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Abstract Book

O1 Evidence Based Medicine in 2018, an Oxymoron?

Johannes L.H. Evers, MD, PhD, FRCOG

Body

Evidence-Based medicine amalgamates findings from clinical science with doctor's expertise and patient preferences. New treatment introductions follow Gartner's hype cycle. They start with a case report, are followed by observational studies, and culminate in the Peak of Inflated Expectations and wide acceptance. Unfortunately that is where mostly it stays, whereas the next step should be an RCT to differentiate between effective and non-effective treatments. Biases are looming large. Efforts, time and resources – and the voluntary participation of patients – are wasted if research is not or poorly communicated (Braakhekke et al., 2017). Endpoint switching and reporting bias are major points of scientific concern. Before carrying out a clinical trial, all outcomes that will be measured (e.g. cumulative live birth rates after six cycles of ART treatment) should be well-defined and pre-specified in a trial protocol, and the trial should be consigned to a WHO approved clinical trial registry (COMPare, 2017). The reason for this is that if researchers measure many items, some of those items may turn out to be significant by chance, and thus give a false positive result. If an outcome is pre-specified, a false positive result is less likely. Once the trial is finished, the trial report should give all pre-specified outcomes. When reported outcomes differ from those pre-specified, this must be declared in the report, along with an appropriate explanation (COMPare, 2017). Outcomes should never be changed once the analysis of data has started. This prevents the 'Texas sharp shooter fallacy' (or 'clustering illusion') from affecting the findings. In reality, unfortunately, pre-specified outcomes are often left unreported, while outcomes that were not pre-specified are reported, without being declared as 'post hoc'. This is a serious, but unfortunately not a rare problem (Chan et al., 2004). Mixed in with 'real' findings of pre-specified outcomes it distorts the evidence we use to make clinical decisions and thus may harm patients (COMPare, 2017).

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CONCURRENT SCIENTIFIC SESSION 1: Reproductive Genetics Special Interest Group

O02 Human embryo mosaicism: did we drop the ball on chromosomal testing?

ROBERT F. CASPER, MD, FRCS(C)

Body

It is generally assumed that most IVF cycles fail because of the transfer of aneuploid embryos. In that regard, preimplantation genetic testing for aneuploidy (PGT-A) seemed to be an optimal strategy to increase pregnancy rates and reduce miscarriage rates. However, the results of clinical trials to date have not demonstrated a major increase in pregnancy rates with PGT-A tested embryos. This presentation will discuss the importance of embryo mosaicism and the potential for embryo self-correction at, or even after the blastocyst stage. Self-correction of the embryo or of the inner cell mass may result in false positive diagnoses when only the trophectoderm is biopsied and could explain the less than optimal results obtained with what should be accurate PGT-A platforms.

O03 CRISPR: Are we in the era of genomic editing?

Chantal Farra (Lebanon)

The presentation is an Overview of gene editing using the revolutionary CRISPR technology. A technology that allows precise change in the DNA sequence while ensuring that the resulting edited genetic trait is passed on through the generations. The presentation explores some of the exciting possibilities of CRISPR and potential application in human embryos.

O04 Genetics of Male Infertility

Marwan Alhalabi, MD, PhD

INTRODUCTION:

The goal of this review is to explain the requirement for understanding the genetic structure of infertility arising from male factor and to discuss the essentials of these genetic elements. Our objective is to detect the frequency and types of major genetic abnormalities of male infertility to give appropriate genetic counseling before assisted reproductive techniques (ART) in Middle East and to compare the frequencies with other regions of the world.

MATERIAL AND METHODS:

A total of 880 Middle Eastern patients with NOA were recruited in this multicenter study for genetic evaluation prior to use of ART. Karyotyping was performed on peripheral blood lymphocytes according to standard G-banding methods, polymerase chain reaction (PCR) was performed to screen the microdeletions in the AZF region of the Y chromosome.

RESULTS:

The present study shows that the total prevalence of genetic abnormalities is 28.41 %, including 184 patients (20.91 %) with chromosome disorder and 66 patients (7.5 %) with Y chromosome microdeletions. The most prevalent chromosome abnormality is Klinefelter's syndrome, which includes 161 patients (18.3 %), 7 patients had XX reversal male sex (0.8 %), 2 patients had 47XYY (0.23 %) and 2 patients had 45XO/46XY (0.23 %). Structural abnormalities occurred in 12 patients (1.36 %).

CONCLUSIONS:

Male fertility and fertility in offspring of males are considerably affected by the exact transition of epigenetic information. The high prevalence of genetic abnormalities (28.41 %) in our study strongly suggests the need for routine genetic testing and counseling prior to assisted reproduction in such population with idiopathic infertility, as a result may help determine the prognosis, as well as the choice of ART. Moreover, it allows specific pre-implantation genetic testing to minimize the risk of transmitting genetic defects to offspring.

Keywords:

Male infertility; Genetic abnormality; Azoospermia; Y chromosome microdeletion

CONCURRENT SCIENTIFIC SESSION 2:

Reproductive Endocrinology

Polycystic ovary syndrome Special Interest Group Session

O05 Ovarian reserve in PCOS: More but for how long?

Dominique de Ziegler, MD

Authors:

D. de Ziegler, P. Pirtea, M. Poulain, S. Fay, JM Ayoubi

Body:

It has long been assumed that women affected by polycystic ovary syndrome (PCOS) tended to reproduce later in life. This belief stems from the fact that PCOS women have higher ovarian reserve parameters and their ovulation disorder often normalizes in late reproductive years. It is indeed a lingering die-hard belief that women with PCOS enjoy an extended window of fertility as compared to their regularly ovulating counterparts. However, actual facts, sparse for reasons explained below, speak differently.

The same belief exists with assisted reproductive technology (ART), where it has been assumed that the higher ovarian reserve parameters encountered in PCOS result in better outcome particularly, in aging women. There too, data seem to contradict the myth. Using the Society for Assisted Reproductive Technology database, Kalra et al.⁽¹⁾ reported that the higher oocyte yield obtained in PCOS indeed resulted in higher pregnancy rates in PCOS women. There was however a similar age-related decline in outcome in PCOS and controls. Moreover, in the >40 years-old group, clinical pregnancy and live-birth rates were similar in PCOS and women whose infertility was related to tubal factor.

Based on Ahmad et al.'s and other data⁽²⁾, we have to consider that women with PCOS have a more rapid decrease of their ovarian reserve parameters and similar age-related decrease in fecundity compared to normal controls. The urgency to treat infertility in PCOS should thus consider Ahmad and colleagues' data.

The lesson that ovarian reserve parameters decrease more rapidly in PCOS women should be heard loud and clear together with the awareness that the extended window of fertility may not exist in PCOS.

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2. Ahmad AK, Kao C-N, Quinn M, Lenhqrq N, Rosen M, Cedars MI, et al. Differential rate in decline in ovarian reserve markers in polycystic ovary syndrome compared to controls: Results of a longitudinal study. *Fertil Steril* 2018;109:526-31.

O06 First line treatment in PCOS

Fulco van der Veen, MD, PhD

Body:

In September this year the Recommendations from the International Evidence-based Guideline for the assessment and management of Polycystic Ovary Syndrome were published in Human Reproduction and Fertility and Sterility, superseding all previous guidelines (1). This evidence-based guideline makes vast claims. It is stated that the guideline “builds on prior high quality guidelines and culminates from a rigorous, Appraisal of Guidelines for Research and Evaluation-II (AGREE-II)-compliant, evidence-based guideline development process. It provides a single source of international evidence-based recommendations (EBR) to guide clinical practice with the opportunity for adaptation in relevant health systems.” Nevertheless, less than 20% of all recommendations are evidence based and when it comes to first line treatment for ovulation induction in women with PCOS there remain some gaps, like not addressing the effects of lifestyle interventions as first line tool for ovulation induction and improving pregnancy rates and there is considerable uncertainty and occasional inconsistency in the recommendations. These will be discussed, followed by assessment of current evidence.

The evidence on the commonly used drugs has been summarized in conventional but authoritative Cochrane reviews, which provide the data on pairwise meta analysis. (2,3,4) On clomiphene citrate the evidence suggests that it improves the chance of a clinical pregnancy compared with placebo without any differences between different anti-oestrogens (low quality evidence) On aromatase inhibitors, specifically Letrozole, the evidence suggests that Letrozole improves live birth and pregnancy rates compared with CC. (low quality evidence) On insulin sensitizers, specifically metformin, the evidence is complex, but suggests that metformin alone may be beneficial over placebo for live birth, and that any superiority of metformin over CC and vice versa is inconclusive, although there may be interaction with body mass index. (very low to low quality evidence) Combined therapy with metformin and clomiphene citrate improved clinical pregnancy compared with clomiphene citrate alone it is at present unknown whether this translates into increased live births and gastrointestinal side effects are considerable (low to moderate quality evidence).

This traditional pairwise meta-analyses only allow the comparison of two interventions for ovulation induction. Since many of these medications have not been compared directly it is still not clear what the most effective treatment option would be. A recent network meta-analysis has studied all possible combinations and has provided interesting data, which can be summarized as follows: all interventions are effective, Letrozole improves live birthrate compared

to CC. Combined therapy with CC and metformin is superior to CC and to metformin in terms of pregnancy rates. (5)

The conclusion, taking all available evidence into account, is that at present letrozole and combined treatment with CC and metformin are the drugs of first choice.

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O07 Assessment and management of PCOS: international evidence-based recommendations

Body:

Polycystic ovary syndrome (PCOS) is known as the most common endocrine and metabolic disorder in women. However, previously issued consensus (from NIH expert group, ESHRE/ASRM, AE-PCOS Society), as well as clinical practice guideline from the Endocrine Society and Chinese consensus did not provide agreement concerning how to diagnose and treat PCOS.

The international evidence-based recommendations, issued in 2018, provides 31 evidence based recommendations, 59 clinical consensus recommendations and 76 clinical practice points related to assessment and management of PCOS.

Some key issues, presented in this guideline, include considerable refinement of individual diagnostic criteria, with a focus on improving accuracy of diagnosis; reducing unnecessary testing; increasing focus on education, lifestyle modification, quality of life and emotional wellbeing; and emphasizing evidence based medical therapy and cheaper and safer fertility management.

However, the authors of recommendations underline that the evidence in the assessment and management

of PCOS is generally of low to moderate quality. The recommendations regarding guideline dissemination have been generated and future research programs are also presented.

Key words:

PCOS, diagnosis, management

CONCURRENT SCIENTIFIC SESSION 3:
Reproductive Endocrinology I
Menopause Special Interest Group

O8 Women's health at midlife from the perspective of developmental origins of health and disease (DOHaD)

Lynnette Leidy Sievert, BSN, PhD

Department of Anthropology, UMass Amherst, USA

Body

The purpose of this presentation is to review the theory of the Developmental Origins of Health and Disease (DOHaD) and how it can be applied to better understand women's health at midlife. The DOHaD perspective has been developed and refined across the past 30 years through the work of David Barker, Peter Gluckman, Jonathan Wells and their colleagues. Details differ, but all agree that events experienced during a critical period in prenatal development, infancy, or early childhood can influence metabolic function and health during adulthood. For example, diseases associated with low birthweight include hypertension and type II diabetes. Fundamentally, this happens because of a mismatch between prenatal biology and a resource-rich postnatal environment. Risks are greater in indigenous populations and low income countries. In this presentation, the focus will be on age at menopause in relation to the burden of infectious disease and nutritional stress during very early childhood. Data on AMH levels and age at last menstruation will be drawn from the Netherlands, the UK, the US, Spain, Mexico, and Bangladesh. We will also briefly consider evidence that childhood abuse and neglect are associated with hot flashes at menopause.

O09 What to do about the "thick endometrial echo" in postmenopausal women?

Raja Sayegh

Body

Abnormal thickening of the endometrial echo is estimated to occur in up to 15% of postmenopausal women, but the risk of malignancy is very low in those who are asymptomatic. Therefore, asymptomatic postmenopausal women with an incidentally discovered thick endometrial stripe and an average risk of endometrial cancer may be managed expectantly. Those who are symptomatic however, and those with additional risk factors for endometrial cancer require further evaluations. The principles of shared decision making and individualized management should help identify all those with endometrial cancer or cancer precursor lesions while at the same time reducing unnecessary cost, discomfort and complications associated with invasive diagnostic evaluations. A number of cases will be presented to illustrate such management along with tips and clinical pearls.

O10 The measurement of hot flashes across cultures

Lynnette Leidy Sievert, BSN, PhD

Department of Anthropology, UMass Amherst, USA

Body

The purpose of this presentation is to review cross-cultural variation in the frequency of hot flashes during the menopausal transition, with an emphasis on how methods of measurement influence our conclusions. We will examine a study carried out in Lebanon, Morocco, Spain, and the U.S. as an example of research that posed the same questions, in the same way, across four countries, to derive comparable results. We will also review studies of multiple ethnic groups within the same country. The importance of language will be highlighted, with examples of how hot flashes are described in Japan, Mexico, and Bangladesh. The measurement of hot flashes by questionnaires, diaries, body diagrams, and ambulatory monitors will be illustrated. For example, there is population variation in where women feel hot flashes on their bodies – face and upper chest (U.S.), back of the neck (Mexico), or top of the head (Bangladesh). Finally, in depth case studies will show how both climate and culture affect the reporting of hot flashes, calling into question the comparability of data collected by questionnaires alone. Cross-cultural comparisons document variation in human biology, but we need to be alert to what we are measuring.

O11 Advanced Paternal Age: Does It Matter?

Fadi Mirza, MD, FACOG

Body

Advanced maternal age has traditionally been the focus of the attention of both patients and their health care providers. In turn, advanced paternal age is less well-defined and has received less interest, even though paternal age may have an important effect on fertility and pregnancy. Advanced paternal age is associated with an increase in autosomal dominant mutations and a myriad of congenital anomalies. Advanced paternal age has a major interplay with advanced maternal age and has also been linked to adverse neurodevelopmental outcomes, including autism and schizophrenia. Regarding adverse pregnancy outcomes, advanced paternal age has also been shown to be associated with an increase in the risk of miscarriage. This talk gives an overview of the effects of advanced paternal age on fertility, assisted reproduction, and pregnancy outcomes.

O12 The role of the urologist in the ICSI era

Bassel Bachir

The emergence of highly effective assisted reproductive techniques has led to a rise in their use despite the availability of more conservative options. More couples are being referred for IVF due to male factor infertility without the male partner having had an appropriate Urologic consultation. This talk explores the pitfalls of this approach, highlighting the importance of the role of the Urologist in the ICSI era.

O13 Complementary and alternative treatment of infertility and endocrine disorders

Nikolay Zharkin

Infertility treatment is one of the most difficult problems in gynecology and andrology. If this were not so, then assisted reproductive technologies would not have received such intensive development and popularity. But it does not always give the desired result, and sometimes has contraindications. Having interest and many years of experience in the use of physiotherapy and acupuncture in the treatment of

certain obstetrical complications and gynecological diseases, we applied these methods in the treatment of those patients who had already received treatment of infertility without effect or had contraindications to ART.

Acupuncture as the only or additional method of treatment in combination with the prescription of pharmacological agents was applied in two groups of infertile patients - with adenomyosis (109 patients) and chronic endometritis (57 patients). For acupuncture treatment, vaginal acupuncture points were chosen, the discovery of Hubertus Boucher (Germany). Instead of classical acupuncture needles, we used laser irradiation by the Andro-Gin device (Russia). The technology has been developed, which includes a course of treatment of 5-7 procedures performed every other day during the intermenstrual period. All patients received at least 2 courses with an interval of 1 month between them. The effectiveness of treatment was assessed by the dynamics of ultrasound data, immunohistochemistry and hormonal tests. The results obtained were comparable to the results of the comparison groups who received treatment according to known hormonal therapy protocols.

O14 New twists in ovarian stimulation: More is better

D. de Ziegler, P. Pirtea, M. Poulain, S. Fay, JM Ayoubi

Dept of Ob Gyn, Foch Medical Center – Université de Paris Ouest

Body

While the first ART baby – Louise Brown – was conceived in the natural cycle, ovarian stimulation (OS) was soon generalized in order to increase the number of oocytes available. Today – 40 years later – we reckon that OS has been the single most effective measure ever taken for enhancing ART outcome.

Originally, the number of oocytes retrieved was tempered by the risk of ovarian hyperstimulation syndrome (OHSS), which constituted a dreadful complication – at times fatal – of ART. The risk and severity of OHSS was seen as a direct consequence of the number of follicles responding to OS. The defense chosen for curbing the risk of OHSS logically therefore consisted in reducing the number of follicles responding to OS, with a profusion of efforts to design so-called mild stimulation protocols.

