government ART Center in Saudi Arabia. One cIVF patient with severe sperm agglutination was excluded. Sperm was prepared using density gradients (FertiPro, Belgium) and cIVF was performed with Global Media (USA). Ovarian stimulations were by standard antagonist and long protocols. Mostly two embryos were transferred except one that received 3 embryos.

Main results and the role of chance: The %normal SM was always higher in all post-wash specimen except in one IUI patient (98.5%. n=68; Mean SM±1SD = 2.8±1.2 vs 4.4±1.7; range 1-7 vs 1-9, paired t-test: p<0.00001, Pearson's Correlation, r=0.8845; Similarly the SM was higher in all post-wash sperm specimen in cIVF patients (100%, n=11, Mean±1SD=4.0±1.4 vs 5.6±2.0; range 2-7 vs 3-10, paired t-test: p=0.0006; Pearson's Correlation: r=0.8136, p=0.0013)

cIVF patients with low (n=5) and normal SM (n=6) had similar and good fertilizations rates (96.7% [n=30 oocytes] vs n=77.1% [n=35 oocytes] respectively, Yates corrected chi-square p=0.0559). The embryos generated in both the low and normal SM groups were also similar (day 2 blastomere number: Mean ±1SD 4.0±1.11 vs 3.9±1.07 and grade: 3.52±0.61, p=0.4364 vs 3.18±0.68, p=0.1762) respectively.

Pregnancies were achieved in both groups. In the low SM group 3 of 5 patients (n=3; singletons+2; Twins=1), and in the normal SM group 2 of 6 patients became pregnant (singletons; p>0.05). As the sample size is small role of chance need be taken into consideration. In both groups spare embryos proceeded to expanded/hatching blastocyst stages in vitro.

Limitations, reasons for caution: This significant finding suggests it is possible to achieve fertilization, generate viable quality embryos, and pregnancies by cIVF in patients with low SM. Nevertheless this is a small study so the role of chance is high and cannot be overlooked. Caution must be exercised in instances of extreme low SM.

Wider implications of the findings: ART Centers confronted with ICSI equipment failure/disrepair may consider cIVF for patients with low SM. The present preliminary findings shows cIVF treatment cycles can be undertaken successfully in low SM with generation of quality viable embryos with acceptable pregnancy rates. Caution must be exercised until proven by larger studies.

Study funding/competing interest(s): Routine budget/ No competing interests

Trial registration number: This is routine work not a trial.

O25 SPERM SURVIVAL TEST ON EXPIRED IUI CATHETER INDICATES HIGH SURVIVAL AND NO LOSS OF SPERM VIABILITY IN VITRO (18 words)

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Keywords: Catheter, Sperm, Survival, Test, Viability,

Study question: Is the expiry date of IUI catheters indicative of loss of its functional usefulness? Will sperm survive when exposed to expired catheters?
Summary Answer: Expired IUI catheters do not appear to be harmful to sperm. It did not affect the in vitro viability of sperm. (25 words)
What is known already: It is not clear how expiry dates of ART plastic consumables are determined? Manufacturers have not shared with end users details of loss of functionality of their plastic products at specific times in the life span of the plastic device that could occur as a consequence of natural degradation. Degradation of plastic could be extremely harmful as they may release toxic and volatile chemicals that could potentially also compromise the embryo on long term basis. Are the expiry dates simply arbitrary and do not represent any disadvantage for another subsequent period of unknown length of time before actual degradation occurs? (100 words)
Study design, size, duration: A sperm survival study was performed to determine whether expired catheters have an impact on sperm survival over a period of 48 hours. The survival of washed sperm after exposure to expired IUI catheters (n=28) manufactured by Cooper Surgicals, USA, Ref. SM400, Lot no. Lot:168088; that expired on July 2018 were determined exactly one year after expiry. A good semen sample was obtained from a single donor with informed consent. (70 words)
Participants/materials, setting, methods: The sperm was washed using density gradients (FertiPro, Belgium)s. The washed sperm were re-suspended in 15ml of fertilization medium (Life Global, USA). Exactly 0.5ml were aseptically aspirated into individual catheters and held for 1min and then emptied into sterile wells of the NUNC 4-well dishes. Sperm were incubated in 6% carbon dioxide. Sperm survival tests were performed 1, 3, 24 and 48hrs after exposure to the catheters. Statistical calculations were using the statistical software Statistix®. (75 words)
Main results and the role of chance:
The results of sperm survival in control and test groups are presented in the Table below.
There were no statistical differences ($p= 0.8867$; $p = 0.9641$; $p= 0.9706$; $p = 0.4196$) for the 1, 3, 24 and 48hrs exposure periods when compared with its respective control. No microbial contamination was noted over a period of 48hrs. This finding raises the validity of expiry dates indicated on packings of plastic consumables in ART. This is not an exhaustive study therefore the role of chance cannot be overlooked. (187 words)
Limitations, reasons for caution: Catheters one year after expiry are non-toxic to sperm however this is not an exhaustive toxicological investigation. Therefore this finding has to be taken or applied with caution. This finding provokes further clarification as to when actual degradation process occur that can manifest detrimental effects on gametes and embryos? (50 words)
Wider implications of the findings: Many economies cannot afford to discard plastic consumables that really are not expired and retains its functionality even after its purported "expiry". The critical need to conserve meagre resources in most economies needs no emphasis. Simple reliable methods must be developed to determine functionality of "expired" plastic-ware to prevent waste. (50 words)
Study funding/competing interest(s): Routine budget/ No competing interests
Trial registration number: This was a routine quality assurance work and is not a trial.

O26 The triggering of choice for better IVF outcome in patients elder than 38 years old

Khrait, Z. *; Fakih, M.

Key words (minimum of three and maximum of five)
IVF, rHCG, uHCG, Triggering
Study question: This study was undertaken to know which type of HCG (uHCG or rHCG) provides better IVF outcome in patients < 38 years old.
Summary answer: rHCG recipients had statistically significantly higher number of M2, 2PN and embryos on day 3 compared to rHCG recipients. However, there was no statistically significant difference between embryo transfer, positive BhCG between two treatment groups
What is known already: A previous study for all groups of age revealed rHCG and uHCG produces statistically similar final follicular maturation and pregnancy rates. Another study concluded, no difference between rHCG and uHCG for pregnancy rates and live birth rate. According to an article review, 'single doses of 250 µg r-hCG and 5,000 IU u-hCG produce similar clinical outcomes when used in infertility treatment cycles for timed intercourse, IUI, and IVF in terms of the number of oocytes retrieved, number of mature oocytes harvested, and fertilization and pregnancy rates attained.
Study design, size, duration: This retrograde chart review study was done at FAKIH Fertility Center, Dubai, UAE, between April 2018 to May 2019 to know the difference in IVF outcome and
pregnancy rate in triggering ovulation by rHCG (Ovitrelle® , Merck) vs uHCG(Pregnyl®, Organon).
Comparison between treatment groups - (rHCG) vs (uHCG), embryo transfer, BhCG positive, in terms of follicle size > 14 mm, number of oocytes, M2, 2PN, and number of embryos on day 3 were done by Mann Whitney U test.
Participants/materials, setting, methods:
Total of 308 cases was included in this retrospective chart review study. All the included cases underwent antagonist protocol of ovulation induction. Data were collected electronically from the clinic records. In-vitro fertilization (IVF) outcomes (No. of the matured oocyte, No. Of the fertilized egg, pregnancy rate etc.) were compared between rHCG and uHCG recipients when administrated for final oocytes maturation.
Main results and the role of chance: Total of 308

advanced age (> 38 years old) women were included in this study. 160 (51.9%) of them were treated by Pregnyl® (uHCG) while the other 148 (48.1%) were treated by Ovitrelle® (rHCG).
Embryo transfer was possible in 148 (48.1%) cases and BhCG was reported positive in 72 (23.3%) cases.
All patients' median number of follicles > 14 mm, oocytes, M2, 2PN, and embryos on day 3 were taken. Pregnyl recipients had statistically significantly higher number of M2 (4.85 ± 3.66 vs 3.51 ± 2.77, p .028), 2PN (3.56 ± 3.09 vs 2.12 ± 1.97, p .004), and embryos on day 3 (2.85 ± 2.77 vs 1.45 ± 1.50, p .002) compared to Ovitrelle recipients. However, there was no statistically significant difference between embryo transfer, positive BhCG between two treatment groups.
Those who were successful at embryo transfer had a significantly higher number of follicles > 14 mm, number of oocytes, M2, 2PN, embryos on day 3, and positive BhCG compared to their counterparts (all p values <.001).When cases with positive BhCG and negative BhCG were compared similar results were obtained.
Recombinant HCG and urinary HCG produce a statistically similar IVF outcome according to this study and many previous studies.
Limitations, reasons for caution:

- Study was done in one fertility centre.
- Observational study.
- Certain medical conditions like endometrioma, smoking, obesity, ethnicity etc. were not considered.

Wider implications of the findings: This study can act as a baseline for future large scale complex randomised control trial which may ultimately declare the efficacy of one treatment is significantly superior to others with greater precision.
This study can act as a starting point for a large scale RCT in this topic so that the outcomes can be generalized and possibly come into future guidelines.
Study funding/competing interest(s): The authors declare that they have no competing interests
No funding has been taken for this study from any source.

O27 The effect of progesterone/estradiol and progesterone/follicle ratio on the day of hCG administration in predicting the pregnancy outcomes of patients undergoing GnRH antagonist IVF cycles

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Study Question: Do progesterone level, progesterone/estradiol(P/E2) ratio and progesterone/follicle(P/F) ratio predict the success of in-vitro fertilization cycles?
Summary Answer: Progesterone/estradiol ratio was significantly associated with the clinical pregnancy rate, but progesterone/follicle ratio did not have significant impact on pregnancy outcomes compared with progesterone/estradiol ratio.
What is known already: The elevation of serum progesterone level have a negative impact on the pregnancy outcome. As the progesterone level on the late follicular phase correlate with the estradiol levels and number of mature follicles, recent studies have proposed that ratio of progesterone, estradiol and number of follicles may have a potential to predict the pregnancy outcome on assisted reproduction cycles. Some studies suggested using progesteroene-estradiol ratio to reflect premature luteinization. Progesterone/mature follicle ratio may provide a prediction on fertility outcomes. There are very few studies that compare the efficacy of P/E2 and P/F ratios with serum progesterone levels and eachother.
Study Design, Size, Duration: This was a retrospective cohort study in a university teaching hospital between January 2017 and December 2018. Couples who underwent assisted reproduction cycles were evaluated. Initially 625 cycles were evaluated for the study population. Exclusion criterias were hormonal impairment such as hyperprolactinemia, thyroid disorders, FSH>15 IU/mL, cycle cancellation due to insufficient endometrium, asynchronous follicle development and frozen-thaw embryo transfer cycles. Only GnRH antagonist cycles(n=332) were analyzed after exclusion criterias.
Participants/materials, setting, methods: Demographic and basal parameters(FSH, antral follicle count, estradiol, AMH) were recorded. Serum progesterone, P/E2 ratio and P/F ratio on the day of hCG administration was calculated as P(ng/mL)x1000/E2(pg/mL) and P(ng/mL)/number of follicles(>14 mm), respectively. Patients were evaluated according to the cut-off values that were determined for P/E2 and P/F ratio. Cycle and pregnancy outcomes were compared with the value of progesterone, P/E2, P/F ratios. We have performed an analysis for overall population and normoresponders subgroup
Main results and the role of chance: The overall implantation rate(IR) and clinical pregnancy rate(CPR) were 50.2% and 44.4%, respectively. Cut-off values of P/E2 and P/F ratios that were discriminative for achieving or not achieving the clinical pregnancy were obtained as 0.358 and 0.158, respectively. CPR were significantly different between below and above of P/E2 cut-off value(49.5% vs. 37.3% respectively, p=0.03). There was no significant difference between below and above of P/F cut-off value regarding the clinical pregnancy rates in overall population. The number of retrieved oocytes were higher in P/F <0.158 and P/E2<0.358 groups for overall population but a significant difference was found in only P/E2<0.358 group in terms of normoresponder subgroup analysis. Although there was no significant difference in the number of retrieved oocytes, the clinical pregnancy

rate was higher significantly among cycles that had P/F ratio <0.158 in the normoresponder subgroup. We also performed logistic regression analysis to determine the co-factors that affected the cycle outcomes and we found that P/E2<0.158 had significant impact on improved CPR.
Limitations, reasons for caution: The main limitation was the retrospective nature of our study. We have included more than one indication for assisted reproduction cycles.
Wider implications of the findings: P/E2 ratio <0.158 was significantly associated with higher CPR, but P/F ratio did not have significant impact on pregnancy outcomes compared with P/E2 ratio. Although an effect of serum progesterone level on the day of hCG administration was known, P/E2 and P/F ratios were more efficient factors to predict the pregnancy outcomes.
Study funding/competing interests: None
Trial registration number: None
Keywords: progesterone; estradiol; follicle; in-vitro fertilization,

KEYNOTE LECTURE II: The Prince Sultan Bin Abdul Aziz Al Saud lecture

O28 Endometrial receptivity: Why do euploid embryos not implant?