The advent of antagonist protocols has revived the interest for triggering natural LH surges with GnRH agonist (GnRH-a) in OS, impossible in agonist OS cycles. Antagonist protocols with GnRH-a triggering of ovulation has paved the way for no-hCG ART cycles, emphasizing the role played by hCG in OHSS. Indeed, hCG – classically used for triggering ovulation in ART – acts on the developing follicles,

stimulating the production of VEGF. This in turn alters the permeability of small vessels letting to the outflow – extravasation – of fluid, which causes ascites and edema formation. The outflow of fluid due to alteration of vascular permeability has for net consequence hemoconcentration and an increase in blood coagulability.

Antagonist protocols associated with GnRH-a trigger provide oocytes and embryos of excellent quality, as documented by the results obtained when used in OS protocol prescribed in oocyte donors. Conversely however, endometrial receptivity is altered in these cycles – probably due to the short-lived nature of the LH surge induced by GnRH-a – and fresh pregnancy rates are sub-optimal. Several options have been proposed for enhancing luteal phase support following GnRH-a triggering notably, with a punctual use of small doses of hCG.

Today however the successes of embryo vitrification have largely led to favor a freeze-all strategy associated with deferred embryo transfer in all OS using GnRH-a trigger. This is notably preferred each time a risk of OHSS looms, endometrial anomalies are encountered and in case of endometriosis. Certain groups notably, the most influential ART practices in the world, have opted for a systematic freeze all strategy.

O15 Low cost and high-quality IVF: Feasible?

Yacoub Khalaf

Professor of Reproductive Medicine, King's College , London

Assisted conception using IVF/ICSI has become an established therapeutic approach to treating subfertility. The IVF journey can be emotionally and financially draining to couples embarking on this treatment. An additional burden is created by that are routinely used in some centres create an additional financial burden on the couple being treated.

The lecture aims to address what is essential and what adds little value to the outcome of treatment, and to critically appraise the evidence for their use.

O16 Use of biomarkers to design ovarian stimulation protocols in IVF

Dr. Salem El Shawarby

The presentation would cover the available ovarian biomarkers, and their use to design and individualize ovarian stimulation protocols in IVF based on the latest available medical literature.

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

O17 Vaginal Health and the Menopausal Woman: An individualized approach.

Raja Sayegh

The genitourinary syndrome of menopause (GSM) is an underdiagnosed and undertreated condition which negatively impacts the quality of life of millions of menopausal women worldwide. While low dose vaginal estrogen therapies are very effective for GSM, they tend to be underutilized for various reasons including cost, inconvenience, class labeling, and concerns about systemic absorption, particularly among menopausal breast cancer survivors and those at higher than average risk of breast cancer. Proper management starts with screening and identification of impacted women, followed by a discussion of available hormonal and nonhormonal interventions. The choice of an intervention should be individualized and based on a shared decision-making process to ensure a level of compliance and sustainability that is essential for success.

O18 Non-pharmacologic management of overactive bladder in the menopause

Tony Bazi

Overactive bladder (OAB) is a symptom syndrome characterized by urinary urgency, often associated with urinary frequency, nocturia, with or without urinary incontinence in the absence of any other pathology. It is much more common in women than in men, and affects about one in five. This condition is associated with social, physical, and occupational burdens, and may lead to falls and fractures, depression and low self-esteem.

Evaluation includes a detailed history (and identification of the most bothersome component), detailed gynecologic exam, assessment of postvoid residual, and a urinalysis.

Multiple approach methods have been described to manage this condition.

1. Non pharmacologic: fluid management, scheduled voiding, Kegel exercises, avoidance of possible bladder stimulants.
2. Pharmacologic: Antimuscarinic medications are commonly used for treatment. However, these medications lack sustainable efficacy due to poor compliance secondary to bothersome side effects. Mirabegron, a beta-3 agonist medication

recently on the market, was found to be equally effective, with less bothersome side effects.

3. Botulinum toxin injections through the cystoscope.
4. Neuromodulation: Tibial nerve stimulation and Interstim

O19 BREAST CANCER AND HORMONAL THERAPY

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Kemerovo State Medical University, Kemerovo, Russia

Breast cancer is an endemic disease which has been investigated for two hundred years, and the one clear factor about the etiology is its complexity [Memon U., 2013]. Breast cancer risk models can be separated into those that utilize mainly hormonal and environmental factors and those that focus more on hereditary risk [Cintolo-Gonzalez JA, 2017]. Hormone therapy in gynecology is typically used for contraception, the treatment of gynecological disorders and for substitution therapy in menopause.

Objective was to estimate the risk of the influence of hormone therapy in gynecology on the risk of breast cancer.

Methods. In this review has been included 12714 publications.

Results. Breast cancer associated with estrogen-progestin (EP) therapy may have more favorable characteristics than cancer in never users, but results are conflicting. It is not well known either whether Body Mass Index (BMI) modifies this association [Kjartansdottir OJ, 2017]. Overall, breast cancer risk is low among hormonal contraceptive users and women should be counseled accordingly. The overall relative risk of breast cancer among current or recent users was 1.2 [95% confidence interval (CI), 1.14-1.26] [Schneyer R, 2018].

Contemporary hormonal contraception formulations contain lower doses of estrogen, have new synthetic progestin components, and provide novel methods of delivery that have not been studied extensively in relation to breast cancer risk. It is important to reevaluate risk using current formulations [White ND, 2018]. Height was positively associated with risk of all breast cancer molecular subtypes. BMI at 18 years and childhood and adolescent were inversely associated with risk of most breast cancer molecular subtypes with somewhat stronger associations with HER2-enriched and basal-like subtypes [Warner ET, 2016].

The degree of association between breast cancer and MHT remains controversial. Most long-term studies reflect the use of one specific combination of oral estrogen and progestogen and suggest a possible increased risk with increasing duration. The WHI estrogen + progestogen trial and several large observational studies reported an increased risk after at least 5 years of use, suggesting a possible promoter effect on existing tumors. Only the unadjusted relative

risk was significant and, when adjusted on risk factors, the significance was no longer reached. Combined MHT can increase breast density, which complicates screening and increases mammography frequency [R. J. Baber, 2016]. The possible increased risk of breast cancer associated with MHT is small and estimated at less than 0.1% per annum, or an incidence of 51.0 per 1000 women per year of use. It is similar or lower than the increased risks associated with common lifestyle factors such as reduced physical activity, obesity and alcohol consumption [Ramírez K, 2017].

Conclusion. A promising approach is the recently established understanding of breast cancer as several distinct molecular subtypes rather than a single disease. Studying the associations of reproductive and hormonal risk factors according to breast cancer subtype may provide new insight into the development of breast cancer.

Conflict of interest. The authors do not have a conflict of interest.

ORAL PRESENTATIONS SESSION 1: Infertility treatment

O20 Cumulative Live-Birth Rates by Maternal Age after One or Multiple In Vitro Fertilization Cycles: An Institutional Experience

Khalife D, Nassar A, Khalil, A, Awwad J, Abu Musa A, Hannoun A, El Taha L, Khalifeh F, Ghazeeri G

Study Question

Is the Cumulative Live Birth Rate following one or more IVF cycles (up to 6 cycles) increases over multiple successive IVF cycles, according to maternal age and type of infertility?

Summary Answer

The Cumulative Live Birth Rate at a referral center in a Middle Eastern country reaches 67.9 % after 6 cycles, with variations by age and type of infertility treatment.

What is known already

The outcome as livebirth per fresh IVF cycle is more evocative for patients presenting for counseling, than the outcome as a positive pregnancy test per cycle. However, the best way is to counsel patients about the cumulative chances of success after a defined number of IVF cycles. It has been reported that the live birth rates decrease after the 4th cycle, in patients older than 40 years of age with no substantial differences in the rates among women with various causes of infertility.

Study Design, Size, Duration

Retrospective study of 547 women who received 736 fresh ovarian stimulation/embryo transfer cycles between January 2016 and December 2016 in a tertiary referral center in the Middle East.

Participants/materials, setting, methods

One IVF cycle was defined as a fresh embryo transfer attempt resulting from one episode of ovarian stimulation. Thus, 547 women who received 736 fresh ovarian stimulation/embryo transfer cycles were included. Live birth rate per IVF cycle and the CLBR across all cycles in all women stratified by age and infertility type were estimated.

Main results and the role of chance

Among the 547 women, the median duration of infertility for all 736 fresh cycles was 4.23 years. In all women, the live birth rate for the first cycle was 33.0% (95% CI 27.8-38.2). The conservative CLBR showed an increase with each successive fresh cycle to reach 56.9% (95% CI 51.2-62.4) after 3 cycles and 67.9% (95% CI of 62.5-73.0) after 6 cycles. The CLBR following 6 cycles reached 69.9% (95% CI 63.8-75.6) in women younger than 35 years, and 83.7% (95% CI 69.3-93.2) in women between 36 and 39 years of age. In women older than 40 years, the live birth rate for the first cycle was significantly low at 3.1% (95% CI 0.3-9.5), with a plateau in success rates after 4 cycles reaching 21.9% (95% CI 9.2-40.0).

Couples with different types of infertility had CLBRs ranging from 65% to 72%, with the exception of women with low ovarian reserve where CLBRs reached 29.4% (95% CI 10.3-56.0).

Limitations, reasons for caution

Cycles which were cancelled before oocyte retrieval were not recorded. This might have led to a minor overestimation of the Cumulative Live Birth Rates, as patients with poor prognosis did not account for the number of cycles and were excluded.

Some patients had undergone previous IVF cycles in other centers, adding some bias to the results since different laboratories and techniques may have been used.

Wider implication of the findings

We aimed to determine the overall Cumulative Live Birth Rate after multiple IVF cycles, providing patients with a better estimate of their chances of a live birth according to age and cause of infertility. These findings are encouraging for patients insisting to extend their treatment beyond 4 to 5 cycles.

Study funding/competing interests

None

Trial registration number

None

Keywords:

Cumulative live birth rate, in vitro fertilization, Middle East, multiple pregnancy rate

O21 Extended Clomiphene citrate regimen with tamoxifen as a new protocol for controlled ovarian stimulation in women undergoing Intracytoplasmic sperm injection

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Introduction: Conventional protocols for ovarian stimulation are complex and require several weeks of daily injections. Also close monitoring of the ovarian response is usually needed, resulting in high financial cost and increase physical and emotional discomfort for the patients. Such protocols can be associated with complications such as OHSS which may be fatal; furthermore the impact of such side effects can influence patients to say "never again" and most important reason for patient dropping out of an IVF program. So an alternative protocol for minimal stimulation IVF was developed to alleviate some of concerns associated with long agonist protocol.

Setting; International Islamic center for population studies and research, Al Azhar University.

Aim of the work: To evaluate the efficacy& safety of this ovulation induction protocol in women undergoing ICSI.

Patient and methods; A randomized control study carried out at Azhar ART unit in(120 women till now) with good prognosis(Women ≤35 years old with normal ovarian reserve (basal FSH, AMH, AFC),normovulatory cycle, Body mass index (BMI) <30 kg/m²,No previous assisted reproductive technology cycles, No severe endometriosis, No history of recurrent miscarriage, No endocrine or autoimmune disease) were recruited for ICSI, they were classified into;50 patients were received the minimal stimulation protocol (group I) Received Clomiphene citrate tablet 100 mg twice daily from day 2 of the cycle (natural or progestagen induced) daily till HCG injection (extended regimen aiming to prevent premature LH surge) in addition to tamoxifen 20 mg beginning from day 2 of the cycle (natural or progestagen induced) daily till HCG injection (aiming to antagonizing Clomiphene citrate effect in the endometrium).)And 70 patients were received long agonist protocol. The outcome measures were number of mature follicles, cycle cancellation rate, , number of oocytes retrieved, number of embryos transferred, incidence of OHSS, ongoing pregnancy rate, clinical pregnancy rate Multiple pregnancy rate, Miscarriage rate, fetal abnormality , total cost of the cycle and live bith rate.

Results; (till that time of the study) The donor age groups were comparable in both the groups, the duration of stimulation was significantly shorter in the minimal stimulation protocol, The incidence of ovarian hyper stimulation syndrome and twins pregnancy were significantly lower in the minimal stimulation

protocol, also premature LH surge was lower in the study group than conventional protocol, As regard clinical pregnancy outcome per embryo transfer, there were no significant differences between minimal stimulation protocol and long agonist protocol (35% vs. 40% till that time of the study), but the pregnancy outcome per initiated cycle was significantly higher in the long agonist protocol.

Conclusions; The minimal stimulation protocol is associated with minimal side effects, lower cost and comparable pregnancy outcome per embryo transfer, and can be used as alternative for long protocol in our developing country especially in selected patients.

Key Words : Controlled ovarian stimulation, ICSI, Pregnancy, OHSS.

O22 Evaluation of the Effect of Trans-vaginal Ovarian Needle Puncture on Women with Polycystic Ovary Syndrome

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Background: polycystic ovary syndrome (PCOS) is a syndrome of ovarian dysfunction showing cardinal features of hyper-androgenism and polycystic ovarian morphology. Many therapeutic strategies have been used to restore ovulation in women with PCOS who are infertile. Ultrasound-guided transvaginal ovarian needle puncture is a new surgical method used to induce ovulation.

Aim of the study: to evaluate the effectiveness of Ultrasound-guided trans-vaginal ovarian needle puncture on improving the outcome of management in women with polycystic ovary syndrome.

Methods: This prospective interventional study was conducted in a tertiary care hospital and was performed on 54 women with clomiphene resistant PCOS with primary or secondary infertility divided into two groups. Group I Included twenty-seven patients who received aromatase inhibitors (letrozole 2.5mg) twice daily starting from the 2nd day of menstrual cycle for 5 days, and FSH administered with 75 IU daily from cycle day 3 and maintained for up to the 14th day of the cycle. Group II Included twenty-seven patients who underwent ultrasound-guided transvaginal needle ovarian puncture prior to the induction of ovulation by the same protocol used in group I from the next cycle for 3 months. For all patients, serum FSH, LH, and free Testosterone levels were measured on day 3 of the next menses. All patients were monitored in the early and late parts of the follicular phase. The ultrasound data taken from the day 7 of the menstrual cycle was collected and monitored to determine the ovarian

response and follicular growth. All patients were monitored for the mean follicular diameter, number of dominant follicles and endometrial thickness on day of hCG administration

Results: The ovulation rate with trans-vaginal ovarian puncture in group II was (84%) which is higher than that in group I (62.5%) with a statistically significant difference. Also, the cumulative pregnancy rate in group II was higher (33.3 %) compared to 15 % in group I. There is a marked decline in LH level in group II which was treated by trans-vaginal ovarian puncture that of group I, and this was reflected on LH/FSH ratio which markedly declined in the group II. Free testosterone showed significant decline in group II.

O23 Sheath in embryo transfer technique. a new modality improves pregnancy rate in ICSI cycles

Ahmed F Galal , ahmed E etman

Embryo transfer considered one of the rate limiting step in the success of icsi treatment .it is recommended that it should be performed by the most experienced physician in each ART UNIT. The commonly used technique for embryo transfer is to transfer with both outer sheath covering the inner one with negotiation of the cervix .aim . To compare the classic embryo transfer technique with the sheath in technique of embryo transfer. patient and methods retrospective cohort study that was done on 513 women with icsi treatment from the period of jan 2017 till December 2017 at repro ivf center Alexandria Egypt through our records that were doubled checked by both clinical data as well as laboratory data of the way of embryo transfer using Wallace Sure Pro Ultra catheter with group Group (A): 383 patients adopted the routine embryo transfer with the double sheath, group (B): 130 patients in whom transfer was done by confident positioning of the outer sheath before introducing the embryo loaded inner sheath were applied. The end results were chemical pregnancy rate by positive HCG after 14 days of embryo transfer and clinical pregnancy rate by ultrasound detection of fetal heart pulsation 6-8 weeks after transfer

Results .patients in both groups were well matched regarding the demographic criteria the mean age was(31.3 versus 30.7) the same well matching were observed in the criteria of icsi cycle regarding days of stimulation (11 versus 11.4) gonadotropins dosage (3300 iu versus 3100 iu) endometrial thickness was 10.5 versus 11 mm.clinical pregnancy rate was 55.4 % in sheath in protocol versus 46% in the classic way and this was borderline statistical significance as p value was 0.05 . conclusion. using sheath in Wallace sure pro ultra catheter technique for embryo transfer would result in a higher clinical pregnancy rate that should be put in consideration with a prospective studies .**Conclusion:** Ultrasound guided trans-vaginal ovarian needle puncture is an effective method for improving the outcome in women with PCOS who are resistant to clomiphene citrate. It resulted in a significant change in baseline hormonal profile level of LH and serum Testosterone.