Robert F Casper MD

One of the crucial steps in achieving a viable pregnancy in an IVF treatment is transferring an embryo to a receptive endometrium. Several methods for assessing the implantation potential of the endometrium have been suggested over the past years. Some were invasive, such as endometrial biopsy for histologic dating or for the endometrial receptivity array (ERA) and cannot be done during the relevant cycle. Other non-invasive methods can be done in the cycle of interest and include US for endometrial pattern & thickness, for sub-endometrial blood flow or for detection of sub-endometrial waves. We have previously shown a significant increase in the ongoing pregnancy rates if the endometrium became thinner (compacted) during the progesterone phase in hormonally replaced (HRT) FET cycles. We have now assessed whether endometrial compaction plays a similar role in PGT-A tested euploid FET cycles and have determined similar effects of endometrial compaction. We suggest performing an additional ultrasound scan prior to embryo warming and embryo transfer and calculating the compaction rate. In cases in which the endometrium does not compact, an option is to cancel the cycle and try a different protocol. Endometrial compaction may be a new determinant of endometrial receptivity in IVF cycles and since it is non-invasive, it can be done in the cycle of interest.

CONCURRENT SCIENTIFIC SESSION 7:
Reproductive Genetics

O29 There are epigenetics factors which affect descendants from ART

Professor Dimitris Loutradis

Chairman 1st Department of OB/GYN Athens Medical School.

Assisted reproduction technologies (ART), such as IVF and ICSI are widely used to solve human infertility. ART has provided great benefits for millions of couples who have struggled with infertility disorders
Since the birth of Louise Brown in 1978, there has been a tremendous growth in the use of ART. As the offspring of ART have become a substantial proportion of the population, the safety of ART has gained increasing attention . Concern has emerged that children conceived by ART might be exposed to greater health risks than naturally conceived (NC) children. Ovulation induction medications, in vitro culture of embryos, vitrification and the potential use of genetically and structurally abnormal sperm during ICSI are independent risk factors.
In this presentation we discus the following subjects :Neonatal outcomes, Birth defects Growth and gonadal development Physical health Neurological and neurodevelopmental outcomes, However .special focus is concentrate our investigation to the proteomic ,metabolomics profile of children born after ICSI compared with naturally conceived (NC) controls in search of cardiometabolic risk markers and Epigenetic abnormalities.
Proteomics of Children Born After Intracytoplasmic Sperm Injection Reveal Indices of an Adverse Cardiometabolic Profile: The ICSI group had shorter gestation, more cesarean sections, smaller birth weight/length, and advanced maternal age. No major differences were observed regarding biochemical markers. Proteomic analysis revealed 19 over- and three underexpressed proteins in ICSI. Most overexpressed proteins are implicated in acute-phase reaction, blood coagulation, complement pathway activation, and iron and lipid metabolism, suggesting a subclinical unfavorable cardiometabolic profile. This study applies proteomics in ICSI-conceived children, providing evidence for an early adverse cardiometabolic profile and supporting the necessity of their long-term monitoring.
Gender dimorphic increase in RBP-4 and NGAL in children born after IVF: an epigenetic phenomenon? Children born after IVF had significantly higher RBP-4 (P = 0·009) and NGAL (P = 0·028) levels than controls. When divided by gender, RBP-4 remained higher in IVF girls (P = 0·002), whereas NGAL was higher in IVF boys (P = 0·021). Linear regression analysis had revealed that

the differences are attributed to the IVF procedure per se. In our study, IVF children had significantly higher RBP-4 and NGAL levels than controls, suggesting early metabolic derangements that could be attributed to an epigenetic phenomenon. These results are in accordance with our earlier findings of higher blood pressure and triglycerides in IVF children than controls. Further prospective studies in IVF children will determine the natural course of their metabolic profile.
Plasma Metabolomic Profiling Suggests Early Indications for Predisposition to Latent Insulin Resistance in Children Conceived by ICSI. Auxological and biochemical parameters of 42 6.862.1 yrs old ICSI-conceived and 42 age-matched controls were measured. Significant differences between the groups were determined using univariate and multivariate statistics, indicating low urea and low-grade inflammation markers (YKL-40, hsCRP) and high triiodothyronine (T3) in ICSI- children compared to controls. Moreover, plasma metabolomic analysis carried out for a subgroup of 10 ICSI- and 10 NC girls using Gas Chromatography-Mass Spectrometry (GC-MS) indicated clear differences between the two groups, characterized by 36 metabolites linked to obesity, insulin resistance and metabolic syndrome. Notably, the distinction between the two girl subgroups was accentuated when both their biochemical and metabolomic measurements were employed. The present study contributes a large auxological and biochemical dataset of a well-defined group of pre- pubertal ICSI-conceived subjects to the research of the ART effect to the offspring's health. Moreover, it is the first time that the relevant usefulness of metabolomics was investigated. The acquired results are consistent with early insulin resistance in ICSI-offspring, paving the way for further systematic investigations. These data support that metabolomics may unravel metabolic differences before they become clinically or biochemically evident, underlining its utility in the ART research.
Gender dimorphic increase in RBP-4 and NGAL in children born after IVF: an epigenetic phenomenon? Children born after IVF had significantly higher RBP-4 (P = 0_009) and NGAL (P = 0_028) levels than controls. When divided by gender, RBP-4 remained higher in IVF girls (P = 0_002), whereas NGAL was higher in IVF boys (P = 0_021). Linear regression analysis had revealed that the differences are attributed to the IVF procedure per se. In our study, IVF children had significantly higher RBP-4 and NGAL levels than controls, suggesting early metabolic derangements that could be attributed to an epigenetic phenomenon. These results are in accordance with our earlier findings of higher blood pressure and triglycerides in IVF children than controls. Further prospective studies in IVF children will determine the natural course of their metabolic profile.
Altogether, ART is likely to cause some epigenetic changes in the offspring, which might be the molecular basis of complex traits and diseases. However, it is still unclear whether the small differences observed in several studies represent a real difference between ART-conceived and NC children. Larger studies with long-term follow-up are needed to fully answer these questions

O30Latin-American Association of Reproductive Medicine [ALMER] Exchange Lecture: The genetics of premature ovarian failure

Sergio Papier (Argentina)

Extrapolating the definition of the U.S. National Research Council (NRC) to other "Precise Medicines", Reproductive Precision Medicine adapts reproductive management to the individual characteristics of each patient or couple. It involves the possibility of identifying genetic factors of infertility, genetics associated with the ovarian reserve, pathology and interaction of gametes and pharmacogenomics. The prevalence of Premature ovarian failure (POF) is 1/1000 under 30 years, 1/250 before 35 years and 1/100 before age 40 years but the prevalence is likely to be higher . POF is a complex, multifactorial, genetically heterogeneous and polygenic condition where a large number of genes interact with particular difficulty for the large number of genes candidates to be studied. Chromosomopathies involving the X chromosome and the premutation of FMR1 are the genetics causes most well known.
Infertility panels and exomes appear to be cost and time effective for genetic diagnosis of premature ovarian failure that could be modified according to needs and/or requirements.
They allow for earlier diagnosis of risk of ovarian insufficiency, before the ovarian reserve is altered (AFC, AMH) and can evaluate genetic variants of high prevalence and high impact on offspring (Panel of recessive and X-linked diseases) with several clinical applications as monitoring of the ovarian reserve, cryopreservation of oocytes or ovarian tissue or PGT-M .

O31 The implication of polymorphism of FSHR N680S in vivo and in vitro conditions

Dimitios Loutradis

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Alexandra Hospital

Investigators have focused on identifying a genetic tool that could predict the response to gonadotropin stimulation, by implementation of a patient's genetic profile in the process of ovulation induction.

Pharmacogenetics is the study of the relationship between individual gene variants and variable drug effects . In other words, it contemplates the impact of the differences in DNA sequence on the drug response, in terms of efficacy and /or adverse events. Pharmacogenetics is a rapidly evolving field that can provide numerous public health benefits.
In this context, several genes have been studied, including those of the molecules involved in the estrogen pathway and the follicle-stimulating hormone (FSH) receptor LHR,AMH receptor.
Many polymorphisms of the FSH receptor gene have been discovered, but the most studied are the Ser680Asn and Thr307Ala ones. The Ser680Asn polymorphism of the FSH receptor gene has been found to influence the ovarian response to FSH stimulation in women undergoing IVF, as the FSH receptor in women carrying the Ser/Ser genotype appeared to be more resistant to FSH action. The clinical implications of this finding are highly important and the ultimate goal is the application of genetic markers as routine diagnostic tests before ovarian stimulation in order to predict the ovarian response, determine the required FSH dose and avoid the possible complications related to FSH stimulation.
An increasing number of clinical (In vivo)studies found association between p.N680S in ovarian response and the outcome of ART suggesting a functional effect of the FSHR variants in human reproduction. Also recently have been published In vivo studies demonstrates that FSHR p.N680S mediates different responses to FSH in vitro, corresponding to its in vivo role and indicating that the FSHR genotype should be taken into account for the pharmacological approach to infertility treatment with FSH. Different Gonadotrophins preparations rFSH,HMG,rLH,hCG binding the receptor properties in vitro and present difference impact on clinical parameters .
In this regard, the results that have been presented in vivo and in vitro may have implications for the development of new drugs insensitive to FSHR polymorphism. Understanding the molecular mechanisms through which FSH and
receptor isoforms modulate the cell signaling will provide novel, significant therapeutic approaches for assisted reproduction composition , physiological functions , receptor binding properties in vitro and impact on clinical parameters . In this regard, in the future may have implications for the development of new drugs according the genetic profile of FSHR polymorphism.

KEYNOTE LECTURE II: The Prince Sultan Bin Abdul Aziz Al Saud lecture

O32 PCOS is not less common in women with endometriosis

D. de Ziegler, P. Pirtea, C. Tran, R. Abi Younes, M. Poulain, JM Ayoubi

Dept of Obstetrics and Gynecology and Reproductive Sciences, Hopital Foch

Endometriosis is a disease of unknown origin, which affects approximately 10% of all women of reproductive age and over 40% of infertile women. Data from the medical therapies that are recognized effective in endometriosis indicate that the disease – its active progression – is linked to ovarian function rather than E2 levels. Based on this assessment, it was postulated – actually taken as a die-hard belief – that endometriosis is a rarer finding in PCOS, a condition associated with rare ovulations.
The rate of association of endometriosis and PCOS was judged to be important when studying AMH levels in populations of women with endometriosis. Indeed, a lower incidence of PCOS in women with endometriosis would constitute a bias when comparing AMH levels in women with and without endometriosis. Such bias could artificially lead to incriminate endometriosis as a cause of low AMH levels.
In order to clarify this issue, we conducted a retrospective analysis of women with a surgical diagnosis of endometriosis and controls in whom endometriosis had been surgically excluded. Our analysis revealed no difference in PCOS incidence in women with endometriosis and unaffected controls. There was no difference in incidence of anovulation and high (>4.9 ng/mL) AMH concentration between the two groups either.
Our study therefore concludes that contrary to prevailing beliefs, PCOS is not a rarer occurrence in women suffering from endometriosis. Low AMH levels often found in endometriosis is therefore not due to a lower incidence of PCOS in this group of patients.

O33 Demystifying Polycystic Ovary Syndrome: often misdiagnosed and frequently misunderstood

Lubna Pal, MBBS, MS, FRCOG, FACOG.

Polycystic ovary syndrome is a poorly understood yet liberally diagnosed disorder with a finite spectrum of clinical manifestations. Racial heterogeneity in the clinical picture, varying degrees of contribution of obesity to the clinical phenotype and varying adoption of diagnostic nomenclatures across the global regions add to the diagnostic dilemmas. The diagnosis of PCOS holds implications that extend well beyond the presenting symptoms, and PCOS must be recognized as a chronic disorder. Management strategies must target not just the presenting complaint, but also the covert health burdens the individual patient is deemed at risk for. Pregnancy related risks in this population are not trivial and implications for

trans-generational burden are also evident. Beyond symptom control, management considerations must address the individual woman's reproductive and psychological wellbeing and should incorporate risk reduction strategies to minimize long term health risks. Optimization of life style parameters and weight reduction for the overweight and obese must be considered as first line management strategy.
Learning objectives: At the conclusion of this presentation, participants should be able to:

1. Become familiar with the spectrum of clinical presentations of PCOS
2. Gain awareness of the spectrum of health implications relating to PCOS diagnosis
3. Gain confidence in initiating diagnostic workup to rule out common disorders that can mimic PCOS
4. Individualize risk assessment and tailor management strategies

O34 Reproductive hormone secretion and follicular maturation in PCOS

Professor Ioannis E. Messinis, MD, PhD (UK), FRCOG

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Several endocrine abnormalities have been found in polycystic ovary syndrome (PCOS). The most important of these include increased LH, increased AMH, and decreased FSH levels. At the same time, there has been a disturbance in the maturation of the follicles, which accumulate in the ovaries at the small antral stage and fail to become ovulatory. The reasons for all these changes are not clear, but hyperinsulinaemia and hyperandrogenism seem to play an important role. These changes are particularly evident in cases of the anovulatory phenotype. For example, the increased secretion of LH is related to the lack of progesterone, which is also responsible for the augmented response of LH to GnRH. Increased levels of AMH contribute to the disorder of follicular maturation by reducing the sensitivity of the ovaries to FSH. On the other hand, levels of FSH below the threshold are unable to initiate the process of follicle recruitment and selection. Although the pathogenesis of the syndrome is multifactorial, elevation of FSH above the threshold, following exogenous administration, lead to follicular maturation and ovulation.

O35 Ovarian stimulation in ART: New paradigms for selecting the gonadotropin dose

D. de Ziegler, P. Pirtea, C. Tran, R. Abi Younes, M. Poulain, JM Ayoubi

Dept of Obstetrics and Gynecology and Reproductive Sciences, Hopital Foch

Ovarian Stimulation (OS) has practically existed since the inception of ART, then called IVF. Today, 40 years later, we can assert that OS has been the single most effective measure ever enacted for increasing the successes of ART.
In the early days of ART – particularly after the introduction of GnRH-agonist (GnRH-a) in the mid-eighties – there was a lingering fear that excessive gonadotropin doses would lead ovarian hyperstimulation syndrome (OHSS). OHSS was indeed a dreadful complication of ART at times fatal and largely under reported. The fear of OHSS led to seek all kinds of means to adjust gonadotropin doses according to AMH levels and weigh for example. Others were overtly advocating mild ovarian stimulation. While mild ovarian stimulation certainly greatly curbed the risk of OHSS, it markedly reduced ART outcome. Attempts to adjust gonadotropin dose according to AMH/weight were essentially failures. Indeed, in a recent trial using these parameters to adjust gonadotropin doses there were severe cases of OHSS despite liberally advocating GnRH-a trigger and deferred ET.
The most pertinent approach we believe is a more liberal use of gonadotropin dose and apply a very liberal, if not systematic, to freeze all and deferred ET or segmented ART. This approach offers optimal results, no OHSS, and is of course preferred when PGTA is widely applied.

O36 Update on the use of letrozole for ovulation induction

Robert F Casper MD

Clomiphene citrate (CC) has been in clinical use for ovulation induction in PCOS patients for more than 5 decades. It works through estrogen receptor (ER) depletion in the hypothalamus/pituitary to remove estrogen negative feedback on gonadotropin release. Side effects of ER antagonism included thin endometrium, decreased uterine blood flow and poor cervical mucous resulting in lower pregnancy rates than expected. The long half-life of one of the CC isomers (2 weeks) also raises concerns about

a possible impact on embryo development. We developed letrozole to decrease estrogen negative feedback centrally, similar to CC, but avoiding the side effects of ER antagonism. In addition, the 48-hour half-life of letrozole means that it will be cleared from the circulation before fertilization occurs when used for ovulation induction. In 2014, Legro et al. published the results of an RCT comparing letrozole to CC in 750 women with PCOS. The ovulation rate with letrozole was higher than CC and the cumulative live birth rate with letrozole (25.5%) was higher than CC (19.1%; 95% CI 1.1 - 1.87). This study and a subsequent meta-analysis were instrumental in establishing letrozole worldwide as a primary treatment for ovulation induction in PCOS patients.

O37 Infertile Patient with Diminished Ovarian Reserve – protocols, rationale and options

Lubna Pal, MBBS, MS, FRCOG, FACOG.

Ovarian reserve is primarily a quantitative concept that refers to the residual number of ovarian follicles that are available for procreative use. Aging remains the biggest predictor of a decline in ovarian reserve. Many biomarkers are recognized to reflect ovarian reserve status; serum levels of AMH, inhibin B and FSH and ovarian antral follicle counts represent the commonly utilized markers of ovarian reserve in the field of infertility management. It is important to appreciate that aging related decline in ovarian reserve is not an isolated quantitative phenomenon, but is additionally accompanied by a concomitant deterioration in the quality of the remaining eggs.
In the field of infertility management, almost a third of women seeking fertility treatment may demonstrate evidence of diminished ovarian reserve (DOR), as reflected in low serum levels of AMH and inhibin B, elevated FSH levels as well as low AFC. Managing infertility in the setting of DOR can be challenging.
Learning objectives: At the conclusion of this presentation, participants should be able to:

1. Become familiar with the concept and determinants of ovarian reserve
2. Gain confidence in how to counsel patients demonstrating evidence of DOR regarding fertility prognosis
3. Gain an understanding of the rationale for various treatment protocols available for managing infertility in women with DOR
4. Gain familiarity with ongoing efforts and recent advances in addressing DOR related infertility

CONCURRENT SCIENTIFIC SESSION 10:
Assisted Reproductive Technologies

O38 Repeated Implantation Failure. Immunological aspects.

Antonios Makrigiannakis MD, PhD

Professor and Chairman of Ob/Gyn

University of Crete, Heraklion, Crete, Greece,

Implantation failure is rather a common event since only 73% of the concepted embryos are implanted into the endometrial cavity, and only 50% of them will end up as live births.
The immunology of RIF is complex. Cytokines and uterine Natural Killer cells are definitely involved. Additionally the extracellular matrix is also altered as this is described by MMP alterations. The role of inflammation is also crucial as the prostaglandin profile is also reported to be changed. In the frame of reproductive immunology, our group and others have demonstrated the immunomodulatory role of the CRH peptide during implantation and early pregnancy development. It has been shown that CRH is expressed in the implantation sites, and that CRH facilitates decidualization. Additionally we have shown that CRH facilitates maternal tolerance during implantation by inducing FasL expression upon the trophoblast surface, triggering in turn, Fas-expressing T cell apoptosis.
Recently, it has been reported that endometrial injury –as this is performed by a pipelle biopsy – one cycle before an IVF/ET, significantly increased the implantation, pregnancy and live birth rates in women who had one or more IVF failure. More over it has been shown that insertion of autologous peripheral blood monocytes (PBMC) along with HCG to the uterine cavity during the ET, significantly increased clinical pregnancy, implantation and live birth rates in patients with repeated failure of IVF/ET. By combining the knowledge on CRH and its association with a Th2 profile, and the reported effect of the PBMCs on IVF/ET efficacy, we investigated whether the intra-uterine administration of CRH-treated PBMCs during ET could increase IVF/ET in women with RIF. Our results indicate that such intervention significantly improves the clinical pregnancy rate, supporting a new clinical application in the field.

O39 Challenges of ART Practice

Yacoub Khalaf (UK)

ART has become an established therapeutic option for subfertility and it is estimated that approximately 10 millions children have been born worldwide as a result of ART.

ART practice is facing a multitude of challenges such as relatively modest success rates, high patients' expectations, commercialisation and veracity of information used for that purpose, influence of social media, consumerism, emphasis on technology and limited appreciation of biology, inadequate evidence base for a lot of therapies and reluctance to change practice in response to robust evidence when it becomes available, scarcity of reliable statistics, particularly on safety outcomes.
In my lecture, I would try to discuss some of these challenges and share my own views on how they can be addressed.

O40 Understanding miscarriages after ART: Implications for further ART cycles

Professor Antonis Makrigiannakis,

Head of the Department of Obstetrics and Gynecology, Medical School, University of Crete, Greece

Implantation is a process involving the cross-talk between embryo and decidua in the aim of a new pregnancy to begin. A successful implantation may be attributed both to good quality embryos and to a well-functioning decidua. The working hypothesis so far takes into consideration basic concepts of reproductive immunology. As such it has been proposed that successful implantation may happen in case of a Th2 immunological profile. Recent evidence has formulated a new approach incorporating the superiority of Treg against Th17 immunological profile. Regardless the theory, it is known that most pregnancies may fail during implantation, highlighting a failed early placentation. On the other hand, miscarriages are considered as failures of early fetal development and thus of late placentation. Several causes have been found to be related to miscarriages, namely, conceptus abnormalities, anatomical problems of the uterus, infectious diseases, immune and endocrine disorders and environmental influences. All them, result in a local biochemical deregulation which shifts the immune profile to a state unfavorable for pregnancy. In case of a miscarriage after an IVF cycle, evidence supported that a miscarriage may act as a positive prognosticator for a next pregnancy. To this direction several studies have shown that a miscarriage may improve ongoing pregnancy rates in a next cycle. A recent large cumulative study has shown that having a miscarriage is better than implantation failure as prognosis for the next IVF cycle. This effect may last even for the next 3-4 cycles. Moreover, a second pregnancy seems less likely to happen if pregnancy is achieved within the next 6 months after the first miscarriage. The field is currently at the level of observational studies. Further studies are needed to delineate whether this effect is due to immunological imbalance, or perhaps due a restoration to normal of a dysbiotic endometrial environment.

CONCURRENT SCIENTIFIC SESSION 11:
Controlled Ovarian Stimulation

O41 Is the use of GnRH analogues necessary in "freeze all" cycles?

Professor Ioannis E. Messinis, MD, PhD (UK), FRCOG

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In cycles superovulated for IVF, the endogenous LH surge is blocked in the majority of the cases due to overproduction of gonadotrophin surge attenuating factor (GnSAF). However, when a surge occurs, it is markedly attenuated and may be premature. Due to inconvenience regarding the timing of oocyte recovery and the negative impact of premature luteinisation on endometrium maturation, GnRH analoques are commonly used in clinical practice to block a premature LH surge. Although IVF outcome is similar in GnRH agonist and antagonist protocols, the antagonists are less effective in regulating endogenous LH secretion. In recent years, for various reasons, the policy on the use of IVF has changed towards freezing all embryos and transferring them in future thawed cycles. In such cycles, however, premature luteinisation does not seem to create problems as there is no difference in the clinical outcome between cycles with and without GnRH analoques. As an addition to this, other drugs, such as oral progestogens and clomiphene can successfully replace the antagonists. It is probably the right time to redefine the indications of the use of these drugs by adopting less interventional practices and perhaps lowering costs without reducing the effectiveness of IVF treatment.

O42 Which rationale for the addition of recombinant LH to FSH in IVF cycles?

Jean Noel Hugues (France)

The physiological role of LH on ovarian steroidogenesis was described many years ago. Throughout LH receptors constitutively present on human theca cells, LH stimulates several enzymes to produce androgens mainly via the Δ5 pathway. Moving to granulosa cells, androgens exert 2 major effects through specific receptors. On one hand, they stimulate aromatase

activity of granulosa cells to convert androgens to oestrogens (2 cell-2 gonadotrophin theory). On the other hand, androgens promote granulosa cell proliferation and activate folliculogenesis via an increase in the number of FSH receptors. These positive effects of androgens on ovarian function led some authors to recommend an LH priming before FSH stimulation.
More recently, the 2 cell-2 gonadotrophin theory was revisited because the presence of LH receptors has been also demonstrated on granulosa cells while follicular maturation progresses. Indeed, LH receptor expression sharply increases from the small antral follicle to the pre-ovulatory one where LH exerts direct effects on both granulosa cell proliferation and steroidogenesis.
The critical role of LH on ovarian function has been well confirmed in spontaneous or GnRHa-induced hypo-hypo women. However, as LH requirement is presumably very low, no clear serum LH threshold could be identified to recommend LH supplementation in FSH-treated cycles.
In a no-selected population, a large consensus exists to claim that addition of LH to FSH is not necessary. Nevertheless, some subgroups of patients could benefit from the addition of LH. In elderly women (> 35 years) whose theca cell function progressively declines, LH supplementation is likely to improve success rate of IVF cycle. A second subgroup seems to belong to this category of women with a presumed or observed poor responsiveness to FSH. For those with a low ovarian reserve, LH presumably acts as an anti-apoptotic agent. For patients with a slow or unexpected poor response to FSH while ovarian function is still intact, addition of LH probably improves the ovarian responsiveness to FSH through an increased number of FSH receptors.