O24 Effects of Re-Vitrification of Mouse Morula and Early Blastocyst Stages on Apoptotic Gene Expression and Developmental Potential

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Objective: Re-vitrification of embryos immediately after thawing or after a culture period could be used to preserve the extra embryos after embryo transfer. This study aims to clarify the effect of re-vitrification on Bax and Bcl-2 gene expressions of compact and early blastocyst stage embryos.

Materials and Methods: This experimental study was performed on mouse embryos. We collected 8-cell stage embryos (n=400) from female mature mice, 60-62 hours after injection of human chorionic gonadotropin (hCG). The embryos were divided into 5 groups: fresh (n=80), vitrified at the 8-cell stage (n=80), vitrified at the blastocyst stage (n=80), vitrified at the 8-cell stage, and re-vitrified at the compact (n=80) and early blastocyst stages (n=80). Embryos were vitrified by cryolock. We analyzed the developmental rates of the vitrified-warmed embryos with the chi-square test. Quantitative polymerase chain reaction (qPCR) data were analyzed with SPSS version 16 using one-way analysis of variance (ANOVA) followed by Tukey's post hoc test. $P < 0.05$ were considered statistically significant.

Results: The expanded blastocyst formation rate showed a significant difference in re-vitrified embryos compared with fresh embryos ($P < 0.05$). However, this result was similar between the two re-vitrified groups. Our data showed a significant difference in expression of the Bax and Bcl-2 genes between re-vitrified and fresh embryos ($P < 0.05$).

Expressions of the Bax and Bcl-2 genes showed no significant difference between the two re-vitrified groups.

Conclusion: Based on our study, re-vitrification could affect developmental rate and expressions of the Bax and Bcl2 genes.

Keywords: Apoptosis, Embryo, Genes, Mouse Cell Journal(Yakhteh), Vol 19, No 4, Jan-Mar (Winter) 2018, Pages: 614-619

O25 Sex selection using preimplantation genetic diagnosis and embryo biopsy timing: Comparison of day-5 blastocyst fluorescence in situ hybridization analysis with day-3 single-cell blastomere diagnosis

Awad, F.; Awartani, A.; Ibrahim, M.; Rabadi, N.; Abukhaizaran, S.

Key words: Preimplantation genetic diagnosis (PGD), sex selection, blastomere, trophoctoderm, fluorescence in situ hybridization (FISH)

Study question

Is sex selection and aneuploidy diagnosis for chromosomes 21, X and Y using PGD-FISH more accurate using day-5 trophoctoderm biopsy compared with the day-3 analysis?

Summary answer

Our results indicate that there is a difference between day-5 blastocyst fluorescence in situ hybridization (FISH) reanalysis as compared with the day-3 blastomere diagnosis

What is known already

Preimplantation genetic diagnosis (PGD) for aneuploidy screening and sex selection permits studying the chromosomal status of embryos generated in vitro prior to implantation, thus allowing the selection of only euploid embryos and/or those of preferred sex for transfer. However, PGD is associated with several potential difficulties. Previous studies have shown that there is a discordance of aneuploidy diagnosis between day-3 single-cell blastomere biopsy and trophoctoderm biopsy. However, to the best of our knowledge, the concordance of the day-5 FISH reanalysis with the day-3 for sex selection has not been studied yet.

Study design, size, duration

Eighty embryos were included in this retrospective study from May 2018 until mid-September 2018. At the end of this ongoing study, around 500 embryos will be included, which will take about one year and a half.

Participants/materials, setting, methods

Three days after oocyte retrieval, single blastomere was biopsied from each embryo generated in-vitro from 23 couples undergoing sex selection in Razan IVF Center. FISH was performed for sex selection and aneuploidy screening. Euploid embryos with desired sex were then transferred and not included in this study. All aneuploid embryos and/or with unwanted sex were further cultured and progressed to blastocysts. On day-5, trophoctoderm biopsies were taken from the left-over blastocysts and reanalyzed by FISH.

Main results and the role of chance

Our initial results show that among the 80 embryos evaluated on day-3, 63.2% were euploid and 36.8%

were aneuploid for chromosome 21 and/or sex chromosomes. Of the euploid embryos, 47.4% were having XY chromosomes (male was the desired sex in all cases) and were transferred. All aneuploid embryos and/or whom with un-wanted sex were further cultured and progressed to blastocysts. When FISH reanalysis was performed, 65% of blastocysts were confirmed aneuploid in concordance with the day-3 diagnosis. However, 35% blastocysts were determined to be euploid. Interestingly, all blastocysts were confirmed having the same sex as diagnosed on day-3.

Limitations, reasons for caution

The findings of the study may be limited as only the embryos diagnosed on day-3 with aneuploidy and/or having the un-wanted sex were reevaluated on day-5.

Wider implications of the findings

Our results will have an impact on ameliorating PGD accuracy in general, thereby making it possible to significantly improve the treatment outcome.

Study funding/competing interest(s)

This work is supported by Razan IVF center in Palestine. The authors have no conflict of interest.

Trial registration number

N/A

O26 COPARISON OF GENE EXPRESSION OF CELL CYCLE REGULATORS BETWEEN NORMAL AND FEMALES WITH EGG MATURATION SYNDROME USING SINGLE OOCYTES

Batiha, O.; AL-AKUL, H. and Elbetieha, A

Maturation failure syndrome, female infertility, cell cycle regulators, gene expression, meiosis.

Do the expression of CYCLIN B1, CDK1, and CDC20 are different between females with egg maturation syndrome compared to normal females

The study found significant difference in the expression of the above mentioned genes between the two groups.

The current methods used to investigate oocyte quality in assisted reproductive technologies programs are limited; and depend mainly on oocyte morphology. Recent attempts focusing on gene expression profiling have identified a group of genes playing a major role in oocyte maturation.

A total of 71 samples were collected between September 2014 and June 2016, and were divided to three categories: Group (1) 45 samples with equal or more than (50%) of arrested germinal vesicle oocytes, Group (2) 11 samples with equal or more than (50%) of arrested MI oocytes, and 15 samples with less than (25%) of arrested germinal vesicle oocytes were used a control group (group 3).

Oocytes were collected from females attending infertility clinics at Al-Amal private hospital. Gene expression profiling was done using real-time

quantitative polymerase chain reaction (RT-qPCR).

The results presented in this work reveal a significant reduction in CDK1 expression ($p=0.005$) and a significant increase in CDC20 expression ($p=0.007$) in GV MFS oocytes compared to the normal GV oocytes, while CYCLIN B1 expression levels showed no significant change ($p=0.095$). When comparing mRNA levels between GV oocytes and MI oocytes collected from MFS patients, It was found that only CDK1 showed a significant decrease ($p=0.007$), while CYCLIN B1 and CDC20 did not significantly change ($p=0.076$, $p=0.081$), respectively.

This study used limited number of oocytes and should be repeated using higher numbers to validate the results.

The results highlight the importance of CDK1 as a marker of oocyte's maturation and help in the molecular diagnoses of MFS.

This research is funded by a grant from the deanship of research at Jordan University of Science and Technology

O27 Role of Heparin binding Epidermal Growth Factor in the serum and follicular fluid of PCOs infertile women on the successful pregnancy after IVF program

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Key words: Heparin binding epidermal growth factor, ICSI, PCOS.

Study question: Role of heparin-binding epidermal growth factor (HB-EGF) in positive pregnancy outcome of PCOS subfertile women following intra cytoplasmic sperm injection (ICSI) cycle.

Summary answer: There was a positive correlation between heparin-binding epidermal growth factor level in the serum and follicular fluid to predict intra-cytoplasmic sperm injection outcome in PCOS women.

Study design, size, duration: A prospective study which involves hundred infertile females selected from the Consultant Clinic in Kamal Al-Samaria IVF Center in Baghdad-Iraq through the period from November 2015 to September 2016.

Subject, Materials and Methods: Controlled ovarian stimulation was done with two different protocols. Heparin binding epidermal growth factor was measured on early follicular phase of the cycle (CD2-3). Measurements of Activin A and HB-EGF were assessed in serum and follicular fluid on the day of ovum pick up.

Main Results: Highly significant differences were encountered between PCOS and non-PCOS groups regarding serum activin A at day of ova pickup (OPU), follicular activin A at day of ova pickup (OPU), serum cycle day 2 (CD2) HB-EGF in the serum and follicular fluid (FF) on day of ova pickup (OPU). All these variables were highly significantly ($P < 0.001$) higher in PCOS groups in comparison with non-PCOS group. Positive biochemical pregnancy was detected in 37 (37%) of all women participating in the current study. The percentage of pregnancy was higher in PCOS than non-PCOS groups, 21 (42.9%) versus 16 (32.7%). However, this difference did not reach the statistical significance ($P = 0.297$).

Limitations, reasons for caution: the results found no limitations or any reason for caution.

Wider implications of the findings: The serum HB-EGF has a significant correlation with successful ICSI outcome.

Trial registration number (if registered clinical trial): NON.

ORAL PRESENTATIONS SESSION 3: Sperm physiology

O28 Effect of acoustic cavitation on colonization and viability of mouse spermatogonial stem cells

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Key words: Acoustic cavitation, Ultrasound, Spermatogonial stem cells, Colonization, Viability
Do ultrasonic waves in kHz frequency (low intensity) can stimulate colonization and viability of mouse spermatogonial stem cells (SSCs)?

Low-intensity ultrasound of 40kHz with a 0.40 mechanical index can be effective in increasing the proliferation and colonization of spermatogonia in stem cells during culture.

In all studies, specific sonication conditions are determined by considering the availability of the radiation frequency without physical reasons or the explanation of the mechanism type. While achieving the goal of increasing the proliferation and differentiation of the cytotoxic cells, appropriate radiation conditions, the knowledge of the mechanisms and procedure interaction by low-intensity ultrasound (LIUS) on cellular culture is important. To increase the effect of ultrasound waves in molecular and cellular dimensions, it requires a process to transmit

ultrasonic wave energy to these small dimensions. The phenomenon of acoustic cavitation can be caused by this effect.

Cavitation in the acoustic field is an important issue to describe the effect of ultrasound. In this study, the effect of the ultrasonic mechanical index is designed to understand the cavitation effective physical process of cellular proliferation. In addition, regarding the low intensity of ultrasound, the Rayleigh integral model has been used for acoustic pressure computation. Mechanical index average of 40 kHz frequency are selected as sub threshold, 0.40 and above the cavitation threshold.

In order to evaluate LIUS on proliferation, 6 cell groups were placed 0.5 cm away from the ultrasonic transducer surface (0.28 to 1.34 W/cm², 5 day duration) with a mechanical index average of 0.40, 0.51, 0.75 and 0.89 that were compared with control and sham groups. After various stimulation intensities, SSCs cultured for 7 days. Obtained colonies from SSCs were assayed at 7th day. Cell viability in different groups was compared with Trypan blue.

The number of colonies on the seventh day in the group with a mean mechanical index of 0.40 is the highest number (93 ± 4) and in the group with a mechanical index of 0.89, the minimum amount (32 ± 4) is compared to the control group (65 ± 4). There are significant differences among groups with 0.40 and 0.51 mechanical indices with all groups from the 5th to the 7th day ($P < 0.05$). Increase in colony diameter could be observed for 0.40 mechanical index during all days of culture that in the culture on seventh day it had the largest average colony diameter of $134.05 \pm 1.22 \mu\text{m}$ in comparison with other groups ($p < 0.05$). Cell viability percent in groups with 0.40, 0.75, 0.89 mechanical indices and controls is 100 percent, and in the group with 0.51 mechanical index and sham group is 98 percent. The percentage error among the various groups is very low and is about 0.0% to 1.4%. The results suggest that a low intensity ultrasound of 40 kHz with a 0.40 mechanical index can be effective in increasing the proliferation and colonization of spermatogonia in stem cells during culture.

Whereas the colonies were composed of different sizes either have different simultaneous processes of colonization or different capacity with respect to the speed and number of divisions. So, LIUS in fine mechanical index could be a good strategy for improving culture and the results of stem cell enrichment.

Conflict of Interest: None

O29 Assessment of smartphone-based home semen analyzer

Sojoodi, M.; Movahedin, M.; Khodaei, A.; Refan, F.

Key words : Semen analysis, sperm motility, sperm concentration, male infertility.

Study question: This study assesses the male infertility evaluation of our designed home-based device which is comprising a smartphone-based gadget with a mini-microscope and an analyzer mobile application.

Summary answer : The result of study shows that the device can analyze semen sample with acceptable accuracy and present the primary evaluation of male infertility with affordable way at home.

What is known already : Diagnosis of male infertility is now based mainly on the standard methods including manual microscope-based testing and computer-assisted sperm analysis (CASA), while this approach is expensive, time-consuming and requires clinical facilities and testing in a clinical setting. Besides, in some countries, cultural and social issues are major obstacles for men to look for an evaluation of their fertility. Other methods like paper-based colorimetric detection and photon correlation spectroscopy were also developed for semen sample analysis. These methods are clinic-based, needs expensive equipment and do not provide a point of care and rapid way for semen test and at home.

Study design, size, duration : To evaluate the performance of our device, 200 unwashed and fresh semen samples were analyzed by two methods: CASA and our home-based device, based on WHO criteria at the fertility clinics. Semen concentration and motility results of each method were extracted for comparison of methods. To cover the wide range of concentration and motility values, the samples were provided by patients and donors after informed consent.

Participants/materials, setting, methods : All semen samples were acquired on-site and corresponding WHO guideline at Nikan IVF Center and Gandhi Hospital IVF Center. The samples were placed in a sterile plastic container after ejaculation. Experts report the results of two methods separately. Passin-Bablok regression is applied to calculate correlation between the results of methods using SPSS software. Accuracy, sensitivity, specificity and error were obtained based on the statistical analysis.

Main results and the role of chance : Concentration and motility results including progressive, non-progressive and immotile parameters which were obtained by the device were compared with CASA results. Variabilities between the concentration and total motility of two methods are 5.1% and 3.8% respectively. For motility parameters including VCL, VSL, VAP and STR, variabilities are 4.9%, 2.9%, 3.5% and 4.1% respectively. The average error between two methods doesn't show significant difference (P=0.41). These results show that our device can be used as a primary home-based semen analyzer which is easy-to-use and affordable for people to provide in developed or developing countries.

Limitations, reasons for caution : The current evaluation of semen sample is just primary diagnosis

of infertility and based on concentration and motility, while, other aspects of semen evaluation including sperm morphology, DNA fragmentation and acrosome reaction is not included in the assessment because of requiring special staining kit and fluorescence microscopy.

Wider implications of the findings: As the results were obtained by expertise at clinic, unexperienced people's ability to use the device should be examined by comparison of the results obtained by two groups.

Study funding/competing interest(s): Iranian stem cell science and technology council, vice-presidency for science and technology and the Emerging Technology of Century Company (ETC).

O30 Does Time Lapse have an Impact on ICSI Outcomes of Male Factor Infertile Couples

Al Numi M, Ayoub H, Al Obied A., Al Sonbul A, Al Khudari N, Al Shammari N

Key words : intra cytoplasmic sperm injection (ICSI), male factor, sperms, live birth rate (LBR)

Study question: How the ICSI outcomes in infertile couples with Male factor are impacted by time?

Summary answer: ICSI outcomes decline with time in infertile males.

What is known already: Data available in the literature described a decline in the ICSI outcomes with respect to the increase in the infertile paternal age not specifically in younger ones.

Study design, size, duration: Retrospective study including 71 ICSI cycles of infertile couples with male factor from June 2008 till June 2018.

Participant/ materials, setting, methods: 71 cycles identified with a gap range of 3-8 years between the first and last ICSI trial at PSSMC IVF Center.

Main Results: 71 cycles identified, 26 (1st trial), 45 (last one), gap range of 3-8 years, a mean of 4.7 years. The first trial compared to the last had the following means Female age (27.6, 31.8), FSH level (6.5, 7), male age (32.7, 36.8), sperm count (16.5, 7.3), motility (50%, 32%), morphology (4%, 4%), number of oocytes retrieved (10.2, 11.5), mature (8, 7.9), fertilization (4.5, 4.3), embryos transferred (2.3, 2).The pregnancy rate (52%, 36%).respectively. Live birth achieved in 42% and 21% in the last group. P value < 0.05 is considered significant.

Limitation, reasons for caution: our study was limited to the small patient number enrolled.

Wider implications of the findings: As time passes, to overcome the decline of the biological competency of infertile males a no delay of the following ICSI cycle could represent a possible remedy in such couples.

Study funding/ competing interest: none to declare.

031 Use the Nanoparticles to Improve the Quality of Human Semen and Reduce DNA Fragmentation

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Assisted reproductive techniques (ARTs) are widely used in domestic species, with increasing applications in wildlife conservation. However, the currently available techniques for semen preparations are not fully reliable, or applicable in all species to ensure successful ART outcomes. The recent development in nanotechnology offers new horizons for further optimization of sperm preparations. The use of conjugated magnetic nanoparticles allowing for selective targeting and removal of moribund spermatozoa, through the technique known as Nano purification, has shown beneficial in domestic boars and bulls. Nano purification is a rapid, straightforward, effortless, and non-invasive technique which application in wildlife or endangered species is expected to have tremendous impact on ART outcomes. In this study human spermatozoa from a total of 45 semen samples were washed with human tubular fluid medium supplemented with bovine serum albumin (HTF-BSA) and incubated for 2 hours followed by incubation with different concentrations of Nanoparticles and control for 20 mins at 37°C. Samples were analyzed for calcium homeostasis, capacitation, sperm motility, reactive oxygen species (ROS) modulation, DNA fragmentation as well as acrosome reaction. For Ca²⁺flux studies, a high-throughput fluorescence Ca²⁺flux assay was used. Three different labs have confirmed that washed sperm has good motility from 25% to particle treated sperm 80%. DNA fragmentation has been reduced 70 to 90% as well as motility increases from 80% to 95% after treatment with the removable magnetic particles. However, the technology targets 3 to 4 surface markers on sperm with Nano magnetic particles. These targets are apoptotic sperm, acrosome reacted sperm, and DNA fragmentation and membrane damaged sperm. After incubation at room temp the mixture of particles and sperm are placed against a laboratory magnet for removal of the targeted deficient sperm, the supernatant contains the viable sperm. Reduced DNA fragmentation has been shown to reduce miscarriages. In so doing, we enrich for viable non-DNA damaged sperm for use in IVF. Keywords: Capacitation, nanotechnology, ARTs, DNA fragmentation.

KEYNOTE LECTURE II: The Prince Sultan Bin Abdul Aziz Al Saud lecture (Selective outcome reporting in IVF/ICSI trials)

032 Selective outcome reporting in IVF and ICSI trials

F van der Veen

The practice of decent medicine depends to a large extent on decent and high quality clinical research. The cornerstone of clinical research is the randomized clinical trial. Slowly but surely the methodology to perform a high quality trial has crystallized as well as the ethical requirements to design and start a trial. High quality implies robust internal validity, which can only be achieved if the trial is free from bias, defined as systematic errors that favour one outcome over the other.

Potential sources of bias may be classified into selection bias (the selection and randomization of patients), performance bias (blinding of participants and personnel), detection bias (blinding of outcome assessment), attrition bias (incomplete outcome data caused by withdrawals) and reporting bias, caused by selective outcome reporting.

Selective outcome reporting occurs if some outcomes are reported while others are not. This may be due to choosing a surrogate outcome instead of a clinically relevant one, or to not reporting pre-specified outcomes while outcomes that were not pre-specified are reported, without being declared as novel. This is an extremely common problem that distorts the evidence we use to make real-world clinical decisions as these outcomes are prone to be the result of chance alone. An additional problem is that results of trials using different outcome measures cannot be compared.

Theoretically, Reproductive Medicine is especially susceptible to selective outcome reporting since there are many primary outcome measures to choose from – hormone levels, follicle development, number and quality of oocytes, fertilization rates, number and quality of embryos, endometrial thickness, biochemical pregnancy, clinical pregnancy, ongoing pregnancy, live birth, miscarriage, ectopic pregnancy, singleton pregnancy, multiple pregnancy, ovarian hyperstimulation syndrome etc- and many of these might not be the most relevant ones for clinical research. Also, there are many financial interests in the IVF industry and sponsorship by commercial parties is known to negatively influence valid interpretation of trial results by more often reporting on outcomes favourable to the sponsor's products.

Data on selective outcome reporting and whether this is related to sponsorship in RCTs on IVF and ICSI are at present unknown. We here present data based on a systematic review of 415 identified RCTs in couples undergoing IVF and ICSI, performed between 2009 and 2014.

Of the 415 RCTs, we excluded 235 (57%) for our primary analysis, because the sponsorship was not reported. Of the 180 RCTs included in the analysis, 7 trials did not report on any primary outcome measure and 107 of the remaining 173 trials (62%) reported on surrogate primary outcome measures like hormone levels or the number of oocytes retrieved. Of the 114 registered trials, 21 trials (18%) provided primary outcomes in their manuscript that were different from those in the trial registry. We found no association between selective outcome reporting and sponsorship. Additional analyses including the trials that had not reported sponsorship showed identical outcomes as in our primary analysis.

Our findings show that the CONSORT statement, initiated to improve the quality of randomized clinical trials by lowering the chance of bias, is poorly adhered to in IVF/ICSI studies, and that the use of surrogate outcomes is highly prevalent, thereby obstructing insight into clinical outcomes that do matter.

An effort to improve reporting is being done by the COMPare (CEBM Outcome Monitoring Project) team. This team is monitoring clinical trials for switched outcomes. Through increased awareness of misreported outcomes, individual accountability, and feedback for specific journals, they hope to fix the ongoing problem of selective outcome reporting.

CONCURRENT SCIENTIFIC SESSION 7: Fertility Preservation

O33 Egg freezing for fertility preservation: Do we have enough data?

Yacoub Khalaf,

Professor of Reproductive Medicine, King's College, London

Since the birth from a frozen oocyte was achieved in Australia in 1986, significant advances have been made in the field. Improved techniques and success rates have resulted in extending egg freezing to many indications, including age-related fertility decline.

The lecture would discuss the factors that affect the success of egg freezing and the data available from national database of the Human Fertilisation and Embryology Authority of the UK. The question of what exactly should women know in order to make an informed decision regarding elective egg freezing would be addressed.

O34 Random start ovarian stimulation: when and how?

Prof. Elias M. Dahdouh, M.D., M.Sc.

Conventional stimulation protocols, starting in the early follicular phase, require usually 2-4 weeks to complete ovarian stimulation and oocyte retrieval. Such a strategy may neither be practical nor feasible in oncologic patients requiring urgent fertility preservation (FP) before cancer treatment, such as chemotherapy.

Recent studies have shown that random start can be initiated at any phase of the menstrual cycle, namely, in the early follicular, late follicular or the luteal phase. It is an attractive alternative to conventional ovarian stimulation, and has been primarily used in the setting of FP for breast cancer. Clinical data suggest that this strategy can shorten the interval between ovarian stimulation and oocyte retrieval, with the yield of oocytes and embryos being comparable to conventional stimulation protocols. However, relative to conventional start, higher gonadotropin doses are often needed.

O35 Ovarian tissue cryopreservation: Is it feasible in clinical practice?

Hesham Al-Inany (Egypt)

CONCURRENT SCIENTIFIC SESSION 8: Optimizing Ovarian Stimulation

O36 Ovarian stimulation strategies for IVF

Ioannis E. Messinis, MD, PhD, FRCOG

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Ovarian stimulation is used either for mono-ovulation induction in anovulatory women or for superovulation induction in women undergoing IVF treatment. In any case, multiple pregnancies and the OHSS must be avoided. Induction of multiple follicular development results in marked changes in the intensity of the feedback mechanisms. To prevent a premature LH surge during FSH treatment, GnRH analogues are used with no difference in clinical outcome between agonists and antagonists. The GnRH antagonists are preferably used in mild ovarian stimulation protocols as well as when there is a high risk for the occurrence of the OHSS. In such cases, triggering of final follicle maturation with a GnRH agonist instead

of HCG reduces the risk of OHSS. During ovarian stimulation, endogenous LH secretion may be markedly suppressed, but whether FSH treatment should be supplemented with exogenous LH is still debatable, although this might be beneficial in poor ovarian responders. In order to maximize the success of IVF treatment, over the last few years, various individualised approaches to ovarian stimulation with the use of different biomarkers have been proposed. Nevertheless, recent RCTs have provided evidence that live birth rate is not different among protocols with different starting doses of FSH.

O37 On individualization of ovarian stimulation: the arguments in favor.

Sandro C. Esteves, MD., PhD.

ANDROFERT & University of Campinas (UNICAMP),
Campinas, BRAZIL
Aarhus University, Aarhus, DENMARK

In our society, the proportion of women with advanced female age and diminished ovarian reserve seeking fertility treatment is increasing steadily. Female age and oocyte number are the most robust predictors for pregnancy success in the IVF setting. It is, therefore, crucial to individualize the ovarian stimulation (OS) protocol to secure the optimal oocyte yield. Individualization of OS is critical because patients respond differently to exogenous gonadotropins. Recently, the POSEIDON criteria were proposed as a new and more detailed stratification system for infertility patients with "expected" or "unexpected" impaired ovarian response to exogenous gonadotropins. The POSEIDON group also introduced a new measure of success in assisted reproductive technology (ART), namely, the ability to retrieve the number of oocytes needed to obtain, theoretically, at least one euploid blastocyst for transfer in each patient. Using the POSEIDON criteria, the clinician will, first of all, classify patients who have low prognosis in ART and secondly, individualized the OS to achieve the optimal number of oocytes to increase the probability of having at least one euploid blastocyst for transfer in each of POSEIDON's categories. The new POSEIDON criteria is a tool for individualization, and its use may improve counseling and management of challenging patients undergoing ART, ultimately maximizing success and shortening the time to live birth.

At the end of this presentation, participants will be able to:

- Understand why female age and number of oocytes retrieved are the most relevant predictors for live birth in IVF.
- Appraise the reasons why individualization of ovarian stimulation is the key to maximize oocyte yield.
- Learn about the new POSEIDON criteria to

identify and stratify women with low prognosis in IVF and how the principles can guide the clinician to most optimally manage the low prognosis patient undergoing IVF.

- Appraise some of the strategies that can be used to optimize oocyte yield in low prognosis patients.

O38 Update on ovulation induction

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Ovulation induction aims at single follicle development and mono-ovulation in order to avoid multiple pregnancies and OHSS. There are two main categories of anovulatory infertility, i.e. hypogonadotrophic hypogonadism (WHO group I) and polycystic ovary syndrome (PCOS) (WHO group II). For WHO group I, administration of both FSH and LH with proper monitoring of treatment is required. HCG is given for final follicle maturation and ovulation, while luteal phase support is needed. In WHO group II, clomiphene or aromatase inhibitors (letrozole) are first-line treatments. Letrozole is superior to clomiphene in terms of clinical outcome, but still "off label". Gonadotrophins are used as a second-line treatment in case of clomiphene failure or resistance. Low-dose protocols of FSH or HMG, the step-up and the step-down, induce mono-follicular development in about 70% of the cycles. The starting dose in the step-up protocol is 50-75 IU. A slow process of increments is adopted in case of no ovarian response after 14 days of treatment. With the step-down protocol, the starting dose is higher (100 IU) decreasing gradually from the time the selected follicle is detected by vaginal ultrasound. Good cumulative pregnancy and live birth rates have been reported with the step-up protocol, while the incidence of multiple pregnancy and of OHSS is low. Laparoscopic ovarian drilling competes with FSH, as second-line, but has certain limitations. Metformin, an insulin sensitizer, is less effective than clomiphene as first-line, but can be added to clomiphene in clomiphene resistant patients.

O39 Laparoscopic removal of endometrioma in the infertile couple: Decision tree

Ricardo Loret de Mola

Endometriosis is a disease known to be detrimental to fertility. Women with endometriosis, and the presence of endometrioma, may require assisted reproductive technologies (ART) to achieve a pregnancy. The specific impact of endometriomas alone and the impact of surgical intervention for endometriomas on the reproductive outcome of women undergoing IVF/ICSI are areas that require further clarification. It is currently accepted that endometriomas may reduce the ovarian reserve by destruction of normal ovarian tissue; however this may also be related to surgery to remove the endometrioma. The objectives of this presentation is to: (i) to determine the impact of endometrioma on IVF/ICSI outcomes, (ii) to determine the impact of surgery for endometrioma on Infertility as well as IVF/ICSI outcome and (iii) to determine the effect of different surgical techniques on IVF/ICSI outcomes. Endometrioma surgery improves pain and fertility among women who are interested in getting pregnant spontaneously. Among women with endometriomas undergoing IVF/ICSI have similar reproductive outcomes compared with those without the disease, although their cycle cancellation rate is significantly higher. Considering that a reduced ovarian reserve may be attributed to the presence of endometriomas per se, and the potential detrimental impact from surgical intervention, individualization of care for women with endometrioma prior to fertility treatments and IVF/ICSI may help optimize their treatment results, both with surgery and ART.

O40 Laparoscopic Myomectomy: Minimizing blood Loss

Karim Nawfal MD FACS

Uterine fibroids are very common pelvic tumors that might require surgical removal. Laparoscopic myomectomy has proven to be superior to the traditional "Open myomectomy". With advantages in regards to pain, cosmetic results, shorter recovery, lower risks of complications and adhesions makes it appealing to both surgeon and patient. A main limiting factor in Laparoscopic myomectomy is the repair of the uterus and consequently the risk of blood loss. The different methods in reducing blood loss are reviewed, allowing surgeons to perform this procedure with optimal outcomes.

O41 UTERINE TRANSPLANTATION: An update.

Antoine Hannoun M.D.

Uterine transplantation (UT) becomes the only possible treatment of uterine factor infertility when surrogacy and adoption are unacceptable options due to different reasons (legal, ethical, social, religious, etc.). Candidate recipients can have either an absent or a non-functional uterus secondary to congenital or acquired causes. Donors can be live or postmortem multi-organs donors.

The first baby born from a transplanted uterus was in 2014 in Sweden from the group of Mats Brännström. Since then UT has been expanding rapidly: more than 38 UTs were performed in many countries resulting in 12 healthy children. Despite this progress, UT is still considered as an experimental procedure and it needs regulations and recommendations for proper performance and management.

Many questions still need answers: what is the best surgical technique: open or minimally invasive? Which donor is better: live or post-mortem? Is UT, with all its complications, its cost, the need to do hysterectomy following the birth of 2 children, ethically and morally more acceptable than surrogacy? Would the list of recipients expand to individuals who are genetically XY, as transgender male-to-female or women with androgen insensitivity syndrome?

KEYNOTE LECTURE III

Clinical Utility of sperm DNA fragmentation testing: Is the finally jury still out?

O42 Clinical utility of sperm DNA fragmentation testing: is the jury still out?

Sandro C. Esteves, MD., PhD.

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Given the essential role of sperm DNA integrity for normal embryo development and pregnancy outcome, sperm DNA fragmentation (SDF) testing have been used to obtain information about sperm DNA quality, particularly for the evaluation of a possible male factor contributing to infertility. Recently, a clinical practice guideline issued by the Society for Translational Medicine has provided recommendations for SDF testing. According to the best evidence currently available, SDF testing should be recommended after failed IUI, IVF, or ICSI cycles provided no other apparent reason exists to explain that failure. Couples with unexplained infertility and those suffering from recurrent pregnancy loss —defined as two or

more pregnancy losses from the time of conception until 24 wk of gestation— could also benefit from sperm DNA damage testing. Lastly, male patients with risk factors for OS, including but not limited to lifestyle conditions (eg., smoking, obesity, metabolic syndrome), varicocele, genital infections, advanced age, and exposure to toxicants (e.g., environmental, licit or illicit drugs, radiation, chemotherapy) should also be tested for sperm DNA fragmentation.

At the end of this presentation, participants will be able to:

1. Understand the impact of sperm DNA fragmentation on male infertility and IVF/ICSI reproductive outcomes;
2. Learn about the recommendations for SDF testing according to the clinical practice guideline of the Society for Translational Medicine;
3. Appraise what can be done to decrease SDF and the results of interventions;
4. Have of a global overview of current clinical practice concerning SDF testing among practicing reproductive specialists worldwide.

CONCURRENT SCIENTIFIC SESSION 10: Assisted Reproduction

O43 Non-genetic predictors of IVF success with blastocyst transfer.

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Objective: To evaluate predictors of IVF success with respect to the blastulation rate, total number of fertilized oocytes, and total number of available blastocysts, in fresh IVF cycles.

Design: Review of US national data as well as the literature.

Materials and Methods: Data from the SART USA registry, 2011-2015, were analyzed. In addition a literature review was performed looking at predictors of success with blastocyst transfer, without PGT-A.

Results: High blastulation rate (number of blastocysts available for transfer or cryopreservation / number of fertilized oocytes) was associated with a lower number of oocytes/fertilized oocytes, while a low blastulation rate was associated with a high number of oocytes/fertilized oocytes. In single fresh blastocyst transfer, the clinical pregnancy and live birth rates increased with each additional fertilized oocyte up to 9 and declined after that. Similarly, the clinical pregnancy and live birth rates increased with each additional blastocyst up to 5, and declined after that.