O43 Ovarian stimulation for PCOS patients undergoing ART

Botros Rizk (USA)

CONCURRENT SCIENTIFIC SESSION 12:
Reproductive Surgery - I

O44 Defining a systematic approach to cesarean scar defects

John Petrozza (USA)

O45 Managing the Ovarian Endometrioma: A suggested decision tree

Ricardo Loret de Mola (USA)

An ovarian endometrioma is a cystic mass arising from ectopic endometrial tissue within the ovary. It contains thick, brown, tar-like fluid, which may be referred to as a “chocolate cyst.” Endometriomas are often densely adherent to surrounding structures, such as the peritoneum, fallopian tubes, and bowel; due to this and other poorly understood reasons it also affects fertility. The goals of endometrioma treatment are to relieve symptoms (pain or mass), prevent complications related to the adnexal mass (rupture or torsion), exclude malignancy, improve subfertility, and preserve ovarian function. However, it remains controversial how to manage the condition in the context of infertility, depending on the patients short and long term wishes for a family. This presentation will review the current literature and make recommendations for a decision tree to care for patients with Endometriomas.

O46 Prevention & management of complications in Laparoscopy

Cihat Unlu (Turkey)

CONCURRENT SCIENTIFIC SESSION 13:
Embryology – I

O47 Role of cryopreservation

Laura Rienzi

Cryopreservation of embryos at different stages of development is an indispensable part of assisted reproductive techniques. Frozen embryo transfers contribute already 25% of all births achieved by assisted reproduction worldwide, and with systematical application, up to 42% of implantations can be derived from frozen embryos. In many clinics, birth rates after transfer of cryopreserved embryos are close or identical to those achieved with their fresh counterparts, increasing considerably the overall success rate of ART procedures measured by delivery per oocyte aspiration rates. A successful embryo cryopreservation program offers the possibility to: reduce the number of embryo to be transferred at a time, to apply cycle segmentation (freeze all) and to add precious time for embryo evaluation.
Moreover, since the introduction of vitrification, oocyte cryopreservation has become a new available technology applicable for oocyte donation and fertility preservation programs. Optimization of minimum volume vitrification method have resulted in breakthroughs in this field. Prospective randomized studies have found no significant differences between fresh and vitrified oocytes regarding the in vitro and in vivo developmental potential. Moreover, pregnancies and perinatal outcomes do not appear to be altered

by oocyte vitrification.
Due to the latest advancements in the vitrification approach, cryopreservation offers incredible new perspectives in ART.

O48 The latest on the fresh vs freeze all debate

Kurt Barnhart (USA)

There have been dramatic advances in IVF that have led to improved success rate. As success rates have improved with the transfer of cryopreserved/ thawed embryos, the focus turned to the receptively of the endometrium as a factor diving success. Epidemiologic evidence suggested that children conceived after a frozen/thawed embryo transfer were less likely to be born at low birth weight. This finding suggested that early placentation may be affected by the hyperstimulation required to obtain multiple eggs for the process of IVF. Early cohort studies suggested IVF success rates may be improved with purposeful cryopreservation of all embryos, a "freeze only" strategy, with transfer in a more "natural" environment. Since there have been a number of randomized clinical trials evaluating this issue with mixed results. This talk will review the data regarding the strategy or "freeze only" for IVF on overall outcome, the rate of miscarriage and ovarian hyperstimulation. A recent meta-analysis of four clinical trials reported the cumulative live birth rate between the freeze□all strategy and the conventional IVF/ICSI strategy was similarly (odds ratio (OR) 1.09, 95% confidence interval (CI) 0.91 to 1.31). The prevalence of OHSS was lower after the freeze□all strategy (OR 0.24, 95% CI 0.15 to 0.38 and the freeze□all strategy was associated with fewer miscarriages (OR 0.67, 95% CI 0.52 to 0.86)
How and why manuscripts get published
This talk will cover how to optimize your success in published in a high quality peer review journal. Topic include a review of the peer review process, an understanding of how to judge the quality of a research manuscript and how to assess the potential of conflict of interest and bias. Overall tips will be given to improve one's ability to submit an interpret high quality scientific publications.

O49 Culturing embryos beyond five days in clinical practice: a new lease of life

Fadi Choucair, PhD

Commendable progress in embryo culture systems supported growth of healthy high-quality blastocysts in vitro. In clinical practice, extended embryo culture approach has shown a steep rise over the past few decades and improved clinical outcomes. A growing body of literature addressing day-6 and day-7 blastocysts transfer, have been solely retrospective in nature. The literature explores the ploidy status and clinical outcomes of slow growing extensively cultured blastocysts. Scope review of the current status of clinical research emphasized to defer to frozen transfer when extending blastocyst culture to day-6 or day-7. Chiefly, high-morphologic-quality day-5 and day-6 euploid embryos should be considered as a first-line choice. Furthermore, the small group of day-7 blastocysts presented lower clinical outcomes but nevertheless reasonable odds for successful pregnancies. However, it would appear that blastocysts cryopreserved and transferred on D5 may be the preferred choice. Extended embryo culture beyond day-5 might be successfully implemented into current practice especially in patients who have only a few or low-quality blastocysts. That is to say, this approach assumes that there is a leeway of free disposability of supernumerary embryos, in embryology laboratories, which are clinically significant. Additional research using a prospective randomized design in future studies is needed to corroborate the current findings.

CONCURRENT SCIENTIFIC SESSION 14:
Reproductive Surgery - II

O50 Virtual Hysteroscopy for the the uterine cavity evaluation before IVF

Sergio Papier (Argentina)

Our experience in 21.200 Cases
Recent advances in reproductive medicine have generated a demand for more accurate imaging methods for identifying the specific cause of female infertility and other gynecologic disorders. Virtual hysterosalpingography is an emerging modality in which aspects of the established technique of hysterosalpingography are combined with the cutting-edge technology of multidetector computed tomography (CT) to allow a comprehensive and highly accurate evaluation of both the female reproductive system and the pelvic anatomy generally. Unlike ultrasonography (US) and magnetic resonance (MR) imaging, multidetector CT is capable of depicting both the external and internal surfaces of the uterus, fallopian tubes, and other pelvic organs, providing high-resolution data that are suitable for two- and three-dimensional reconstructions and virtual endoscopic views. Thus, virtual hysterosalpingography may prove to be superior to other noninvasive modalities for evaluating tubal patency. Moreover, in comparison with conventional hysterosalpingography, which may involve cervical clamping, virtual hysterosalpingography is painless. Because of the health risks associated with ionizing

radiation, the use of another modality (e.g., MR imaging, US) may be preferred if the presence of a focal uterine lesion is strongly suspected. However, virtual hysterosalpingography with multidetector CT may provide a diagnostic advantage in complex cases.

O51 Complications of operative hysteroscopic procedures & management of life-threatening hyponatremia

Cihat Unlu (Turkey)

O52 SURGICAL TECHNIQUE OF IN VITRO ACTIVATION OF RESIDUAL OVARIAN FOLLICLES

Togas Tulandi MD, MHCM.

Professor and Chair of Obstetrics & Gynecology, Milton Leong Chair in Reproductive Medicine, McGill University, Montreal, QC, Canada

Due to an increasing number of women desiring conception beyond 30 years of age, the prevalence of women with premature ovarian insufficiency (POI) has been continuously increasing. Currently, oocyte donation is the only effective option, yet it is not acceptable for many patients. Some studies have found that some of these patients still have residual follicles that could be harvested, activated in vitro and re-implanted to the patient's body. Live births after in vitro activation (IVA) and IVF treatment were recently published. The optimal protocol of IVA of human ovarian follicles is still debatable. The video demonstrates the surgical technique of activation of residual follicles in 30 years-old woman with POI.

CONCURRENT SCIENTIFIC SESSION 15:
Embryology – II

O53 Methods of embryo assessment today

Laura Rienzi

Embryo selection aims at increasing the efficiency of IVF treatments (namely pregnancy rates per transfer) consequently reducing time-to-pregnancy and gestational complications, such as miscarriage rate. Moreover, by better predicting embryo implantation potential a SET policy can be applied reducing the risks of multiple pregnancies.
To date the evidence suggests that cleavage stage morphology poorly predicts implantation potential while blastocyst development is a good predictor of embryo viability. A recent Cochrane review (Glujovsky, et al., 2016) shows that the live birth rate has a relative increase of 48% (form 28,6 to 37.2%; OR 1.48) when a single blastocyst is transferred as compared to a cleavage stage embryo, with no impact on the cumulative live birth delivery rate. However, miscarriage rate remains similar in both groups, suggesting that blastocyst development cannot effectively predict chromosomal abnormalities. Pre-implantation Genetic Testing for Aneuploidies (PGT-A), when performed at the blastocyst stage through comprehensive chromosome testing techniques can further improve our predictive potential upon implantation and miscarriage, avoiding the transfer of chromosomically abnormal embryos. Moreover, the molecular throughput can increase with the introduction of novel techniques such as NGS, along with a reduction of the costs per single sample. The real indication, expectation and pro and cons of this approach are still to be clarified, considering that a diagnostic tool will never change the fate of the analysed embryo and thus cannot improve the cumulative live birth delivery rate per cycle.
The international research in this field is now looking also for novel parameters and tools of embryo selection, preferably non-invasive. Proteomic and metabolomic analyses from IVF spent culture media, a waste product of ART, represented an important perspective. Unfortunately though, RCTs did not report any clinical advantage deriving from their application (Hardarson et al, 2012; Kirkegaard et al, 2014). Different groups are also working instead on miRNAs, mitochondrial DNA or nuclear DNA analysis in spent blastocyst media. Very interesting data are coming out but none of these technologies is ready for a general clinical application. A strict validation is necessary before offering to patients' new tools.

O54 PGT-A, does it improve ART outcome?

George R Attia, MD, MBA

Director, Division of Reproductive Endocrinology and Infertility
Director, UHealth Fertility Center
University of Miami, Miami, Florida, USA

The objectives of this presentation are to describe the potential advantages and disadvantages of Preimplantation genetic testing of aneuploidies (PGT-A) and its limitation, help in selecting patients who would benefit most, and finally to discuss new technology of non-invasive PGT-A to avoid the

potential lower implantation and embryo injury as a result of the biopsy.
Since the first successful IVF in 1978, there has been significant progress and innovations to improve outcomes. More recently, there has been emphasize on single embryo transfer (SET) to reduce potential maternal and fetal morbidity while maintaining acceptable pregnancy rate. PGT-A has recently introduced as integral part of IVF, and its indications has been expanding. PGT-A is widely used in advanced reproductive age women, repeated IVF failures, patients with recurrent miscarriages and to support the decision of SET. It is estimated that 40-60% of all IVF cycles embryos will undergo PGT-A. Despite the widespread use of PGT-A, questions remain regarding the actual improvement in pregnancy outcome, cost and potential harm to the embryos. This presentation will review recent data and discuss current indications for PGT-A, and the advantages and disadvantages of applying such technology.

O55 Characterization of embryonic cells derived from multiple fetal embryo reduction

Ragaa Mansour (Egypt)

CONCURRENT SCIENTIFIC SESSION 16:
Reproductive Surgery - III

O56 PRE-IVF TREATMENT OF HYDROSALPINX

Togas Tulandi MD, MHCM.

Professor and Chair of Obstetrics & Gynecology, Milton Leong Chair in Reproductive Medicine, McGill University, Montreal, QC, Canada

Hydrosalpinx affects not only spontaneous conception, but in-vitro fertilization (IVF) treatment outcome as well. In order to improve IVF outcome in women with hydrosalpinx, several pre-IVF treatment options have been advocated. The most effective and widely used treatment is salpingectomy followed by proximal tubal occlusion. Insertion of micro-insert into the proximal Fallopian tube has also been performed. An emerging new treatment is hydrosalpinx sclerotherapy. In a meta-analysis, the IVF pregnancy rates after hydrosalpinx sclerotherapy and after salpingectomy are comparable. In this presentation, several techniques of pre-IVF treatment of hydrosalpinx without jeopardizing the ovarian reserve will be discussed.

O57 Rewriting the script: time to rethink the indications for myoma surgery

John Petrozza (USA)

O58 How and why manuscripts get published

Kurt Barnhart (USA)

CONCURRENT SCIENTIFIC SESSION 17:
Embryology - III

O59 Mosaic Embryos…What to do?