Conclusions: A high number of oocytes/fertilized oocytes/ and blastocyst does not necessarily translate into higher IVF success rates with fresh single blastocyst transfer. This may not apply to the

cumulative live birth rate (fresh and frozen) from an IVF stimulation. Use of milder regimens of stimulation and avoiding excessive number of eggs retrieved is optimal for success rates and patient safety.

O44 Dual trigger for final oocyte maturation

Elias Dahdouh

Cohort studies have shown that a dual trigger ovulation regimen (with full dose hCG and GnRH agonist) significantly improves number and maturity of retrieved oocytes in normal ovarian responders or patients with history of low oocyte yield. This strategy has been also used in poor ovarian responders leading to a significantly higher number of mature oocytes than conventional ovulation trigger.

Recent preliminary results from a Canadian multicenter RCT showed also very promising clinical results using the same concept in normal responder patients undergoing IVF treatment.

Finally, dual trigger with a low dose hCG between 1000-1500 IU and a GnRH agonist has also been used in patients at risk of OHSS, notably, in patients with a history of long OCP use, in hypothalamic-hypogonadotropic females, and in adolescent girls undergoing fertility preservation.

O45 Optimization of ART outcome: Updated evidence and best practice

Eman A Elgindy, MD, PhD

(Maastricht University), Professor of Obstetrics and Gynecology, The University of Zagazig, Egypt.

Last years have witnessed major advancement in the field of ART and improvement in its outcome. Some modalities were proven to be effective and others were not. The goal of the current presentation is to assess and present the evidence for both established and emerging approaches for optimization of ART outcome. Pre-cycle evaluation and possible procedures suggested for improving the outcome will be discussed. Decision making during different times of the stimulation cycle will be addressed. Additionally, the use of new modalities will be highlighted in according to the latest evidence and committee opinions.

O46 IVF during the coming decade: where is the evidence?

M. Aboulghar, M.D.

Professor, Faculty of Medicine, Cairo University, Cairo, Egypt
Clinical Director, The Egyptian IVF Center, Maadi, Cairo, Egypt

In the future all investigations, preparations and different techniques and procedures will follow only evidence-based medicine rules. Lines of treatment which are not confirmed by sound evidence will be obsolete. Preparation for IVF will be much simpler; AMH and AFC will be the only tests for ovarian reserve, and variations in results will disappear. In general minimal investigation will be performed and extra investigations will be done in specific indications only. Three-dimensional ultrasound will remain a routine test, and hysteroscopy will no longer be needed if ultrasound showed normal findings.

All types of gonadotrophins proved to be equal. Higher doses of FSH are not useful, but BMI needs to be taken into consideration. GnRh agonist protocol will continue to have an important role in IVF. Antagonist protocols will be preferred in high and poor responders and in patients who request shorter time for treatment.

In the future, there will be no use for antibiotics, cortisone, aspirin, heparin in IVF or treatment of Natural Killer cells. DHEA and growth hormone are of very limited value.

Surgical treatment of endometrioma will not be recommended, while it is advised to remove intramural fibroids.

Vitrification is the best method of cryopreservation and will continue to be so. PGS will continue to be done for limited indications using CGH array and NGS not including aneuploidy screening.

Almost all causes of infertility became treatable except the complete absence of oocytes and sperms. Currently the use of stem cells for the treatment of male or female infertility is absolutely contraindicated. Future use is only possible after completing basic research and ethical approval.

O47 Protect us from poor clinical research

J.L.H. Evers, Maastricht, The Netherlands

Much of the published medical research is apparently flawed, cannot be replicated and/or has limited or no utility. The ESHRE Capri workshop group presented an overview of the current landscape of biomedical research and identified problems associated with common study designs and considers potential

solutions. Randomized clinical trials, observational studies, systematic reviews and meta-analyses are discussed in terms of their inherent limitations and potential ways of improving their conduct, analysis and reporting. The current emphasis on statistical significance needs to be replaced by sound design, transparency and willingness to share data with a clear commitment towards improving the quality and utility of clinical research.

Reference

ESHRE Capri Workshop Group. Protect us from poor-quality medical research. Hum Reprod. 2018 May 1;33(5):770-776.

O48 Endometriosis research: The future

Robert F Casper M.D.

Medical and surgical management of endometriosis at present has been disappointing. Surgical therapy for chronic pelvic pain is generally unsuccessful and medical management of endometriosis is associated with many side effects and with inhibition of ovulation resulting in the inability to conceive. At the present time, there is no specific treatment for endometriosis. Research in endometriosis has been hampered by the heterogeneous nature of the disease suggesting that new therapies need to be individualized to the patient and consequently randomized controlled trials may not be the best study design to assess proposed new medical management. This presentation will discuss the difference between RCTs and prospective cohort follow-up studies in endometriosis, the lack of adequate rodent models of endometriosis and, therefore, why the results from these models are not always applicable to human endometriosis.

O49 Using a Mobile Smartphone to Perform Laparoscopy

Dimitrios Loutradis

Ioannis Chatzipapas, Nikolaos Kathopoulos, Athanasios Protopapas
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Laparoscopy has gradually expanded its use in gynecologic surgery over the last 3 decades. In this presentation, a new laparoscopic setup is presented using a mobile smartphone that allows for a low-cost, portable laparoscopic viewing system. The setup was

created with the coupling of a rigid 0-degree, 10-mm-diameter laparoscope via a commercially available adapter with a smartphone. The light source used was also a portable and rechargeable light-emitting diode cold light source. We completed 63 laparoscopies for different pathologies such as ectopic pregnancy, ovarian torsion, a luteal hemorrhagic cyst, and disseminated ovarian cancer. Five operations were converted from diagnostic to operative laparoscopy. The diagnosis was right tubal pregnancy, salpingectomy was performed, and the new setup was used for the entire operation, allowing the surgeon to complete the surgery successfully. This is the first report of the application of mobile technology used to facilitate a laparoscopic operation. It is our intention that this experience coupled with future hardware improvements will lead to future studies to expand the use of mobile technology in the laparoscopic setting. *Journal of Minimally Invasive Gynecology* (2018) 25, 912–915 © 2018 AAGL.

O50 Opportunistic Salpingectomy: A change in practice”

Karim Nawfal MD FACS

Despite advances in imaging and serologic markers, ovarian cancer remains the second most common type of gynecologic malignancy and the most common cause of death from gynecologic cancer.

Presentation at advanced stages and poor prognosis makes ovarian cancer a disease with low overall survival.

Since 2010, mounting evidence has implicated the role of fallopian tubes in the pathogenesis of Epithelial ovarian cancer.

Where are we currently on “opportunistic salpingectomy”, the benefits, risks and status of implementation in our practice?

O51 Adenomyosis and impact on ART

Omar Sefrioui, Pr Md

Anfa fertility clinic, Casablanca, Morocco

Adenomyosis is a benign disorder where basal endometrial glands and stroma are found in the myometrium with reactive hyperplasia of the surrounding smooth muscle myometrial cells . Traditionally, the diagnosis was made by means of histopathologic examination. With the evolution of magnetic resonance imaging (MRI) and high-quality transvaginal ultrasound (TVUS), today the diagnosis can be made with a level of accuracy of 80%–90% without the need for excisional surgery .

Adenomyosis is associated with enlarged uterus, pelvic pain, excessive vaginal bleeding, and decreased quality of life . It has also been linked with poor obstetrical

outcomes. In a matched case-control study, women with adenomyosis had increased preterm delivery and preterm premature rupture of membrane . However, its effect on fertility remains debatable.

Results of studies evaluating the effects of adenomyosis on the outcome of in vitro fertilization (IVF) treatment have been mixed . several analysis concluded that adenomyosis might have a negative impact on IVF treatment outcomes. It decreases the rates of implantation and clinical pregnancy and increases the miscarriage rate.

Adenomyosis in infertile women can be treated surgically or medically with the use of GnRH agonist (GnRHa). Surgical excision is usually reserved for focal adenomyosis or adenomyoma. GnRHa has an antiproliferative effect on the tissue, induces apoptosis, and reduces inflammatory reaction and angiogenesis . The use of GnRHa treatment for adenomyosis and its effect on fertility is mostly based on case reports. Two retrospective studies suggest that long-term GnRHa treatment in women with adenomyosis before frozen-embryo transfer is associated with increased clinical pregnancy rate . However, to date, there is insufficient evidence to support the preference of one treatment for adenomyosis over another.

The purpose of our review is to determine the effect of adenomyosis on fertility and on IVF clinical outcomes, and to explore the effects of surgical or medical treatments.

**CONCURRENT SCIENTIFIC SESSION 13:
Endometrial receptivity**

O52 Repeated Implantation failure.

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.

O53 Endometrial preparation for frozen embryo transfer

Robert F Casper M.D.

Since the first report of a pregnancy from a human frozen embryo transfer in 1983, many different methods of preparing the endometrium for embryo transfer have been described. These range from natural or modified natural cycles to hormone replacement cycles and even to gonadotropin stimulated cycles. Hormone replacement cycles are the most commonly used and, in general, most of the controversy in this type of endometrial preparation revolves around the type of progesterone luteal phase support, namely vaginal, intramuscular or other progesterone administration. In addition, there is controversy about tests of endometrial receptivity which have been proposed for individualized frozen embryo transfer. This presentation discusses the history of endometrial preparation for FET and addresses some of the controversies regarding endometrial receptivity and luteal phase support.

O54 Luteal phase support other than progesterone

Dalia Khalifeh

After the withdrawal effect of the human chorionic gonadotropin, luteal phase support becomes necessary in ovarian stimulation cycles to optimize IVF cycle outcomes. The deficit in LH pulsatility is maintained with different forms of support. Exogenous progesterone administration has been ideal in supporting luteal phase defects with an increase in implantation and pregnancy rates.

Other emerging options include human chorionic gonadotropin, gonadotropin releasing hormone agonist and estrogen. Yet, the current evidence of the role of these different preparations has not been well established.

CONCURRENT SCIENTIFIC SESSION 14: The biology of reproduction

O55 LH versus hCG : The same receptor different response in ovulation induction regimes .”

Dimitris Loutradis

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

The diversity of ovarian response among women undergoing controlled ovarian stimulation (COS) for in vitro fertilization (IVF) , especially in cases with a history of previous failed attempts, has led researchers to investigate the factors that determine and potentially improve this response .

It is uniformly recognized that LH is drastically involved in follicle maturation from the antral stage onwards. Basically, primordial and primary preantral follicle development is considered gonadotropin independent, given that both cumulus cells and theca cells are devoid of FSH and LH receptors. Gonadotropin receptor allocation in follicular cells is in line with the two-cell two-gonadotrophin theory , according to which, LH induces androgen production by the theca cells and FSH promotes aromatase enzyme activity and thus the utility of androgens as a substrate for estrogen biosynthesis. In fact, FSH and LH act synergistically and complementally in the process of follicular growth given that FSH drives recruitment, selection and dominance, whereas LH contributes to dominance, maturation and ovulation .

The LH/hCG receptor has an almost ubiquitous distribution in reproductive organs, thus suggesting that the actions of hCG might be more extensive than previously thought. Independently of follicular stimulation hormone (FSH), low dose hCG can support development and maturation of larger ovarian follicles that have acquired granulosa cell LH/hCG receptors, potentially providing effective and safer ovulation induction regimens. LH has a higher proliferative and anti- apoptotic potential than hCG, in granulosa cells in vitro. LH is more active than hCG in pERK and pAKT activation.

In contrast, the high steroidogenic potential of hCG, which relies on efficient cAMP production, is linked to expression of pro-apoptotic genes, in primary granulosa cells in vitro, especially in the presence of FSH. hCG is inactive on AKT and ERK

The different steroidogenic potentials related to LH and hCG were provided by the evaluation of cAMP production in human primary granulosa luteal

cells, naturally expressing LHCGR. Dose-response experiments showed that hCG is about 5 times more potent than LH in inducing cAMP production, a result exacerbated by the different EC50 values of the two hormones (about 100 pM for hCG and 500 pM for LH). Recently study have been conducted from our unit shown that the addition of hCG to rFSH in a short GnRH-agonist protocol, throughout the follicular phase, had a beneficial effect in terms of pregnancy rates. Furthermore, hCG was associated with better quality embryos. The significance of these findings was accentuated by the fact that women, who received hCG were significantly older and with higher basal FSH levels, thereby with expectant poorer ovarian reserve. Among the underlying explanations, hCG interaction with LH/CG receptors developed in granulosa cells of larger antral follicles, which can enhance follicle growth and maturation as well as hCG properties in improving endometrial environment and subsequently implantation potential should be stressed. In fact, hCG-mediated LH activity sounds quite attractive due to its long acting profile, which can provide more prolonged and stable stimulation of LH/CG receptors compared to other means of LH activity.

O56 Connective tissue dysplasia and reproductive disorder

**Tatiana Belokrinitskaya, MD, PhD,
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Definition.

Connective tissue (CT) performs important functions in the body some of them are:

- A supporting matrix for many highly organized structures.
- It forms restraining mechanism of the body in the form of retinacula, check ligaments and fibrous pulley.
- It forms fascial planes which provide convenient pathways for vessels (blood vessels and lymphatics) and nerves.
- Connective tissue helps in the repair of injuries whereby the fibroblasts lay down collagen fibers to form the scar tissue.
- The macrophages of connective tissue serve a defensive function against the bacterial invasion by their phagocytic activity. They also act as scavengers in removing the cell debris and foreign material.
- The plasma cells are capable of producing antibodies against specific antigens (foreign proteins).
- The mast cells, by producing histamine and serotonin, are responsible for the various inflammatory, allergic and hypersensitivity reactions.

Definition. The name "connective tissue dysplasia" covers a wide range of disorders. These disorders are caused by a weakness in the connective tissues such as bone, ligaments, tendons and skin.

The syndrome of undifferentiated connective tissue dysplasia may be a cause of primary or secondary female infertility, early pregnancy losses and preterm delivery [1, 2].

Aetiology of infertility is very varied but, in some women, it is associated with pelvic vein incompetence (PVI) and ovarian vein (OV) and the internal iliac vein reflux. The left ovarian vein and the right internal iliac vein were most frequently affected by reflux (58% each) [3]. In about half the number of patients, reflux was demonstrated in more than one of the main pelvic veins (54%) [4]. Typical symptoms of pelvic venous congestion include dull aching unilateral pain in the pelvis, which can be worsened by postural changes and walking and may be accompanied by dyspareunia, menstrual disorder, anovulation and pregnancy loss.

Diagnostic. Duplex ultrasound of the lower limbs and pelvic, ovarian and pelvic vein phlebography should perform in all cases [3, 4]. The most effective method of diagnosis for PVI is selective phlebography of the pelvic veins, which allows accurate detection of reflux pathways in the pelvic and ovarian veins.

Pelvic and ovarian veins incompetence was diagnosed if one of the following criteria was fulfilled:

- varicose reflux towards the ipsi- or contralateral proximal thigh;
- visualisation of reflux throughout the entire course of the OV;
- retrograde filling of the main stem of the IIV and at least one side branch (gluteal, ischiadic or obturator veins);
- retrograde filling of contrast medium across the midline.

Treatment options of reproductive disorder associated with syndrome of undifferentiated connective tissue dysplasia. Treatment should be individual and base on a differentiated manner depending upon the stage of the disease and degree of clinical manifestations. Women with early stage of PVI we used comprehensive conservative treatment including venotropic preparations, microcirculation-improving agents. Patients with last stage of PVI were subjected to roentgenovascular occlusion (sclerotherapy) of the ovarian veins by means of sclerosing agents. We did not use laparoscopic surgery, embolization or Gianturco spring embolisation coils [2, 3, 4, 5]. Roentgenovascular occlusion of left ovarian vein increase the chance of conception and successful completion of pregnancy in comparison with medical treatment. However, we observed a high rate of recurrence of ovarian and pelvic vein varicose during 2-4 years after delivery (75%).

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O57 Effects of Fucoïdan and chemotherapeutic agent combinations on malignant and non-malignant breast cell lines

Salem Shalaweh

CONCURRENT SCIENTIFIC SESSION 15:
Embryology Special Interest Group
session I

O58 What embryo(s) to transfer: fresh or frozen.

Suheil J Muasher MD.

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Objective: To evaluate the optimal method of transfer, fresh vs. frozen, in IVF cycles.

Design: Review of US national data and the literature. Materials and Methods: Data from the SART USA registry were analyzed, 2014-2015, in first IVF cycles comparing a fresh transfer vs. a freeze-all and subsequent frozen embryo transfer (FET).

Results: Fresh embryo transfer yielded better success rates in patients with less than 15 eggs, while FET yielded better rates in patients with 15 or more oocytes retrieved. This seems to be in agreement with the most recent literature on the subject. FET was also associated with a higher incidence of large for gestational age babies and hypertensive disorders of pregnancy.

Conclusions: A universal adoption of abandoning

a fresh transfer in favor of freeze-all cycles is not warranted for the majority of IVF cycles. A freeze-all can be beneficial in patients with an excessive number of eggs, high peak estradiol levels, premature elevation of progesterone at the time of trigger, and to avoid ovarian hyper stimulation syndrome.

O59 The impact of embryo biopsy on embryo development

Fadi Chouair

Preimplantation genetic testing provided a powerful diagnostic tool for the genetic selection of embryos. Technically, this procedure namely entails blastomere or trophectoderm biopsy for embryonic genetic analysis. Recent evidence revealed that the commonly used cleavage-stage biopsies alter embryological and clinical outcomes. However, trophectoderm biopsy may represent the safest, most reliable alternative. To date, follow-up studies demonstrate that embryo biopsy is not associated with a higher risk of adverse perinatal events, or childhood outcomes. Additional efforts made in basic research reported an altered epigenome in biopsied embryos which was translated to various aberrant pathways namely, placental, glucose-insulin, and neural pathways in the animal's offspring. There is a need to refine current embryo manipulation strategies and refer to a less invasive approach to avoid jeopardizing embryonic development and inducing adverse short- or long-term consequences.

O60 Assisted Hatching: Fact or fiction

Hadeel Khayat

Assisted hatching technique is widely used in Assisted Reproductive Technology. There are different methods to be used for assisted hatching. It is a procedure to help the embryo find its way outside the zona pellucida in order to increase implantation rate. Recently, laser assisted hatching is the most common technique because it is rapid, easy and safe. There are many studies show that implantation rate and clinical pregnancy significantly increased in patients <40 years and frozen-thawed cycles. However, no significant increase was noticed in clinical pregnancy in patients >40 years of age. Laser assisted hatching is a useful method to increase clinical pregnancy rate and to have better results in ART.

O61 Obesity: Does it affect the outcome of ART?

Ricardo Loret de Mola

Obesity has a detrimental effect on fertility in general, but specifically affects Assisted Reproductive Technologies (ART) in a negative way. Most experts and guidelines indicate the necessity for weight loss before ART in women who are overweight or obese. This is based on the documented impact of obesity on pregnancy rates, pregnancy complications and the long-term impact on children. Women who are overweight or obese (BMI \geq 25) have lower clinical pregnancy and live birth rates and significantly higher miscarriage rates compared to women with a BMI $<$ 25 following treatment. In addition, obesity impairs ovarian responsiveness to gonadotrophin stimulation, requiring higher doses of medication, and increased risk of cycle cancelation. The mechanisms underlying the adverse effects of female obesity on IVF outcome may be primarily explained by functional alterations to the hypothalamic-pituitary-ovarian axis. Additionally, obesity appears to affect deleteriously the number and quality of oocytes or embryos, and impairs endometrial decidualization which is necessary for uterine receptivity. Achieving normal body weight by intervention such as lifestyle modifications, including a healthy diet and exercise over time of several months before and during an IVF treatment, may be successful in achievement of gradual and sustainable weight loss with improvement of IVF outcomes.

O62 ART and long term outcome of the descendants”.

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 discuss 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.

O63 The concept of “patient-centered infertility care”: a guide for IVF nurses to improve patient experience during ART.

Mona Fawwaz

Infertile couples who undergo infertility treatments and investigations often develop a state of anxiety and depression leading to most of them being dropped out from the whole cycle for non medical reason. IVF nurses play a major role in taking care of infertile couples as they undergo assisted reproductive technology and are in a key position to positively affect the treatment journey and psychological status of the infertile couple. Growing evidence confirm that besides effective medical treatment, high nursing quality of care improves the whole experience of the infertile couple. In this perspective, the concept of “patient –centered infertility care” has emerged to enhance an effective nursing approach in the infertility practice environment and consequently impact patient satisfaction and experience, in addition to nurses job satisfaction and retention.

CONCURRENT SCIENTIFIC SESSION 17:

O64 Ovulation, fertilization, implantation.

Antonis Makrigiannakis MD,PhD

Maternal age, in the developed world countries, has been steadily increasing over the years and is known to be the main cause of reduced reproduction success and a major risk factor for abnormal newborn development. The age-related reproductive decline in mammals is mainly attributed to the significant increase in oocyte chromosome segregation abnormalities. Recent studies, using animal models, have pinpointed that maternal age may be related with severe placentation defects and abnormal decidualization responses by the uterine stroma. Endometrium's decidualization process, its embryo receptivity and its role in embryo development is modulated by its environment. Changes in epithelial and stromal endometrium cell function, as well as changes in their gene and protein expression regulate the uterine environment and its characteristics. In our study, epithelial and stromal endometrium cell proliferation was investigated in relation to women's age. Endometrial biopsies from women undergoing hysterectomies were obtained, with informed consent. Tissues were cut, digested and filtered in order to separate the different cell populations - as described in previously published protocols. Epithelial and stromal endometrium cells were then cultured and either used in proliferation assays or collected for mRNA extraction in order to analyse gene expression using Real-time PCR. The expression of genes related to the decidualization process, cell proliferation and receptivity of the endometrium (BMP-2, Hoxa10, Hoxa11, E-Cadherin, STAT3) were associated with woman's age. The description of mechanisms and associated molecules that can affect the characteristics of the aging endometrium can aid to the understanding of the causes of reduced human fertility.

O65 An update on fertility preservation

Peter Rizk

Fertility preservation has become an increasingly important issue for women in reproductive age. In turn, it has become an important aspect of reproductive medicine due to the recent advances in cancer treatment and innovations in assisted reproductive technologies.

Women diagnosed with cancers during their

reproductive years, often, face the consequences of treatment induced reproductive and endocrine impairment. Fertility impairment is a consequence of exposure to radical surgery, radiotherapy and chemotherapy. Over the last few decades, there has been a gradual improvement in cancer survival, which is quite significant. Furthermore, the focus has shifted from simply survival driven approach to maximizing the quality of life of cancer survivors. Preserving fertility and maintaining normal ovarian endocrine function are key components of the quality of life of cancer survivors in reproductive age group of women. Further, in parallel, there has been a gradual and significant delay in childbearing for women in the past four decades, especially in industrialized countries, many of which have such low birth rates resulting in overall population decline. It is evident that fertility declines with increasing age due to decrease in oocyte quality. Many women wish to preserve their fertility until such time as they are ready to have a child. The data for all in vitro fertilization (IVF) clinics in the USA clearly indicates that the majority of the women treated (61.1%) were 35 years of age and more, and only 38.9% were under 35 years. Impairment of men reproductive functions occurs in a similar way consequential to cancer therapy in young age. In addition to fertility impairment, gonadal insufficiency causes many deleterious effects, and significant impairment in the quality of life. These are the most common indications for fertility preservation not related to cancer.

O66 Medical fertility preservation: The evidence for the use of

GnRHa suppression

CONCURRENT SCIENTIFIC SESSION 18:
Embryology Special Interest Group
session II

O67 Penco bioscience : the future of human based research

Mirta Bajamonte

O68 Complete fertilization failure with ICSI: Is there light at the end of the tunnel?

Elie Moubarak

Despite the advent of ICSI, cases of total fertilization failure (TFF) often lead to cycle cancellation with

limited diagnostic and therapeutic strategies currently available and distress from all parties involved to Identify specific defects, Understand underlying causes, Implement prognosis tools, treatment strategies and Counsel patients. This presentation will help us to highlight the need to focus on cases of fertilization failure, to present potential etiologies (oocyte- or sperm-borne defects) and to propose recommendations for early interventions and management strategies

O69 Semen Parameters Decline with Advancing Age: A Cause for Concern

Khalid El Sawahli

Clinical Embryologist, Jeddah Fertility Center, Dr Erfan & Bagedo General Hospital, Jeddah, Saudi Arabia

Extensive research confirmed that increasing maternal age is connected to a declining population of oocytes. Researchers have been studying if the same applies to sperms as men get older. This is a review of published clinical data that were concerned about advancing paternal age and its association with semen parameters. There was an observed finding that advanced paternal age might be associated with an increased risk of pregnancy loss, in addition to a broad range of developmental, morphologic and neurologic disorders of the newborn. Most of the studies have reported a decline in ejaculate volume, sperm concentration and total sperm number, lower motility and lower proportions of sperm of normal morphology. From an Assisted reproductive Technology (ART) stand point, increased paternal age was observed to have an association with lower average number of 2PN cleaved embryos, formation of late stage blastocyst and eventually birth rates. Management and counseling of male patients of old age (>40 years old) becomes more significant as issues like routine pre-genetic diagnosis and pre-genetic screening (PGD/PGS) for aging males, cryopreservation of sperms to overcome the decline in semen parameters, as well as financial costs should be discussed as they can raise some ethical issues.

O70 Comparative study of vaginal danazol vs diphereline (a synthetic GnRH agonist) in the control of bleeding during hysteroscopic myomectomy in women with abnormal uterine bleeding: a randomized controlled clinical trial.

Bidadi S1*, Sayyah-Melli M2 Taghavi S2, Ouladsahebmadarek E2, Jafari-Shobeiri M2, Ghojazadeh M2, Rahmani V2.

OBJECTIVE: To compare the usefulness of vaginal danazol and diphereline in the management of intra-operative bleeding during hysteroscopy.

DESIGN: Randomized controlled clinical trial.

SETTING: University hospital.

PATIENTS: One hundred and ninety participants of reproductive age were enrolled for operative hysteroscopy. Thirty women were excluded from the study.

INTERVENTIONS: One hundred and sixty participants with submucous myomas were allocated at random to receive either vaginal danazol (200mg BID, 30 days before surgery) or intramuscular diphereline (twice with a 28-day interval).

MAIN OUTCOME MEASURES: Severity of intra-operative bleeding, clarity of the visual field, volume of media, operative time, success rate for completion of operation and postoperative complications.

RESULTS: Overall, 145 patients completed the study. In the danazol group, 78.1% of patients experienced no intra-operative uterine bleeding, and 21.9% experienced mild bleeding. In the diphereline group, 19.4% of patients experienced no intra-operative uterine bleeding, but mild, moderate and severe bleeding was observed in 31.9%, 45.8% and 2.8% of patients, respectively. The difference between the groups was significant ($p < 0.001$). A clear visual field was reported more frequently in the danazol group compared with the diphereline group (98.6% vs 29.2%, $p < 0.001$). The mean operative time was 10.9 min and 10.6 min in the danazol and diphereline groups, respectively ($p = 0.79$). The mean volume of infused media was 2.0L in both groups ($p = 0.99$). The success rate was 100% for both groups with no intra-operative complications.

CONCLUSION: Both vaginal danazol and diphereline were effective in controlling uterine bleeding during operative hysteroscopy. However, vaginal danazol provided a clearer visual field.

KEYWORDS: Danazol; Gonadotropin-releasing hormone agonist; Hysteroscopy; Uterine bleeding

O71 Hydrosalpinx and infertility outcome: by closer approach to duration between salpingectomy and ART outcome

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STUDY QUESTION

How is the couples undergoing assisted reproductive technologies perceptions and long-term emotional adjustment" to ART?

SUMMARY ANSWER

According to Our findings, the best duration between first IVF and salpingectomy for achieving live birth was 10 months ($p < 0.00001$).

WHAT IS KNOWN ALREADY

Several researches disclosed that hydrosalpinx has been associated with unfavorable IVF outcomes and reduced implantation.

STUDY DESIGN, SIZE, DURATION

This was a retrospective study on 145 records of infertile women who were candidate of salpingectomy for their hydrosalpinx. All demographic (age) and clinical characteristics of the participants were extracted. Also, duration between IVF cycles and treatment outcome (especially live birth) was calculated and considered as the main goal of this research. We entered into the study all variables could influenced the results. The variables were oocyte and embryo quality, age, history of any surgery and diseases.

PARTICIPANTS/MATERIALS, SETTING, METHODS

The women were referred to Royan institute, Tehran, Iran within 5 years, from 2011 to 2016.

MAIN RESULTS AND THE ROLE OF CHANCE

The mean age of participants was 31.12 ± 5.39 years. The mean duration of infertility was 2.32 ± 2.98 years. The mean day from salpingectomy to the start of first cycle was 3.57 ± 6.36 days. Half of patients were suffered from unknown factor. About 15% of them had a history of failure of infertility treatment. Our findings revealed the best duration between first IVF and salpingectomy for achieving live birth was 10 months ($p < 0.00001$). Also, the best duration between second IVF (in women who had failure of first IVF) and

salpingectomy for achieving live birth was 19 months ($p < 0.00001$).

LIMITATIONS, REASONS FOR CAUTION

Participants were self-selected and responses were self-report. It is not possible to participate all couples who were undergoing infertility treatment and to administrate a web-based survey. This may affect the generalizability of results.

WIDER IMPLICATIONS OF THE FINDINGS

Hydrosalpinx has been linked with poor fertility prognosis as well as a negative influence on IVF/ET. More active approach alongside large hydrosalpinges should be assumed before infertility treatment, with the intention of improving the pregnancy rates.

STUDY FUNDING/COMPETING INTEREST(S):

The study was funded by Royan Institute. No potential conflict of interest relevant to this article was reported. Key words: Infertility, hydrosalpinx, IVF outcomes, salpingectomy

072 Couples' psychological adjustment related to perceptions of the fertility problem

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STUDY QUESTION

How is the couples undergoing assisted reproductive technologies perceptions and long-term emotional adjustment" to ART?

SUMMARY ANSWER

The total mean score of AIS was 42.59 ± 9.93 (42.45 ± 10.62 in males, 42.75 ± 9.23 in females; $p = 0.72$)

WHAT IS KNOWN ALREADY

Several studies revealed effective coping depends on the characteristics of the stressor, meaning of infertility and social support as predictors of the emotional adjustment to unsuccessful IVF and lack of adaptation in terms of the inability to regain control, personality characteristics.

STUDY DESIGN, SIZE, DURATION

A total of couples completed the adjustment of illness scale (AIS). Women fulfilled the scale in ovum pick-up day, but men completed the tool separately. The total mean score of this scale ranged from 0 to 72. Responses were as 7-point Likert scale. The total mean score of 12 statements obtained by the couples was assessed according to clinical and demographic characteristic.

PARTICIPANTS/MATERIALS, SETTING, METHODS

This was a cross-sectional study on 300 infertile

couples referred to Royan institute, a fertility center, in Tehran, Iran within Recruitment was done as convenience samples.

MAIN RESULTS AND THE ROLE OF CHANCE

The mean age of participants was 34.47 ± 5.99 . Nearly half of couples (43.6%) suffered from male infertility. Most of them (78%) did not report any history of abortion, but half had a history of failure of infertility treatment. One-way ANOVA did not show any significant difference between male and female in total mean score of AIS by cause of infertility ($p = 0.6$) and education level ($p = 0.27$). Comparison of total mean score of couples with and without a history of failure and abortion did not show any significant difference between male and women ($p = 0.89$ and $p = 0.89$, respectively).

LIMITATIONS, REASONS FOR CAUTION

Participants were self-selected and responses were self-report. It is not possible to participate all couples who were undergoing infertility treatment and to administrate a web-based survey. This may affect the generalizability of results.

WIDER IMPLICATIONS OF THE FINDINGS

Our findings indicated that all infertile clients need to have psychological interventions and counseling leading to upgrade their adjustment with problem-oriented infertility.

STUDY FUNDING/COMPETING INTEREST(S):

The study was funded by Royan Institute. No competing interests.

Key words: Infertility, Coping, Adjustment

073 Compare the effects of nigella sativa + black pepper with medical drug in PCOS infertile woman

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Introduction: polycystic ovary syndrome (PCOS), one of the most common causes of infertility due to anovulation, affects 4–7% of reproductive women. The purpose of this study is to compare the effect of nigella sativa + black pepper with letrozole + tamoxifen as a treatment of infertile polycystic ovary syndrome women .

Methods: This comparative clinical trial was done on 90 infertile PCOS women referred to Dr.rasekh clinic with aged 18-42 years. patients were randomly allocated to either case or control group. The control group prescribed letrozole + tamoxifen and Case group nigella sativa plus black pepper from third to

eighth day of menstrual cycle. Transvaginal ultrasound parameters including Ovarian follicular size, numbers and endometrial thickness were measured during treatment and based on these parameters continue these regimens and prescribed trigger drug.