George R Attia, MD, MBA

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A pregnancy rate of in the range of 20-50% for woman under the age of 40 has slightly changed over the past few years. Significant number of these failures had been attributed to the transfer of chromosomally abnormal embryos. In the ever-evolving fields of ART, we have been seeking new and advanced technology to assist in improving pregnancy rate. Preimplantation genetic testing of aneuploidies (PGT-A), a methodology that allows testing of embryonic cells chromosomal complement, has been widely used to select euploid embryos for transfer with the hope of increasing clinical pregnancy rate and lowering the incidence of miscarriages. Next-generation sequencing (NGS) technology has been widely used in testing those embryos, however, with the use of this advanced technology the detection chromosomal mosaicism became an emerging concern. More recent reports of live-birth after the transfer of these abnormal embryos had raised concerns about the accuracy of the technology itself and its wide-use applications. The objectives of this presentation are to discuss potential cause of mosaicism, clinical implications and to develop a strategy to help patients and providers in the decision-making process

O60 Elective Single Embryo Transfer (eSET): The American Experience and SART 2017 Guidelines

Ricardo Loret de Mola (USA)

There have been dramatic advances in IVF that have led to improved success rates, however these improvements were not associated with a reduction of multiple pregnancies in the USA. This presentation focuses on the recommendations made by the Society for Assisted Reproductive Technologies (SART) to reduce multiple pregnancy rates in 2017, and review the history behind these recommendations and how IVF care has been changing in the USA based on these recommendations.

O61 Telenursing communication in fertility settings for a better patient support throughout the fertility treatment

Mona Fawwaz (Lebanon)

Assisted reproductive technologies interventions are physically, psychologically and financially taxing for the patients. Patients were used to come physically to the clinic in order to obtain answers for their questions or to give a test result and even to seek emotional support. The concern was that the couple may have to travel long distances to attain their fertility clinics witch sometimes require time off work.
Recently telehealth is becoming one of the methods of delivering care to patients in different specialty health care services. More specifically, telehealth nursing refers to the delivery and management of nursing care using telecommunications technology. The couple can now have access to care with certain limits without coming physically to the fertility clinic.
Nowadays, the use of information technology (IT) by the nurse to provide patient reassurance, wellness and self-management is evolving. One of the critical roles of the fertility nurses is to give patient education about their treatments, side effect and expectations. She needs to work closely with each patient in order to guide the woman throughout the infertility treatment planning, support any decision making and assist with any patient education.
Joint commission has established safety standards to telehealth practice in order to assure patient safety and quality of care. According to JCIA, the care through telecommunication must be: safe, effective, patient-centered, timely, efficient and equitable.
In telehealth nursing practice, the RN use of communication skills can ultimately affect the health and lives of patients being served. Presenting a positive attitude that is reflected in voice, choice of words, and actions can go a long way in meeting customer expectations.

CONCURRENT SCIENTIFIC SESSION 18:
Controlled ovarian stimulation

O62 FUTURE OF CONTROLLED OVARIAN HYPERSTIMULATION

M Gouri Devi (India)

Controlled ovarian hyperstimulation is an integral part of Assisted reproduction. What started as Oral ovulogens in late 50s, graduated to Injectables. Gonadotropins came into vogue in late 60s . The first IVF baby was born in1978 in a natural cycle IVF. The first IVF pregnancies in a gonadotropin stimulated cycle were performed only in 1981 (Fert.ster.:1982).
We be heading towards a modified direction- Individualisation of stimulation. Towards this end the new gonadotropin "Rekoville-follitropin Delta" was presented in ESHRE2016. A newer molecule "Kisspeptin"as a trigger after COH,many publications have come.
Newer stimulation protocols like "Dual Stimulation" (Shanghai protocol:Kuang:2014) and later Duostim by Ubaldi:ASRM2015 are being used regularly in poor responders. Progesterone primed protocols are good in PCOS patients to keep the LH levels low and is cost effective compared to Antagonist cycles.
Genomics may play a greater role in future. The Single nucleotide polymorphism (SNP) found in FSH(ser680 allele) and v beta LH shows that knowing the genome of the individual will change the type of stimulation to get the better results .The right type of stimulation will need lesser amount of gonadotropins with optimum results.
Genome wide association studies (GWAS) identify genetic factors that influence drug response. These are being done in ovarian stimulation.
Conclusion: If a patient's genetic profile also diminishes her response to fertility treatment, the failure to consider the genotype when designing the treatment consequently leads to a suboptimal treatment strategy.

O63 Dental health and male infertility

Teddy Tedros (Leb)

O64 COMPARATIVE EFFICACY OF DOME-SHAPED OBSTETRIC PESSARY AND CERVICAL CERCLAGE FOR THE CORRECTION OF CERVICAL INSUFFICIENCY

N. Artymuk, O. Novikova, T. Marochko, D. Beglov

Key words: Arabin pessary, vaginal progesterone, cerclage, cervical insurfficiency, preterm birth.
Study question was to evaluate the comparative use of Arabin pessary and intravaginal progesterone vs cerclage and intravaginal progesterone for the prevention of preterm birth in high risk women.
Summary answer. Dome-shaped obstetric pessaries or cerclage with vaginal progesterone are equally efficacious in the prevention of preterm birth in high risk women in the mid trimester and singleton gestation.
What is known already. Preterm birth is one of the major global health problems and part of the Millennium Development goals because of the associated high number of perinatal or neonatal mortality and long-term risks of neurodevelopmental and metabolic diseases [Kyvernitakis I et al., 2018]. Globally, preterm birth (PTB) rates are rising and have a significant impact on neonatal morbidity and mortality. PTB remains difficult to prevent and a number of strategies for preterm birth prevention (progesterone, cervical pessaries, cervical cerclage, tocolytics, and antibiotics) have been identified. A paucity of effective interventions exists for the prevention of PTB [Karis Allen L, 2017]. Despite being a common clinical practice, evidence to support the combined use of multiple versus single interventions for preventing PTB is scarce [Jarde A., 2017].
Study design, size, duration. This was a retrospective case-control study of 150 women with singleton pregnancies from August 2015 to March 2017 in the Gynecological Department Regional Clinical Perinatal Center named after L. Reshetova.
Participants/materials, setting, methods. Group I consisted of 50 women who had a cerclage at the 22 week. All patients have been administered intravaginal progesterone in the dosage 200 mg per day. Group II consisted of 100 women with pessary placement at the 18 week. Primary outcomes were rates of PTB before 37, 34, and 28 weeks gestation. Secondary outcomes were the average weight of a newborn, the infant's score on the Apgar scale, the percentage of low-weight newborns.
Main results and the role of chance. One patient from Group II dropped out of the study. Fifty four (54%) and fifty seven singleton women (57.1%) delivered at term correspondingly. Of these deliveries, eighty seven (87.7%) and sixty five (65.9%) were spontaneous. The primary outcomes are shown in Table 1.
The rates of PTB before 28 weeks were six (6.0%) and eight (8.1%), before 34 weeks gestation were sixteen (16.0%) and twelve (12.2%) for all deliveries, in 34-37 weeks were twenty for (24.0%) and twenty two (22.4%) correspondingly (x2 =5.518; p=0.138).
The average weight of a newborns were 3400g [Me 2770; 3560] and 2916 g [Me 2530; 3510], U=841.0; p=0.222; the percentage of low-weight newborns were 8,1% and 6,0% (x2 =2.746; p=0.253) and the Apgar points were 7.75 [Me 7; 8] and 7.0 [Me 7; 8] (U=800.0; p=0.102) correspondingly.
Limitations, reasons for caution. Further multicenter studies are necessary to confirm these findings and determine as guidelines in the future.
Wider implications of the findings. This data obtained confirm the possibility of using a combined approach for cervical insufficiency with both the use of the pessary and cerclage.
Study funding/competing interest(s) No funding / no conflict of interest
Trial registration number (if registered clinical trial) No

ORAL PRESENTATIONS SESSION 3:
Assisted Reproductive Technologies

O65 Impact of Mitochondrial DNA copy number on assisted reproductive technology outcome in patients undergoing pre-implantation genetic testing for aneuploidy

Chadi Fakih (Lebanon)

O66 Replacing antagonist by clomiphene citrate to prevent premature ovulation: is it possible?

Imad Aboujaoude MD 1 , Sarine Ekmekjian MS 2 , Teddy Tadros MD1

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Since the introduction of antagonists in the 90th, the short antagonist protocol is becoming the most used protocol in IVF-ET patients instead of the standard long agonist protocol. New larges studies showed that clomiphene citrate could be used to prevent premature ovulation in mild stimulation using 50 mg daily. No studies to our knowledge used clomiphene in standard IVF-ET protocols. Therefore, we decided to do a pilot study replacing antagonists with clomiphene 150 mg per day until triggering.

Materiel and methods:161 infertile patients entered our IVF-ET program and were sorted as follows: group1 ANT ORG underwent the classic antagonist protocol starting HMG or recombinant FSH on day 3 of the cycle and antagonist were introduced when at least one follicle reached 14 mm in diameter; in group 2; ANT CLOMID we replaced the antagonist by clomiphene 150 mg daily. Triggering of final oocyte maturation was performed using HCG 5000 IU or Decapeptyl 0.3 mg or double triggering HCG and Decapeptyl 0.3 mg when at least 3 fol licles reached 17mm in diameter. Oocyte retrieval was conducted under general anaesthesia 35 to 37 hour after triggering.
Results: Our study results are summarized in table 1 below
Conclusion: To our knowledge this is the first pilot study where clomiphene citrate is used to prevent premature ovulation in IVF-ET. Preliminary results showed that clomiphene is as efficient as the antagonists, cheaper, and easier to use. Further randomized controlled studies are needed to confirm and expand these results.

O67 Impact of Endometrial Thickness on the success rate of Intracytoplasmic Sperm Injection (ICSI) at Royal Care International Hospital Fertility Center between 1st of June 2016 to 31st of May 2018

Mariam Melik Mahany Melik

Introduction: Infertility is the inability of a couple to conceive for 12 month or more although having regular unprotected sexual intercourse. The female infertility can be due to ovulatory or tubal abnormality (WHO Type I), disturbance in hypothalamic-pituitary-ovary-axis (WHO Type II), or due to ovarian failure (WHO Type III). The male infertility is due to chromosomal abnormality or impairment in sperm quality and/or quantity. Infertility can also be unexplained. Intracytoplasmic sperm injection (ICSI) is an assisted reproductive technique in which a single morphological normal sperm is injected into a mature oocyte. Our research assessed the impact of endometrial thickness on the success rate of ICSI.
Methods: A facility-based Retrospective cross-sectional study was implemented in the Fertility Center of Royal Care International Hospital (Khartoum, Sudan) during the period of 1st of June 2016 to 31st of May2018.
A multistage sampling technique was used to extract from medical records a sample of 400 females who underwent ICSI. Were excluded all the patients who attended Royal Care International Hospital Fertility Center for any reason other than ICSI and those who were examined prior or after the period of study.
A standardized data instrument was used to collect data related to the age of patients, type of infertility, state of endometrial thickness (EMT), estradiol level, protocol and medication applied for induction of Ovulation, type of embryo, number of oocyte retrieved and outcome of pregnancy.
The data was computerized through Excel and analyzed through SPSS 23. Descriptive statistics were firstly used to summarize numerically (mean, standard deviation and median) and graphically (frequency tables for estimating proportion)the collected data. Associations between variables was tested through Chi-square tests and analysis of variance (ANOVA). A regression analysis was performed to establish the relationship between EMT and its related factors. All statistical test were considered statistically significant when $p < 0.05$.
Results: A multi-linear regression analysis was performed to assess the relationship between EMT and five explanatory variables (level of estradiol, medication of induction, age, number of oocyte retrieved and Outcome). The level of estradiol, the medication of induction and outcome used were the factors statistically associated to EMT with a p-value of respectively 0.026, 0.019, and 0.000. The age of the participants and the number of oocytes retrieved were not statistically significant ($p > 0.05$), but their negative coefficients of respectively-0.005 and -0.006 indicated that when the EMT increased those factors decreased.
Discussion: The results of this study indicatd that the EMT has a strong impact on the success rate of ICSI outcome, such that with the increase in the EMT the outcome gets better. Therefore EMT could be an indicator of success of the procedure under the condition that other factors are also taken into account
Keywords: endometrial thickness, ICSI, patient age, number of oocyte retrieved, estradiol, infertility

O68 Hormone replacement therapy and successful pregnancy in a patient with premature ovarian failure

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Most of the patients with Premature Ovarian Insufficiency (POI) were accidently diagnosed. Premature Ovarian Failure (POF) has a psychological and social negative impact on the life of a female, specially her fertility. Despite the fact that there is a 5 % probability of spontaneous pregnancy; multiple clinical trials have been applied for POI patients. This report documents the case of a 33-year-old woman with POI who was diagnosed accidently. After five years of infertility, this patient was advised to receive

Hormone Replacement Therapy (HRT). Following six months of treatment, the patient conceived spontaneously, and a healthy baby was born. Thus, HRT would appear to be not just to relieve the associated menopausal symptoms, but it is highly recommended in cases of infertility for POI.