Results: Pregnancy rate was higher in the group using nigella sativa plus black pepper and there was a significant relationship between two groups ($p < .05$). Also, there was a significant relationship in endometrial thickness and dominant follicle size between the two groups ($p < .05$). No significant correlation was found between two groups in the incidence of OHSS ($p > .05$).

Conclusion: because of significant effects of nigella sativa plus black pepper regimen on increase of endometrial thickness and size of dominant follicle, and eventually increase of pregnancy rates. Therefore, we recommend, this low costs, low side effect regimen in treatment of PCOS patients.

Key words: PCOS, letrozole, tamoxifen, , black pepper, nigella sativa

074 The Effect of Progesterone Luteal phase Support after Ovulation Induction and Intrauterine Insemination Cycles in Unexplained Infertility

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Key Word:

Intrauterine insemination, Luteal phase support, Progesterone, Unexplained infertility

Study question:

Is there any beneficial effect for progesterone luteal phase support (LPS) in the couples with unexplained infertility undergoing ovulation induction and intrauterine insemination cycles?

Summary answer:

Administration of vaginal Progesterone (Cyclogest) for LPS does not improve the reproductive outcome of the stimulated IUI cycles in the couples with unexplained infertility.

What is known already?

Impairment of endometrial receptivity for embryonic implantation has often been seen in women with unexplained infertility (UEI). Progesterone (P) produced by the corpus luteum is essential for secretory transformation of endometrium and implantation.

Luteal phase dysfunction (LPD) is associated with inadequate progesterone production and implantation failure. P supplementation is the most commonly used treatment when LPD can reasonably

be assumed. Controlled ovarian hyper stimulation (COH) combined with IUI is commonly used treatment protocols for couples with UEI. In COH cycles, multifollicular development and supraphysiologic steroid hormone concentrations may induce LPD with premature luteolysis, low P levels and shortened luteal phase.

Study design, size, and duration:

This was a single-center prospective randomized controlled trial on 200 subfertile couples with UEI who underwent 511 consecutive stimulated IUI cycles in an academic tertiary care center (IVF Unit, Yas Hospital, Tehran University of Medical Sciences, Tehran, Iran).

Participants/ material, setting, methods:

Two hundred couples with UEI underwent 511 consecutive stimulated IUI cycles.

Clomiphene citrate and human menopausal gonadotropin (hMG) were used for ovulation induction. After IUI, patients were randomized into two groups. The study group ($n=98$) received intravaginal P (Cyclogest) 400 mg per day for LPS. The patients randomized into the control group ($n=102$) received no drug for LPS.

Main results and the role of chance:

The main outcome was the comparison of clinical pregnancy rate (PR) and live birth rate (BR) per cycle and patient between the control and study groups.

The study comprised 200 women (511 cycles) in total. The mean number of cycles per woman was 2.5 in both groups. There was no statistically significant difference between two groups as regards age, duration of infertility, basal day 3 FSH, Estradiol (E2) levels and basal sperm parameter. There were no differences noted between two groups with regard to cycle characteristics. Thirty clinical pregnancies were observed in the study group and 26 in the control group. Clinical pregnancy rate per patient and per cycle were in the study group (30.6% and 11.5%, respectively) and in the control group (25.5% and 10.03%, respectively). Live birth rate per patient and per cycle were in the study group (19.4% and 7.5%, respectively) and in the control group (14.7% and 5.7%, respectively). There were no statistically significant differences in clinical pregnancy and live birth rates per patient or per cycle between both groups ($P > 0.05$).

Limitation, reason for caution:

The limited number of the participants in both groups of study and lack of data for E2 and P profiles during follicular and luteal phase of the stimulated cycles could be the main shortages of the present study.

Wider implication of the findings:

Progesterone luteal phase support should be evaluated in different induction protocols and different types / dosages of progestin agents. Further studies should be conducted to determine follicular and luteal phase changes including E2 and P profiles, follicular development, histological changes of endometrium and effects of various drugs on these parameters.

O75 Update on the International guidelines in diagnosis and management of PCO 2018

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Objective:

To develop and translate rigorous, comprehensive evidence-based diagnosis, assessment and treatment guidelines, to improve the lives of women with polycystic ovary syndrome (PCOS) worldwide.

Participants:

Extensive health professional and patient engagement informed guideline priority areas. International Society-nominated panels included consumers, paediatrics, endocrinology, gynaecology, primary care, reproductive endocrinology, psychiatry, psychology, dietetics, exercise physiology, public health, project management, evidence synthesis and translation experts.

Evidence:

Best practice evidence-based guideline development involved extensive evidence synthesis and the Grading of Recommendations, Assessment, Development, and Evaluation (GRADE) framework covered evidence quality, feasibility, acceptability, cost, implementation and ultimately recommendation strength.

Process:

Governance included an international advisory board from six continents, a project board, five guideline development groups with 63 members, consumer and translation committees. The Australian Centre for Research Excellence in PCOS, funded by the National Health and Medical Research Council (NHMRC), partnered with European Society of Human Reproduction and Embryology and the American Society for Reproductive Medicine.

Thirty seven organisations across 71 countries collaborated with 23 face to face international meetings over 15 months. Sixty prioritised clinical questions involved 40 systematic and 20 narrative reviews, generating 166 recommendations and practice points. Convened Committees from partner and collaborating organisations provided peer review and the guideline was approved by the NHMRC.

Conclusions:

We endorse the Rotterdam PCOS diagnostic criteria in adults (two of clinical or biochemical hyperandrogenism, ovulatory dysfunction, or polycystic ovaries on ultrasound) and where irregular menstrual cycles and hyperandrogenism are present, highlight that ultrasound is not necessary

in diagnosis. Within eight years of menarche, both hyperandrogenism and ovulatory dysfunction are required, with ultrasound not recommended.

Ultrasound criteria are tightened with advancing technology. Anti-Müllerian hormone levels are not yet adequate for diagnosis. Once diagnosed, assessment and management includes reproductive, metabolic and psychological features. Education, self-empowerment, multidisciplinary care and lifestyle intervention for prevention or management of excess weight are important. Depressive and anxiety symptoms should be screened, assessed and managed with the need for awareness of other impacts on emotional wellbeing. Combined oral contraceptive pills are first line pharmacological management for menstrual irregularity and hyperandrogenism, with no specific recommended preparations and general preference for lower dose preparations. Metformin is recommended in addition or alone, primarily for metabolic features. Letrozole is first-line pharmacological infertility therapy; with clomiphene and metformin having a role alone and in combination. In women with PCOS and anovulatory infertility, gonadotrophins are second line. In the absence of an absolute indication for IVF, women with PCOS and anovulatory infertility, could be offered IVF third line where other ovulation induction therapies have failed. Overall evidence is low to moderate quality, requiring significant research expansion in this neglected, yet common condition. Guideline translation will be extensive including a multilingual patient mobile application and health professional training.

O76 Effect of omega 3 supplementation on ART: a single centered prospective randomized controlled study.

Fakih, C.; Fakih, F.; Mourad, Y.; Ghamloushe M.; Farhat, M.; Abou haidar, M.

Key words:

ART Outcome; Follicular Fluid; Oxidative Stress; Omega 3; EPA; DHA.

Study question:

Does different doses of omega 3 supplementation have any impact on ART outcome and follicular fluid composition?

Summary answer:

Patients supplemented, 3 months before ICSI, with (200 mg DHA + 45 mg EPA) had better live birth rate than patients supplemented with (400 mg DHA + 90 mg EPA).

What is known already:

Higher numbers of follicles and better oocyte quality were seen in animals supplemented with omega 3 before ART (Zeron et al., 2002) (Bilby et al., 2006) with lower pregnancy losses (Ambrose et al., 2006). Many women facing infertility take dietary

supplements such as ω 3- polyunsaturated fatty acids (EPA + DHA) in order to improve ART success despite inconclusive evidence regarding their effects on human fertility.

A higher intake of omega 3 correlates with improved embryo morphology in women undergoing Controlled Ovarian Stimulation (COS) (Hammiche et al., 2011). Higher embryo implantation rate was observed with increasing ratios of serum linoleic acid (LA) to alpha-linolenic acid (Jungheim et al., 2012). Every 1% increase in serum EPA concentrations was associated with a 10% and 15% increase in the probability of clinical pregnancy and live birth, respectively (chiu et al., 2018). However, the right doses of both EPA and DHA are not yet defined.

Study design, size, duration:

A single centered prospective randomized controlled study.

Participants/materials, setting, methods:

Two hundred fifty patients were randomized into 3 groups (Control group, Group A supplemented with 200mg DHA+45mg EPA and Group B supplemented with 400mg DHA+90mg EPA), 3 months before COS for ICSI. The eggs collected were pictured using laser Octax for scoring and measurements before being injected by ICSI. Follicular fluid samples were collected and stored at -20°C . SPSS 23 was used to analyze statistical Data.

We considered as primary outcome: implantation rate and live birth rate, as secondary outcome: fertilization rate, embryo quality and oxidative stress in follicular fluid measured by a colorimetric technique (Total Antioxidant Capacity Assay Kit).

Main results and the role of chance:

The 3 groups were similar for age, BMI, Antral Follicular Count, AMH level, indication for ICSI, number of embryos transferred and day of embryo transfer. Live birth rate was significantly higher in the group A (1 tablet omega 3) ($p < 0.035$). The size of first polar body was smaller in group A ($p < 0.03$) and the diameter of oocytes was larger in group B ($p < 0.04$). However, we had no significant difference in fertilization rate, the number of good quality embryos, twinning rate or oxidative stress level in follicular fluid between the 3 different groups.

Limitations, reasons for caution:

Our major limitations in the study were mostly related to the limited sample size and mainly to the association of both EPA and DHA in the same group. Further studies should focus on each molecule alone in different doses to find the implication of each molecule without the confounding factor of the other. Some patients were excluded from the study for non-compliance to the treatment.

Wider implications of the findings:

Our results point out to the importance of omega 3 supplementation in improving the effectiveness and the success rate of assisted reproductive techniques in treating infertility.

Further studies on the role of EPA and DHA, each molecule apart, are needed.

Study funding/competing interest(s):

We have no conflict of interest. This study was completely funded by AL HADI IVF center.

O77 Gender of the neonates after Assisted Reproduction in both antagonist and agonist protocol

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Key words: Gender, ICSI, IVF, antagonist, agonist

Study Question: What are the gender outcomes from antagonist compared with long stimulation protocols in IVF/ICSI cycles?

Summary: Results showed no significant difference in sex proportion when comparing IVF vs. ICSI, although a higher proportion of babies were male with the antagonist-ICSI protocol.

What is known already: The day of embryo transfer has received considerable attention regarding offspring sex. One report added their nonsignificant outcome from 205 deliveries to outcomes from six other reports comprising 86–365 babies from two clinics representing 1–2 years of experience (Milki et al. 2003). The pooled results indicated significantly increased numbers of male babies after blastocyst transfer compared with cleavage-stage embryo transfer (57.3% vs. 51.2%, respectively; $p = .001$).

Study design, size, duration: Retrospective cohort study after IVF/ICSI in 2015. Data for a total of 762 treatment cycles that were initiated following antagonist ($n=545$) and long ($n=217$) protocols were retrieved. To investigate the gender of the neonates who delivered after day 2, 3 or 5 embryo transfer in our department after fresh in vitro fertilization (IVF), and fresh intra cytoplasmic sperm injection (ICSI).

Participants/materials, setting, methods: The KFMC IRB approved this retrospective review of medical records for patients attending the reproductive endocrine and infertility medicine department (REIMD) in 2015. We analysed data for 762 treatment cycles initiated following antagonist ($n = 545$) and long ($n = 217$) protocols. Briefly, all patients undergoing IVF/ICSI underwent follicle-stimulating hormone (FSH), luteinising hormone, and oestradiol (E2) level measurements and a baseline ultrasound examination during their second or third menstrual period after initial examination.

Summary data were prepared for demographic and outcome data. We summarised sex outcomes in the entire cohort, and in modifiable (e.g., embryo transfer day and number of embryos transferred) and nonmodifiable (e.g., number of oocytes recovered and maternal age) subgroups.

Main results and the role of chance: A total of 762 IVF/ICSI cycles were conducted in 2015; 24 of those

only were IVF. Oocytes from 654 cycles were the result of IVF (n=23); 10 antagonist, 13 long protocol or ICSI (n=631; 454 antagonist, 177 long protocol). Of these, 18 did not result in embryos, 51 yielded embryos that were not used for fresh ET, and 585 embryos were transferred on days 2 through 5 following fertilization. A clinical pregnancy was diagnosed in 232 (39.7%) transfer cycles, with 145 (24.8%) resulting in 169 live babies: 122 singletons, 22 twins, and 1 triplet. Two pregnancies with male fetuses ended in IUFD. Among the 169 live babies, 50.9% were male, which was not different between the antagonist (52.3%) and long (48.3%) stimulation protocol groups (P=.740).

The data closely resembled that from the combined fertilization methods; that is, more babies from antagonist protocol-ICSI procedures were male (n=56; 52.3%), and more babies from long protocol-ICSI procedures were female (n=29; 53.7%). The gender difference between the 2 protocols when ICSI was the fertilization method was not statistically significant (P=.578).

Limitations, reasons for caution: Our small sample size did not provide sufficient power to detect differences between groups for sex outcomes for the factors that we analysed, including our comparison between antagonist and long protocols. We realise the importance of having a robust database that can be easily summarised to monitor trends.

Wider implications of the findings: As we review data from other countries, we are aware that Saudi Arabia needs an ART registry, from which individual Saudi Arabian centres can compare their data within the country and with other countries' registries.

Funding: King Fahad Medical City, Riyadh, Saudi Arabia, KFMC - 017-045.

O79 Letrozole Step-Up Protocol: The effect of a novel superovulation induction protocol to enhance pregnancy rate in a couple with unexplained infertility undergoing intrauterine insemination.

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OBJECTIVE: to investigate success of a novel step-up protocol of letrozole as an attempt to achieve multifollicular development and to assess its effect on the outcome of IUI cycles in couples with unexplained infertility.

DESIGN: a prospective randomized controlled study.
MATERIALS AND METHODS: 100 couples with unexplained infertility undergoing IUI were randomized into two groups with each group include 50 women .group A controlled ovarian hyperstimulation(- COH) was done by step up protocol of letrozole from day 2 or 3 of menstrual cycle starting

by a dose 2.5 mg increased daily by 2.5 mg for other 3 days .Group B,COH was done by HMG ampoules that was tailored according to the response ,HCG given when leading follicle 17 mm and IUI done 36 hours after HCG .luteal support by vaginal progesterone was achieved and serum B HCG was measured after 14 days of IUI and clinical pregnancy was confirmed by detection of fetal heart pulsation at6-8 weeks by vaginal ultrasonography.

RESULTS: The step-up letrozole protocol was associated with multifollicular ovarian development with a mean of 1.5_0.7 that was less than this detected with HMG 3.1_1.0 however this did not affect so much clinical pregnancy rate that was statistically insignificant (16% in letrozole group versus 18% in HMG group) that may reflect the good quality of oocyte in addition to the good receptivity suggested by non significant difference in endometrial thickness. The cost of letrozole cycles was significantly lower than HMG group.

CONCLUSIONS: letrozole step up protocol is a potentially valid novel induction protocol that has the privilege of similar pregnancy rate to the standard HMG ovulation induction with a lower financial cost and better patient compliance.

ORAL PRESENTATIONS SESSION 6: Fertility Management

O80 Differential diagnosis of ovarian neoplasms at the preoperative stage: modern immunological and combined methods

Egunova M.A., Kutsenko I.G.

Key words: differential diagnostics, ovarian neoplasms, tumor marker, specificity, sensitivity
In the case of a space-occupying lesion (SOL) of the ovary, it is up to the gynecologist to diagnose a possible malignancy and then decide upon further treatment strategy. But at the present time there is no single standard for assessing the risk of malignancy of the ovarian neoplasm. According to the literature data, the tumor marker HE-4 has high specificity in the differential diagnosis of benign and malignant ovarian neoplasms. Human epididymis protein 4 (HE-4) also called four-disulfide core domain protein 2 (WFDC2). There are no publications about polymorphism of the WFDC2 gene.

The aim of the research – to perform a comparative analysis of diagnostic utility of CA-125, HE-4, RMI, "modified" RMI, CPH-I and ROMA in the differential diagnosis of benign and malignant ovarian neoplasms at the preoperative stage; to identify associations of polymorphic variants (rs2239533, rs2072956) of the WFDC2 gene with the presence of benign or malignant ovarian neoplasms.