Key words: premature ovarian insufficiency, spontaneous pregnancy

CONCURRENT SCIENTIFIC SESSION 15:
Embryology – II

O69 Serum estradiol and progesterone levels impact on clinical and chemical pregnancy rates in frozen embryo transfer cycles

ozkan aydin leylek, ahmet cupurbas, hakan kiran, ali tahtaci, hatice bayram, hulya tavuz

Key words: estrogen, progesterone, frozen embryo cycle

Study question: Are the estrogen and progesterone levels of frozen embryo transfer related to chemical and clinical pregnancy rates in artificial cycles?

Summary answer: Canceling the transfer cycle or individualizing luteal phase support by measuring serum estradiol and progesterone levels might help to enhance pregnancy rates

What is known already: Endometrial preparation with exogenous hormones is the most commonly-used method for FET cycles in many centers. Estrogen and progesterone plays a key role in the establishment of endometrial receptivity and embryo implantation. Currently, attention has been paid to the serum steroid hormone levels in frozen embryo transfer cycle. Whether the hormone's levels have any meaning in deciding the timing of ET or predicting the possibility of pregnancy, to date few articles have reported the question.

Study design, size, duration: The data from one hundred ninety two (192) women undergoing two hundred twenty five (225) frozen embryo transfer cycles was included during the period January 2019-August 2019 in this retrospective cohort study. All the patients who underwent the transfer of their frozen-thawed embryos that were cryopreservated in previous ICSI cycle and preferred hormone replacement protocol with GnRH agonist were involved in this study. The same vaginal support regimen was applied in all patients.

Participants/ materials, setting, methods: Women were detected of serum estradiol and progesterone levels during the hormone supplement FET cycles and compared their chemical and clinical pregnancy rates according to their estradiol level on progesterone initiation day and progesterone level on the day of FET. Receiver Operator Characteristic curve (ROC) was used to evaluate the predictive value of serum estradiol and progesterone for discriminating women with successful implantation and to delineate the optimal cut-off value.

Main results and the role of chance: According to our analysis, positive beta hCG results were seen in 149/225 cycles. The overall chemical and clinical pregnancy rates per embryo transfer cycle were 16.7% (38 of 225) and 48.8% (111 of 225), respectively. Mean serum progesterone levels were significantly lower in non pregnant women compared with those had gestational sacs on ultrasound (18.6± 7.63 ng/ml vs 33.5±13.7 ng/ml respectively (p=0.024). A cut-off value of 25.2 ng/ml, progesterone had 85% sensitivity and 74% specificity. The chemical pregnancy rate in women with low p levels < 25.2 were significantly higher than the women with high p levels ≥ 25.2, (23.9%, 23 of 96 vs 11.7%, 15 of 129; p=0.017). Regarding the E2 levels on progesterone initiation day of frozen-thawed embryo transfer, significant differences were found between clinically pregnant women and non-pregnant women (348.8±145.5 vs 158±51.3; p=0.033). The logistic regression analysis revealed that E2 levels higher than 197.5 pg/ml on the day of progesterone initiation were associated with clinical pregnancy (OR=1.54, 95% CI:1.2-2.2; p=0.028). Women with low E2 levels < 197.5 had higher chemical pregnancy rate than women with high E2 levels ≥ 197.5 which are not statistically significant (18.2%, 20 of 91 vs 13.5%, 18 of 134; p=0.327).

Limitations, reasons for caution: Genetic screening of embryo may need to be done to eliminate the embryonal factor in implantation. Otherwise, the serum estradiol and progesterone levels could predict pregnancy success in hormone replacement with GnRH agonist FET cycles, suggesting that estradiol and progesterone monitoring in this method of endometrial preparation is necessary.

Wider implications of the findings: Future studies are necessary to explore whether additional exogenous luteal estradiol and progesterone supplementation in the low E2 and P4 group could increase the chance of clinical and ongoing pregnancy following frozen embryo transfer.

O70 Low LH level on the day of GnRH agonist trigger is associated with reduced ongoing pregnancy and live birth rates and increased early miscarriage rates following IVF/ICSI treatment and fresh embryo transfer

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Objective: To examine the correlation between serum luteinizing hormone (LH) levels on the day of GnRH agonist (GnRH-a) trigger and reproductive outcomes following in vitro fertilization/intracytoplasmic sperm injection (IVF/ICSI) treatment and fresh embryo transfer, and to identify a pre-trigger serum LH threshold which would be compatible with the most optimal cycle outcome. Design: This study is based on data from a previously published randomized controlled trial conducted from 2014 to 2016. Patients: A total of 322 participants were enrolled. Setting: Private IVF center. Intervention(s): GnRH-antagonist-based IVF cycles triggered with GnRH-a. For the purpose of the study, patients were stratified according to preovulatory LH quartiles (Q1-Q4). Main Outcome Measure(s): Ongoing pregnancy rates (OP), live birth rates (LB) and early pregnancy loss (EPL) rates. Results: The results of the present study showed increasing OP as well as LB rates and decreasing EPL rates with increasing pre-trigger serum LH levels, (P for trend < 0.06, 0.07, and 0.02) respectively. The absolute difference between the highest LH(Q4) and the lowest LH (Q1) group was 13.4%,12.1%, and 12% in OP, LB, and EPL rates respectively. In multivariate regression analysis, a pre-trigger serum LH level of 1.60 mIU/ml was identified as a threshold below which reproductive outcomes decreased. The ROC curve values were statistically significant for OP, LB, and EPL; the AUC (95% CI) = [0.57 (0.50-0.63) P<0.04; 0.57 (0.50-0.63) P<0.05, and 0.60 (0.51-0.70) P< 0.04] respectively. A significant positive correlation was found on the day of GnRH-a trigger between serum LH, the number of follicles > 11mm, serum progesterone (P4), and serum estradiol (E2), p < 0.03; P< 0.03; and p< 0.001 respectively. Conclusion: Low serum LH levels on the day of GnRH-a trigger is associated with reduced ongoing pregnancy and live birth rates and increased early miscarriage rates. Our findings suggest a lower threshold of serum LH values on the day of GnRH-a trigger necessary to optimize reproductive outcomes in fresh embryo transfer cycles.
Key words: Luteinizing Hormone, GnRH agonist trigger, Ongoing pregnancy, Live birth, Early pregnancy loss, Fresh embryo transfer

O71 Impact of high progesterone level the day of trigger on blastocyst quality in GnRh antagonist IVF/ICSI cycles:is there an evidence?

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Background: It's well established that high progesterone level in the late follicular phase in controlled ovarian stimulation is detrimental on IVF/ICSI outcomes by impairing endometrium receptivity. However,the impact on embryo quality is controversial.
Methods and Objective:To evaluate the impact of high progesterone level the day trigger on blastocyst quality.
Retrospective cohort study including 305 IVF/ICSI cycles with freeze all embryo from January 2016 to December 2017at Tiziri IVF center.
Conventional antagonist protocol for all patients,ovulation induction with hCG or Triptorelin. Egg retrieval 36 hours after triggering.
Progeterone was analyzed by a competitive immunoassay method with a final fluorescent detection. Intra and interassay coefficients of variation <10%,sensitivity 0,25 ng/ml,measurement range 0,2-31ng/ml.
All embryos were cultured to blastocyst stage,scored according to Gardner classification at day 5 before freezing.
Exclusion criteria: female over 40 years, diminished ovarian reserve, severe male factor.
Two groups freeze all embryo for both: 88 patients high progesterone level group. ≥1. 5ng/ml, 217 patients normal progesterone level group <1. 5ng/ml. Top quality blastocyst was defined as ≥ expanded blastocyst with trophectoderm and ICM grade A.
The primary endpoint is the top quality blastocyst rate:top blastocyst per fertilized oocyte. Secondary end point are the fertilization rate and the blastostulation rate (the number of blastocyst per 2PN).
Data analysis was done with XLstat authomatized using X^2 test P<0. 05 was considered statistically significant.
Patients were informed and signed the Consent forms.

The study was approved by the institutional reviewer board of TIZIRI IVF center.

Results: Top blastocyst quality rate significantly different on favor of normal progesteone level group 8. 33% vs 4. 7% p 0,0067. No significant difference on the fertilization and the blastulation rate in high Progesterone level group and normal progesterone level group respectively 74. 8% vs 81% and 51. 3% vs 44. 6%.

O72 Comparison between natural cycle and artificial cycle in frozen–thawed embryo transfers: retrospective cohort study

Qamhia, D.; Abukhaizaran, R.; Naasan, M.; Abukhaizaran, S.; Awad, F.

Key words: Natural cycle, artificial cycle, frozen–thawed embryo transfer, IVF outcome
Study question: Is the clinical pregnancy outcome different in natural cycle (NC) compared with artificial cycle (AC) in frozen-thawed embryo transfer (FET)?
Summary answer: No significant difference in clinical pregnancy rate has been found between the NC and the AC in FET.
What is known already: FET is a procedure where excess embryos derived from IVF can be stored for later transfer. In recent years, most IVF centers use single embryo transfer protocol and freeze the rest as an optimal method to prevent multiple pregnancy. In order to improve treatment outcomes, several methods have been proposed for endometrial preparation. In the natural cycle –frozen embryo transfer (NC-FET), the endometrium develops under endogenous hormonal stimulation. In the artificial cycle frozen embryo transfer (AC-FET), estrogen and progesterone are administered to prepare the endometrium for implantation. Currently, the available data show controversial results regarding pregnancy rates between these methods and there is no consensus on the most effective method of endometrial preparation before FET.
Study design, size, duration: It is a retrospective cohort study. All women who were referred to Razan Medical Center for FET between January 2016 to December 2018 were enrolled. Seven hundred and fifty-three frozen cycles with embryos derived from the patient's own eggs were included in this study. The period of the study was from September 2018 to August 2019.
Participants/materials, setting, methods: All women who had at least one cryopreserved embryo derived from intra cytoplasmic sperm injection (ICSI) treatment cycle, age between 20 and 42 years and had regular menses included in the study. We used data from Razan Medical Center for Infertility and IVF embryology laboratory's database and Fertismart program for assisted reproductive technology online records. Patients' data were collected on an excel file.
Main results and the role of chance: The NC-FET used in 58.7% of cycles and AC-FET in 41.3% of cycles. The average number of embryos transferred after thawing was similar in the two groups (2.4 and 2.3 embryos per cycle respectively). Regarding clinical pregnancy rate, there was no significant difference between the NC-FET (54.5%) as compared with the AC-FET (50.8%). No significant difference was observed between the two groups with regard to the age of the patients or the duration of freezing.
Limitations, reasons for caution: Since we only have data on the clinical pregnancy outcome, any association between the type of cycle and live birth rates could not be assessed.
Wider implications of the findings: In our study, both of endometrial preparation protocols NC-FET and AF-FET used in women with regular cycles have shown similar clinical pregnancy rates. However, the cost of both protocols and the patients' preferences were not investigated. Further studies are required to include these factors to make clear recommendations.
Study funding/competing interest(s): This work is supported by Razan IVF center in Palestine. The authors have no conflict of interest.

ORAL PRESENTATIONS SESSION 5:
Assisted Reproductive Technologies

O73 EFFECTS OF FERTILITY MEDICATIONS ON GLUCOSE HOMEOSTASIS AND OTHER METABOLIC PARAMETERS IN WOMEN UNDERGOING IN VITRO FERTILIZATION (IVF)

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Warwick Medical School

Key words (minimum of three and maximum of five)
Infertility, IVF pregnancy, pregnancy diabetogenic
Study question: Do fertility medications affect glucose homeostasis and insulin sensitivity, as well as, other endocrine and cardio-metabolic parameters in patients undergoing fresh IVF treatment?
Summary answer: Improved glucose homeostasis and increased triglycerides are likely due to pregnancy-related hormonal effect. Fertility medications seem to raise glucose levels and triglycerides with negative pregnancy.
What is known already: Obesity has increased along with increasing obesity-related abnormalities in the reproductive system, which include anovulation and infertility. Infertility is defined as the inability to conceive for 12 months of unprotected intercourse, with a worldwide prevalence of about 15 -20%

in couples. Consequently, assisted reproductive technologies (ART) treatment has become more common in nowadays, with in vitro fertilization (IVF) being the most popular. In mice, IVF was associated with glucose intolerance. Controversies still exist on whether ART would be an additional factor to the known diabetogenic effect of pregnancy predisposing women to adverse obstetric outcomes compared to spontaneously-conceived pregnancy.
Study design, size, duration: Longitudinal quantitative cohort study at three IVF Clinics in the UAE (Dubai, Abu Dhabi and Al Ain), with a prospective reference point and correlational type of investigation (observational) and non-experimental. A convenient sample of women undergoing IVF treatment were recruited and followed up to 12 weeks. 96 pregnant and 48 non-pregnant (n=144) were recruited to detect a moderate difference (standardized difference=0.5), with 80% power, a significance level of 0.05 and ratio of 2:1 for pregnant to non-pregnant women.
Participants/materials, setting, methods: Adult non-diabetic women (BMI: 18.5-37), ≤ 39 years undergoing IVF treatment were recruited. A control group included women tested negative for pregnancy at 4 weeks. Blood samples were collected throughout IVF treatment at: baseline, egg retrieval, 4 and 12 weeks of pregnancy. Plasma insulin and glucose were used to determine changes in glucose homeostasis and insulin sensitivity. Lipid profile, HbA1c, thyroid-stimulating hormone (TSH) and women reproductive hormones were also routinely measured.
Main results and the role of chance: At 12 weeks of hormonal intervention, glucose, HbA1c and TSH levels were lower, respectively by 3%, 4% and 14%; while, lipid profile was significantly higher in the pregnant group (88% in triglycerides, 13% total cholesterol, 18% HDL and 5% LDL). All values remain within the normal range. The increase in triglycerides (≈21%) and glucose (≈3%) levels were significant at 12 weeks for the non-pregnant group. No significant change was observed in relation to insulin level and sensitivity (based on HOMA) for both groups at 12 weeks.
Limitations, reasons for caution: Participants are majoritarily UAE nationals; it is questionable whether findings can be generalized. Our results can be improved with a larger sample size.
Wider implications of the findings: Given the known diabetogenic effect of pregnancy, this study will bring positive advancement in early and potential predictors of gestational diabetes. Data can also help assessing long-term effect of IVF medications on fetal outcome. It will be interesting to compare these findings with other ART or different hormonal combination interventions.
Study funding/competing interest(s): There are no relationships to disclose or any conflict of interest to declare with the IVF clinics. This study did not receive any sponsorship; tests were done routinely as part of the IVF management plan.
Trial registration number: ClinicalTrials.gov: NCT0426228

O74 The Consequence of Exercise Therapy among Menopausal Women

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Abstract
The purpose of this research is to identify if the symptoms of menopause are decreased in menopausal women who exercise. Menopause is a period that in which fertility changes to infertility. Menopause can happen in your 45s or 50s. In long run, symptoms like hot flashes, night sweating, decentralization, weight gain and increasing of heart disease can occur. Exercise is a nonpharmacological way to decrease some of these symptoms that women experience when going through menopause. Multiple studies show that exercise decreases the risk of osteoporosis, body fat, waist circumference, triglyceride levels, and depressive symptoms in menopausal women. Several studies on physical exercise evidenced numerous health benefits, including increased quality of life, lumbar bone mineral density, insulin resistance, and quality of sleep of menopausal women. More studies are needed to show exactly the frequency, intensity, and the type of exercise that would have the greatest effect on menopausal symptoms.
Keywords: Exercise, Physical activity, Menopause

O75 Prediction of Premature Ovarian Insufficiency and Prevalence of Medical Diseases

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Background: Premature Ovarian Failure (POF) represents 1 % among women below the age of 40 and can be diagnosed by two levels of serum Follicular Stimulating Hormone (FSH) ≥40 mIU/ml at 6 weeks apart. There are many reasons for POF and commonly is idiopathic (60 to 80 %). POF has a negative impact on the psychological, social and quality of life of females. Objective: this study aims to find the possibility of prediction of Premature Ovarian Insufficiency (POI)

and its relation to medical disorders.
Materials and Methods: A retrospective study was conducted at the National Center for Diagnosis and Treatment of Infertility- Misurata, Libya. A total of 350 patients with POI were involved. The Inclusion Criteria were: age < 40 years, with high serum FSH level, low Anti-Mullrian Hormone (AMH) and low Antra-Follicular Count (AFC). The hormonal essay including FSH, Luteinzing hormone (LH), Estradiol (E2) , thyroid-stimulating hormone (TSH), Prolactin, and Fasting Blood Sugar (FBS) along with the medical history was collected.
Results: Overall collected cases had a mean age (31.19±3.86 years) and the medical disorders represented 47 % of POI causes. Hypothyroidism, Hyperprolactinemia and Diabetes Mellitus were the most common associated disorders (31 %, 30 %, 14 % respectively). The increase in the level of FSH (14.78±12.87) was the most sensitive test to predict POI especially in hypothyroidism cases, which could help to predict ovarian failure in those groups of people.
Conclusion: there is a strong association between POI and medical conditions especially Hypothyriodism. Changes in FSH are the most sensitive test among ovarian markers to predict POF.
Keywords: Premature Ovarian Failure (POF), Medical Disorders.

O76 Exercise as an Intervention in Reducing Side Effects of Breast Cancer

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The purpose of this review is to describe how the physical exercise is capable to reduce breast cancer symptoms and treatment side effects. Worldwide, breast cancer is the most frequently diagnosed life-threatening cancer in women and the leading cause of cancer death among women. Patients with breast cancer can receive various forms of medical therapy such as surgery, chemotherapy, hormone therapy, antibodies, and/or radiotherapy and be confronted with various side effects such as fatigue. In addition, breast cancer patients start to decrease their physical activity during therapy and stay physically inactive during aftercare. Exercise offers many benefits for breast cancer survivors, exercise is increasingly considered by many authors to be a factor reducing the risk of cancer development and premature cancer-related death, and many studies have found a link between regular exercise and a lower risk of being diagnosed with breast cancer, as well as a lower risk of breast cancer coming back. However there are gaps in study documentations as well as inadequate verification of scientific approaches in rehabilitation clinics and in everyday life. Future studies should be focused to examine the exactly frequency, intensity, and the type of exercise that would have the greatest effect on the relative risk of breast cancer
Keywords: Breast cancer, Exercise therapy, and Physical activity

O77 Individualized controlled ovarian stimulation for ART

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INTRODUCTION: A normal response to stimulation during a cycle of IVF/ ICSI is often considered desirable, for example the retrieval of 5 to 15 oocytes. Women receive daily doses of gonadotropin follicle-stimulating hormone (FSH) to induce multifollicular development in the ovaries. Generally, the dose of FSH is associated with the number of eggs retrieved.
Both poor and hyper-response are associated with increased chance of cycle cancellation. Hyper-response is also associated with increased risk of ovarian hyper stimulation syndrome (OHSS). Clinicians often individualize the FSH dose using patient characteristics predictive of ovarian response such as age.
More recently, clinicians have begun using ovarian reserve tests (ORTs) to predict ovarian response based on the measurement of various biomarkers, including basal FSH (bFSH), antral follicle count (AFC), and anti-Müllerian hormone (AMH). It is unclear whether individualizing FSH dose based on these markers improves clinical outcomes.
PURPOSE OF REVIEW: To assess the effects of individualized gonadotropin dose selection using markers of ovarian reserve in women undergoing IVF/ ICSI.
METHODS: A Cochrane Data Base of Systematic Reviews searched the Cochrane Gynecology and Fertility Group Specialized Register, Cochrane Central Register of Studies Online, MEDLINE, Embase, CINAHL, LILACS, DARE, ISI Web of Knowledge, ClinicalTrials.gov, and the World Health Organization International Trials Registry Platform search portal 2017.
CONCLUSIONS: Current evidence does not provide a clear justification for adjusting the standard dose of 150 IU in the case of poor or normal responders; especially as increased dose is generally associated with greater total FSH dose and therefore greater cost. However, a decreased dose in predicted high responders may reduce OHSS.
Key Words: IVF/ICSI; individualized FSH dose; ovarian reserve tests.

O78 Treatment of Infertile PCOS patients with optimal results and decrease the rate of OHSS

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background : Polycystic ovary syndrome (PCOS) is one of the most common endocrinopathies affecting women in the reproductive age group, and is one of the most common causes of ovarian hyperstimulation syndrome(OHSS) in infertile patients. The aim of this study was decreased OHSS due to induction of ovulation with clomiphene citrate and then letrozole in comparison of letrozole and cabergolin and an optimal pregnancy rate.
Material and methods: this is prospective clinical research from Dr.Rasekh infertility clinic,jahrom city, Iran. 64 infertile polycystic ovarian syndrome women were selected with 47 months infertility. The average age of them is 27.3 years (STD=5). The patients were divided into two groups: Group A; 36patients (40%); initially tablet clomiphene citrare (from day 3 of menstrual cycle),then the second drug Letrozole was started from day 8 to 11 menstrual cycle. Group B; 28 patients (31.1 %); initially tablet Letrozole (from day 3 of menstrual cycle),then the second drug cabergolin started from day 8 to 11 menstrual cycle. Pregnancy rate in group A, 8 (22%) and in group B; 6(21%). The patients were monitored for ovulation by transvaginal ultrasonographic folliculometry, with measurement of number and size of the follicles, as well as endometrial thickness. Human chorionic gonadotrophin (HCG) was injected intramuscularly when at least one mature follicle 18-22 mm diameter .Data was analyzed with SPSS version 21.
Results: The rate of OHSS was similar in both groups nearly zero ($p<0.05$). This means that both methods of treatment can be prevented the creation of OHSS. Pregnancy rate in both groups was almost the same ($p<0.05$).
Conclusion: We recommend for the prevention of OHSS that is a serious complication of PCOS infertile women treatment which one of the two mentioned methods is to be used. Whilst in both methods has been favorite fertility rate. The goal of treatment is minimal side effects with optimal result.
Key words: OHSS, PCOS,clomiphen, letrozole, cabergolin

O79 Optimal results of Palm pollen in the treatment of infertile men

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Introduction: There are many ancient records of herbal medical plants. The phoenix dactylifera date palm pollen is used in the traditional medicine for male infertility.
The aim if this study is to determine the effects of palm pollen on sperm parameters of infertile men and fertility rate .
Methods: this clinical trial was performed on 30 nonsmoker infertile men. 7 gram of palm pollen prescribed in gelatinous capsules daily for two months. Semen analysis was done before and after the treatment and the results were compared. Their wives were healthy .
Results: The mean sperm count was 12.33 ± 5.61 × 106 /mL at baseline and 22.03 ± 12.17× 106/mL after treatment period ($P < .05$). The mean percentage of sperm progressive motility was 14.69 ± 6.8% before the treatment which increased to 24.01 ± 11.11% thereafter ($P < .05$). No significant effect was detected on morphology . Pregnancy rates were 53.3% in their wives after treatment.
Conclusion: palm pollen seems to improving the sperm count and motility in infertile men which leads to increased fertility. We believe further studies on larger sample sizes are needed to elucidate the potential role and mechanism of action of palm Pollen in the treatment of male infertility.
Keyword: palm pollen , sperm , male, infertility, fertility

O80 A double-blind, randomized trial of a cytokine-enriched medium in human embryo culture after ICSI

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Study question: Does the integration of cytokines into human embryo culture media affect pregnancy and birth rates and ameliorate the effect of in vitro culture after intracytoplasmic sperm injection (ICSI)?
Summary answer: Integration of insulin-like growth factor-I (IGF-I), insulin-like growth factor-II (IGF-II), transforming growth factor-β (TGF-β), and epidermal growth factor improves pregnancy and live birth rates and reduces rates of preterm and very preterm birth and risk of low birth weight without an increase in congenital malformation.
What is known already: Considerable proportion of infertile couples achieves live birth via human embryo culture in vitro, which carries risks for small for gestational age (SGA), large for gestational age (LGA), preterm and very preterm birth and low birth weight compared with the in vivo-conceived counterparts. Integration of cytokines into human embryo culture media has the potential to fill the current gap by imitating the in vivo environments.
Study design, size, duration: This study was a randomized, double-centre, clinical trial conducted between May 2015 and March 2016. The study evaluated the effects of integrating IGF-I, IGF-II, EGF and TGF-β into single-step culture medium on embryological and clinical outcomes after ICSI and included 428 couples randomized to two groups.
Participants/materials, setting, methods: Women recruited for this study presented with tubal factor, male factor, polycystic ovary, unexplained infertility or a combination of factors. Women with thin endometrium, recurrent spontaneous abortion, uterine abnormalities, endometriosis, and severe medical conditions were ineligible. The trial had two units for randomization. Cumulus-oocyte complexes underwent sibling-split randomization for culture in cytokine-supplemented medium (intervention) or cytokine-free medium (control) from day 0 through day 5 or 6. Randomization of women was to a day 5 transfer with either the cytokine-enriched or the control medium. The primary endpoint was clinical pregnancy rate, with secondary endpoints of ongoing pregnancy, live birth, preterm birth and low birth weight babies. The reported effect sizes are mean and standard deviation (SD), relative risk (RR), and absolute rate difference (ARD) with 95% confidence intervals (CIs).
Main results and the role of chance: The cytokine-enriched medium correlated with considerable increase in clinical pregnancy rate (121/212 (57%) vs. 98/216 (45%); ARD 12, 95% CI 2 to 21), live birth rate (99/212 (47%) vs. 75/216 (35%); ARD 12, 95% 3 to 21) and cumulative live birth rate (127/212 (60%) vs. 83/216 (38%); ARD 21, 95% CI 12 to 30) and with a considerable reduction in the rates of pregnancy loss (21/121 (17%) vs. 36/98 (37%); ARD –19, 95% CI –31 to –8), preterm birth (3/99 (3%) vs. 14/75 (19%); ARD –16, 95% CI –26 to –7) and low birth weight babies (2/99 (2%) vs. 11/75 (15%); ARD –13 95% CI –22 to –5).
Limitations, reasons for caution: This study did not identify the cumulative live birth rate as a primary outcome but explored it within one year of randomization and did not include a longitudinal follow-up. Thus, the commercialization of a cytokine-enriched medium as standard practice for human embryo culture should wait for a further multicentre trial with an additional follow-up period of children identifying the cumulative live birth rate and offspring health as primary outcomes.
Wider implications of the findings: The study introduces insights into both improving ICSI success rates and enabling more physiologic culture medium with the integration of IGF-I, IGF-II, EGF and TGF-β.
Study funding/competing interest(s): The study received no funding, and the authors declare that there are no conflicts of interest.
Trial registration number: NCT02426008
Trial registration date: 24 April 2015
Date of the first patient's enrolment: 1 May 2015
Key Words: Blastocyst culture, cytokines, growth factors. culture media, embryo development

O81 Morphometry of human embryos that resulted in pregnancy

Alhelou Y.; Mat Adenan N.; Ali J.

Key words: Embryo morphometry, time lapse incubation, zona pellucida thickness,ooplasm volume, perivitlline space volume.
Study question : Is the change in the zona pellucida thickness, perivitelline space volume and ooplasm volume correlated to embryo implantation?
Summary answer: There is a correlation that links embryo implantation to change in zona pellucida

thickness, perivitelline space volume and ooplasm volume.
What is known already: There are some studies correlate embryo implantation to zona pellucida thickness at the time of embryos transfer, other correlate the zona pellucida thickness variation to embryo implantation. Few is know if the change in perivitellinee space volume and ooplasm volume have has correlation to embryo implantation.
Study design, size, duration: Retrospective study to investigate the morphometric characteristics of implanted versus non-implanted embryos. The investigated features were thinning of the zona pellucida, the contraction of ooplasm and increase in the perivitelline space.
The morphometric characteristic were studied in 149 patients with two embryos transferred that resulted in twin pregnancy (group 1) and 132 patients with two embryos transferred that resulted in no pregnancy (group 2). The study was done in June 2016 to November 2016.
Participants/materials, setting, methods: Embryos were cultured in embryoscope incubator. The thickness of the zona pellucida was measured at 8 different points every 10 hours. The area of the cytoplasm was measured using the ellipse function of the Embryoviewer. The cytoplasm area of each oocyte was measured every 1 hour from ICSI time till before first cleavage. The reproducibility of the measurement was confirmed by repeating the cytoplasm measurements 20 times for 10 oocytes
Main results and the role of chance: The logistic regression analysis of change in ZP showed a negative coefficient of -6.101 and p value 0.001 which indicates the more thinning of the ZP the higher chance of pregnancy. The average value of the ZP thickness in group 1 was 14.9 + 0.21 □m and group 2 was 17.81 + 0.41 □m.
The volume of the cytoplasm showed a negative regression coefficient of -1.795 and a p value of 0.000 which indicates decrease in the cytoplasm volume increase implantation. The average decrease in cytoplasm volume is 20.52% + 4.28% in group 1 versus 15.06% + 5.2% in group 2.
The volume of the perivitilline showed a positive regression coefficient of 0.098 and p value of 0.000 which indicates and increase in the perivitilline volume affect implantation positively. The increase in the perivitelline space is 38.13% + 7.6% in group 1 versus 31.59% + 9.7% in group 2.
Limitations, reasons for caution: The measurement and calculation process consumes a lot of time and effort which restricts the implementation of data in the routine practice. In addition it requires expensive time lapse incubators.
Wider implications of the findings: The study is additional tool that can help embryo selection for transfer. In addition, it requires to develop automated software that can perform the measurements and calculation in a fast way.

O82 Case study: A healthy baby delivery using double thawed-frozen oocytes and sperm

Herimat L., Jabi S., and AbuKhaizaran S.

Objective: To present the clinical effect of intracytoplasmic sperm injection (ICSI) on a couple experimenting with double cryopreserved oocytes and sperm.
Methods: Report of healthy birth achieved after embryo transfer from vitrified-thawed oocytes and frozen-thawed sperm with discussion of the results related to previous literature.
Results: First delivery of a healthy baby in Palestine from IVF using double cryopreserved oocytes-sperm.
Conclusion: New horizons in ART give hope for women who may be at risk of losing gonadal function. This is particularly relevant in Palestine, where oocyte banking and ovum donation are considered religious and social taboos.
Key words: Oocytes; Sperm; Intracytoplasmic sperm injection; Vitrification; Cryopreservation.
Funding: This research did not receive any specific grant from funding agencies in the public, commercial, or not-for-profit sectors.

O83 The effect of Reproductive methods on pregnancy outcome following hysteroscopic adhesiolysis in patients with Asherman's syndrome.

Baradwan, S. ; A lharbi, D.; Al- Jaroudi, D.

Keywords: Asherman's syndrome, Hysteroscopy, Pregnancy, IVF
Study question: Dose the reproductive methods could influence pregnancy outcome in women with Asherman's syndrome ?.
Summary answer: There is no significant association between reproductive methods and pregnancy outcome among patients with Asherman's syndrome.
What is known already: Hysteroscopic adhesiolysis anatomically restores the uterine cavity in cases of Asherman's syndrome. however, the extent of endometrial fibrosis could lead to implantation failure and miscarriages. The main purpose of treating infertile women with Asherman's syndrome is improve both the conception rate and the live birth rate. Few studies have evaluated the reproductive outcome after hysteroscopic adhesiolysis.
Study design, size, duration: A retrospective cohort study that included 41 women who attended Women's Specialized Hospital, King Fahad Medical City from December 2010 to December 2016, presented with a history of infertility or recurrent pregnancy loss, and were diagnosed with intrauterine adhesions and

treated by hysteroscopic adhesiolysis
Participants/materials, setting, methods: Patients were followed up for 2 years to account for pregnancy. Details of reproductive methods either spontaneous conception or assisted reproductive technology methods (Ovulation induction(OI), intrauterine insemination(IUI), In vitro fertilization(IVF), or intracytoplasmic sperm injection(ICSI)) were recorded. The main outcome measure was to identify the reproductive methods and positive pregnancy test which might have ended in miscarriage, ectopic pregnancy, preterm, term, or no pregnancy and ongoing viable pregnancy which was confirmed by early USG scan.
Main results and the role of chance: The overall conception rate was 53.6 % after hysteroscopic adhesiolysis. The live birth rate was 34.2%, the miscarriage rate was 14.6% and the ectopic pregnancy rate was 4.9 %. The most frequent conception methods used were IVF-ICSI (n=18) 43.9%, spontaneous conception (n=15) 36.5%, IUI (n=4) 9.8% and ovulation induction (n=4) 9.8%. Ectopic pregnancy, miscarriage, live birth and no pregnancy were reported by (6.6%, 20%, and 53.3%, and 20%) of the spontaneous conception group, respectively compared to (0%, 16.6%, 27.7%, and 55.5%) of the IVF-ICSI group, respectively. This was statistically not significant (0.403).
Limitations, reasons for caution: Among the limitations of this study is the fact that the study sample was relatively small as it was limited to Women's Specialized Hospital, which could affect the generalizability of results. An important limitation of our study is that it is retrospective in nature. Despite these limitations, we not found a relationship between pregnancy outcome and reproductive methods among women with Asherman's syndrome. In the light of the study results, we recommend conducting a study with adequate sample size to increase the study power and thus provide more generalizable results.
Wider implications of the findings: There is no significant association between reproductive methods and pregnancy outcome among patients with Asherman's syndrome.

O84 The diagnostic accuracy of 3-dimensional saline infusion transvaginal ultrasound (3-D SIS) compared with combined laparoscopic - hysteroscopic procedure in distinction between septate and bicornuate uteri.

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Keywords: Three-dimensional saline infusion transvaginal ultrasound, Three- D SIS, Hysteroscopy, Septate uterus, bicornuate uterus
Study question: What is the diagnostic accuracy of 3-dimensional saline infusion transvaginal ultrasound compared with combined laparoscopic - hysteroscopic procedure in distinction between septate and bicornuate uteri?
Summary answer: Three-D SIS could be considered as an accurate and minimal invasive diagnostic procedure to assess uterine contour, cavity and distinction between septate and bicornuate uteri.
What is known already? Septate uterus and bicornuate uterus are associated with the risk of subfertility and adverse reproductive outcomes. Although combined laparoscopic- hysteroscopy procedure has been considered as gold standard in diagnosis of uterine anomalies, this procedure is associated with the several complications. Three- dimensional saline infusion transvaginal ultrasound (3-D SIS) is a minimal invasive imaging technique with considerable ability to depict congenital uterine anomalies. In this study, main objectives were to evaluate the accuracy of this modality in evaluation of uterine contour, cavity, and analysis the level of agreement in the results between this method and combined diagnostic laparoscopy/ hysteroscopy procedure.
Study design, size, duration: In this double blind prospective study, 100 reproductive age (30.19 ± 2.34) women with history of spontaneous abortion(s) (57%) or candidate for assisted reproductive technology procedures (43%) and a suspected diagnosis of congenital uterine anomalies by hysterosalpingography were enrolled.
Participants/materials, setting, methods: The patients underwent (3-D SIS) and hysteroscopy with laparoscopy to establish the final diagnosis. The findings of two procedures were compared.
Main results and the role of chance: The accuracy, sensitivity, specificity, positive predictive value (PPV), and negative predictive value (NPV) of (3-D SIS) in diagnosis of uterine anomalies were 98.6, 100, 96.77, 97.66, 100%, respectively. The accuracy, sensitivity, specificity, positive predictive value (PPV), and negative predictive value (NPV) in the differentiation of septate uterus from bicornuate uterus were 100%.
Limitations, reasons for caution: The size of study has been limited.
Wider implications of the findings: There is a close correlation between the findings of (3-D SIS) and laparoscopy performed concurrently with hysteroscopy for the diagnosis of congenital uterine anomalies. (Three-D SIS) has the potential to become the gold standard in distinction between septate and

bicornuate uteri.
Trial registration number:
IRCT2017041733490N1

O85 The relation of pregnancy, Sexual function and quality of life in Iranian Women

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Introduction: Pregnancy is associated with many physical and psychological changes in women, which can affect all domains of life, including their quality of life (QOL) and sexual functioning. The purpose of this research was to investigate the relationship between sexual function and QOL in pregnant women.
Methods: This cross-sectional study was performed on 318 pregnant women, who referred for prenatal care to Jahrom Prenatal Care Clinic in 2017. The women were sampled using simple and convenience methods. Data collection tools were FSFI questionnaire and WHO QOL questionnaire. Data were analyzed by SPSS 21 software using t-test, ANOVA, and correlation coefficient with a significance level of < 0.05.
Results: The age of participants averaged 20.78 ± 4.23 years. A portion of 218 (68.9%) pregnant women had sexual dysfunction and 99 (31%) subjects presented normal sexual functions. The physical ($p < 0.0001$), psychological ($p = 0.003$), economic ($p = 0.002$), and social ($p = 0.003$) components of QOL were lower in women with sexual dysfunction than those with normal sexual functions. Total score of QOL had uppermost correlations with orgasm and pain during intercourse ($r = 0.29$, $p < 0.001$). Total score of sexual function was highly correlated with the physical dimension of QOL ($r = 0.60$, $p < 0.001$). Also, total score of QOL had positive correlations with women's academic education ($p = 0.002$), and academic education of spouse ($p = 0.003$), spouse's job ($p = 0.003$), and desire for pregnancy ($p = 0.001$).
Conclusion: More than half of women with sexual dysfunction showed significant reductions in all aspects of QOL than those with normal sexual functions. In addition, sexual function, education and occupation of spouse, and desire for pregnancy were factors influencing the QOL of pregnant women.
Keywords: Sexual function, Quality of life, Pregnancy