Materials and methods: A prospective study was

conducted. The study involved 117 patients with ovarian neoplasms. A molecular genetic involved 55 patients with ovarian neoplasms and 40 healthy women. The level of the tumor marker HE-4 was determined in all patients at the preoperative stage in addition to the standard examination. Risk of Malignancy Index (RMI), Risk of Ovarian Malignancy Algorithm (ROMA) and CPH-I were calculated. Polymorphisms of the WFDC2 gene were determined from study participants after DNA extraction. Protocols of histological examination were studied after operations. The prognostic value of CA-125, HE-4, RMI, ROMA and CPH-I were calculated. Statistical analysis of the data is carried out.

Results. The most informative parameter for the differential diagnosis of benign and malignant ovarian neoplasms at the preoperative stage in the study was the RMI. Tumor marker HE-4 was characterized by the lowest sensitivity with the highest specificity in the differential diagnosis of ovarian neoplasms among the methods studied. The replacement of CA-125 by HE-4 in the RMI calculation formula (calculation of the "modified" malignancy index) led to an increase in the sensitivity and prognostic significance of the method in the differential diagnosis of ovarian neoplasms at the preoperative stage, which requires further study.

A statistically significant prevalence of the T/T genotype of polymorphic variant rs2239533 of the WFDC2 gene was revealed in patients with ovarian neoplasms in comparison with the group of healthy women. Then the main study group was divided into 2 subgroups depending on the histological variants of the tumors (benign or malignant). It was found that the carriage of the T/T genotype of variant rs2239533 of the WFDC2 gene was associated with the presence of malignant ovarian tumors. The sample size of our study is very small, however, this data may be the basis for major studies of polymorphisms of the WFDC2 gene.

O81 Abnormal vaginal flora treated with lactobacillus improves pregnancy rates in IVF-ET

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Study question: Does treatment of abnormal vaginal flora with lactobacillus influences IVF-ET results?

Summary answer: Our data indicated that adding freeze-dried Lactobacillus acidophilus with Estriol intra vaginally from the ET day and up to 6 days significantly improves IVF-ET results.

What is known already: Abnormal vaginal flora is defined by the absence of lactobacillus identified by different techniques, i.e, direct examination on wet preparation, coloration, culture, and polymerase chain reaction (PCR). Lately, it is thought that, perhaps, abnormal vaginal flora is associated with implantation failure and may be an independent factor from the window of implantation. To our knowledge, no studies have evaluated the impact of adding intra-vaginal lactobacillus in the peri-implantation period on pregnancy rates after IVF-ET.

Study design, size, duration: We studied 54 patients with absence of lactobacillus on wet preparation performed the day of ET.

Participants/materials, setting, methods: Patients where compared into two groups as follows, treatment group (n=44) and no treatment group (n=10). Patients in the treatment group received 100 million IU of freeze-dried Lactobacillus acidophilus with 0,03 mg Estriol intra-vaginally during 6 days starting the day of ET.

Main results and the role of chance: Whereas patients and controlled ovarian stimulation characteristics were similar in both groups, we observed a remarkable increase in pregnancy rates in the treatment group as shown in the table.

Limitations, reasons for caution: Limitations of the present study include its small sample size and the less precision of the direct examination on wet preparation as compared to the PCR technique. Further prospective studies, including larger populations, are needed to confirm and expand present findings.

Wider implications of the findings: Our data indicate that the treatment of patients with abnormal vaginal flora can lead to a noticeable improvement in IVF-ET output. Whether present results may be extrapolated or not to cases with recurrent implantation failure should be addressed in future studies. Wet preparation is a simple technique and can be simply diffuse in IVF setting.

O82 Investigating the changes of progesterone serum level in IVF

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Introduction: The use of GnRH analogues in IVF has become routine method, but the use of the antagonist or agonist protocol as well as the role of progesterone levels in this process are in conflict.

Materials and Methods: In this study, we decided to survey the role of the two analog GnRH protocols and progesterone serum levels in the IVF cycles. This cross-sectional study was conducted in Imam Khomeini Hospital in 2017. Infertility patients who were candidates for in vitro fertilization (IVF) were included in the study. In this method, the criteria for entering to this study were the same criteria for IVF in fact. The patient's information were collected. Then, they were treated by one of the two methods of GnRH agonist suppression or GnRH antagonist, according to their own medical discretions. The collected records of each patient were registered in their file and then were analyzed by the SPSS v.20 software. 184 patients in our study were treated by two protocols of GnRH antagonists (96) and GnRH agonists (88). In this study, 20 patients (10.86%) had high serum levels of progesterone, which did not have any difference between the two protocols. The two protocols had no significant difference except the two factors, received rFSH and HMG dosage and the levels of estradiol on the day of HCG Prescribing. In both cases, the levels of these factors were higher than the agonist group (p-values were 0.043 and 0.033, respectively). High-P and Normal-P groups in the number of oocyte count (17.33 versus 10.89, $p = 0.011$), ovarian response (60% response to 10.7% in High-P and Normal-P groups, $p = 0.022$), the number of adult oocytes (10.2 vs. 7.9, $p = 0.039$), percentage of fertilization (50.98% vs. 60.75%, $p = 0.003$), puberty (58.84% vs. 72.54%, $p = 0.024$) The number of high quality offspring (2.2 versus 4.1, $p = 0.006$), clinical pregnancy (15% vs. 33.53%, $p = 0.008$) and miscarriage (35% vs. 19.51%, $p = 0.001$) had significant differences. Estradiol levels on the HCG day in the High-P group were significantly lower than the normal group (2086 versus 2647).

Results: According to our results, the two agonist and antagonist of GnRH protocols have no difference in IVF cycles in the terms of pregnancy outcomes, and progesterone levels above 1.5 ng / ml, regardless of the type of protocol used, associates lower outcomes in pregnancy by IVF significantly.

Key words: IVF, Hypophysis suppression, Agonist of GnRH protocol, Antagonist of GnRH protocol
Hadis Guilani has completed residency from TUMS 2018 in the field of OBGYN.

O83 THE RELATIONSHIP OF AMH AND NUMBER OF MATURE OOCYTES AND ITS IMPACT ON ICSI OUTCOME

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Key words: AMH (antimullerian hormone), ICSI (intracytoplasmic sperm injection), M2 (mature oocytes), D3 (day 3) & D5 (day5)

Study question: Is there a relation between the ovarian reserve in form of AMH concentration & number of mature oocytes on ICSI outcome?

Summary answer: There is a strong positive correlation between the serum concentration of AMH, final E2 & Final P4 and the number of mature oocytes which associate with the high clinical pregnancy rate.

What is known already: Numerous studies have demonstrated a linear correlation between AMH and number of retrieved oocytes after ovarian stimulation (Choi et al., 2011; La Marca et al., 2010; Nelson et al., 2007). In addition to quantitative ovarian reserve correlation, it has been speculated that AMH levels may be associated with egg and embryo quality, with respect to egg (and consequently embryo) euploidy. Although higher AMH has been found to be associated with improved implantation, pregnancy and live birth rates (Lukaszuk et al., 2014; Tal et al., 2015)

Study design, size & duration: Retrospective cohort analysis of 469 cycles performed in November 2016-September 2017.

Participants/materials, setting, methods: Patients were divided into 4 groups according to number of mature oocytes 'M2', Group A (1-4 M2 oocytes) $n=117$, Group B (5-9 M2 oocytes) $n=143$, Group C (10-15 M2 oocytes) $n=102$, Group D (>15 M2 oocytes) $n=107$, Mature oocytes were injected by conventional ICSI and cultured, embryos were evaluated and transferred on D3 or D5. Serum AMH, Final E2 & Final P4 were measured.

Main results and the role of chance: Among the four studied groups no significant difference were observed in the number of stimulation days The mean concentration of serum AMH, final E2 & Final P4 were statistically significant lower in poor responders groups A ("1.7 ± 1.8", "1910.3 ± 1537.2", "0.9 ± 0.5", respectively) & B ("2.7 ± 2.6", "2420.3 ± 1423.6", "0.9 ± 0.4", respectively), than their mean concentration in serum of the good responders groups C ("5.2 ± 20.1", "3178.7 ± 1346.9", "1 ± 0.5", respectively) & D ("5.5 ± 3.4", "4380.7 ± 2302", "1.1 ± 0.6", respectively) , $P = <0.001^*$. although number of embryos on D3 and D 5 were positively increased and associated with the increase of number of mature oocytes, The cleavage & Blastulation rate were decreased in good

responders groups C & D. the clinical pregnancy rate was significantly increased with the increase of number of mature oocytes among the four studied groups, without significant difference in number of sacs, on the other hand the ongoing pregnancy rate was statistically higher in poor responder patients in group A, as shown in the following table:

Limitations, reasons for caution: No limitations

Wider implications of the findings: Find a correlation between AMH concentration and embryo morphokinetics & aneuploidy.

Study funding/competing interest(s): No funding

O84 Evaluation of the effect of oral antioxidants on the sperm quality in those infertile Libyan Patients

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Male's infertility is estimated for about 20% of infertile couples and contributes in 30-40% in infertile couples. Occasionally, there is no clear reason for the abnormal production of sperms. Lifestyle, smoking, nutrition, Diabetes, and hypertension could be the reason behind the infertility. The aim of the present clinical study was to evaluate the effect of a micronutrients included in the Fertilo Forte were L-carnitine, L-arginine, zinc, vitamin E, selenium, co-enzyme Q10 and folic acid on sperm quality in those infertile Libyan patients, and to speculate the correlation between the diabetic, hypertensive, and cigarette smoker with the treatment outcomes. Patients received the treatment twice daily for the three months. Sperm parameters (count, motility, and morphology) were taken before and after the treatment. The limitation of the study was that we could not perform the complimentary semen tests such as immunologic and genetic tests. The age distributions of the total number of patients (26 therapeutic group), which most of the patients are aged from 40-49 (10) and 20-29 (9). An improvement in count (92.30%), and progressive motility (38.46%) and morphology parameters (96.15%) were detected, while, 40 % showed an improvement in the three parameters together. There is no significant difference in treatment outcomes between diabetics/non-diabetics, hypertensive/non-hypertensive, and smokers/non-smokers patients ($p > 0.05$). Conclusion, the benefits of incorporating combination antioxidants therapy in clinical settings have been the potential impact on infertile patients, and improve sperm quality parameters, even in hypertensive diabetic patients, and smokers. Key Words: Smoking, Diabetes, progressive motility, infertility.

CONCURRENT SCIENTIFIC SESSION 19: Controlled ovarian stimulation

O85 Low dose gonadotropins for ovarian stimulation in women with poor ovarian reserve

Mohamed Youssef

O86 Dual trigger versus hCG: A prospective randomized controlled double blinded clinical trial

Rawad Bassil

Introduction: Since the start of IVF, almost 40 years ago, the conventional drug used in the triggering of ovulation (release of eggs) is hCG. A decade ago, it has been found that ovulation may also be triggered by another drug called Suprefact. Both methods are known as single trigger treatments since only one drug is used for triggering ovulation.

Recently, a new method for triggering ovulation has been introduced called the double trigger. This treatment consists of giving both Suprefact and hCG for the triggering of ovulation. Previous studies have suggested improved egg maturity and pregnancy rates after the double trigger, but all these studies looked only at patients' past medical records.

Objectives: To determine whether co-administration of GnRH agonist and hCG would improve the number of oocytes and oocyte quality compared to hCG alone in normal responder IVF patients.

Materials and methods: A single center, prospective, randomized controlled, double blinded clinical trial. On the day of triggering, patients were randomized into two groups:

hCG group - The patients were triggered with hCG (Pregnyl 10,000 IU) and placebo (normal saline) - 36 hours prior to oocyte aspiration.

The Dual trigger group - The patients were triggered with GnRH agonist (Suprefact 0.5 mg) and hCG (Pregnyl 10,000IU) 36 hours prior to the oocyte aspiration.

Results: Using the dual trigger protocol increases the number of oocytes, mature oocytes and number of blastocysts compared to triggering with hCG alone.

O87 Time interval between hCG administration and oocyte retrieval significantly influences IVF-ET results

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Study question: Do slight variations in the interval between hCG and oocyte retrieval (hCG-OR interval) influence IVF-ET results?

Summary answer: Roughly within a 34-39 hour frame, our data indicated that the shorter hCG-OR interval, the poorer IVF-ET results.

What is known already: For decades, in controlled ovarian stimulation (COS) cycles for IVF-ET, hCG-OR interval has been pragmatically set around 36 hours to mimic the physiological events occurring during the menstrual cycle. Yet, little attention has been paid, both in the literature and in the daily practice of IVF-ET clinics, on the possible impact of slight variations of such an arbitrary schedule on IVF-ET results. Indeed, the actual degree of flexibility offered to clinicians to properly schedule oocyte retrieval and the ideal hCG-OR interval remain to be set.

Study design, size, duration: We studied 613 COS cycles for IVF-ET. All patients received hCG (10,000 IU, IM) according to usual criteria of follicle maturation. Participants/materials, setting, methods: Patients were sorted into 6 groups according to whether hCG-OR interval was 34.0-35.0 hours (n=48), 35.1-35.4 hours (n=89), 35.5-35.9 hours (n=184), 36.0-36.4 hours (n=179), 36.5-36.9 hours (n=69), and 37.0-39.0 hours (n=44).

Main results and the role of chance: As shown in the Table, whereas patients and COS characteristics were similar in all groups, we observed a remarkable stepwise increase in the number of mature oocytes and embryos obtained together with an increase in pregnancy rates from the 34.0-35.0 hours to the 37.0-39.0 hours groups. Incidentally, the prevalence of negative OR was comparable over the 6 groups.

Limitations, reasons for caution: The present study could not address the question of the influence of larger hCG-OR intervals (>39 hours) neither discriminating possible outcome differences inside the 37.0-39.0 hours group due to limited sample size. Further prospective studies, including larger populations, are needed to confirm and expand present findings.

Wider implications of the findings: Our data indicate that the mere adjustment of the hCG-OR interval can lead to a noticeable improvement in IVF-ET output. Whether present results may be extrapolated or not to cases in which GnRH agonist is used instead of hCG to prime OR should be addressed in future studies.

CONCURRENT SCIENTIFIC SESSION 20:
Women's health

O88 Functional Hypothalamic Amenorrhea and Infertility: algorithms for the diagnosis and treatment

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Definition. Functional Hypothalamic Amenorrhea (FHA) is a form of chronic anovulation, not due to identifiable organic causes and it often associated with stress, weight loss, excessive exercise, or a combination of this factors. FHA is a diagnosis of exclusion (investigations should include assessment of systemic and endocrinologic etiologies), and a multidisciplinary treatment approach is necessary, including medical, dietary, and mental health support. The objective of the presentation is to describe the modern algorithms for the diagnosis and treatment of FHA and relate the major recommendations^{1,2} for the patient management.

Diagnostic algorithms. We should suspect FHA in adolescents and women whose menstrual cycle interval persistently exceeds 45 days and/or those who present with amenorrhea for 3 months or more. Investigations should include assessment of systemic and endocrinologic etiologies, as FHA is a diagnosis of exclusion.

First, we should exclude the anatomic or organic pathology of amenorrhea, exclude pregnancy and psychological stressors.

In adolescents and women with suspected FHA, an Endocrine Society Clinical Practice Guideline 2017¹ recommend obtaining the following screening laboratory tests: β -human chorionic gonadotropin, complete blood count, electrolytes, glucose, bicarbonate, blood urea nitrogen, creatinine, liver panel, and (when appropriate) sedimentation rate and/or C-reactive protein levels.

Initial endocrine evaluation should include the following laboratory tests: luteinizing hormone (LH), follicle-stimulating hormone (FSH), estradiol (E2), serum thyroid-stimulating hormone (TSH), free thyroxine (T4), prolactin, anti-Müllerian hormone (AMH).

Clinicians should obtain total testosterone and dehydroepiandrosterone sulfate (DHEA-S) levels in patients with clinical hyperandrogenism and morning 17-hydroxyprogesterone levels in patients with suspicion on late-onset congenital adrenal hyperplasia.

Patients with FHA have characteristically low or low normal LH, normal FSH concentrations (which are

usually higher than LH concentrations), E2 <50 pg/mL, and progesterone <1 ng/mL. The acute gonadotropin response to GnRH stimulation is preserved (defined as a defined as a 2-3-fold rise in LH and FSH compared with baseline levels).

Indications for a brain MRI with pituitary cuts and contrast are: a history of severe or persistent headaches; persistent vomiting that is not self-induced; change in vision, thirst, or urination not attributable to other causes; lateralizing neurologic signs; clinical signs and/or laboratory results that suggest pituitary hormone deficiency or excess.

Treatment options of FHA and concomitant medical conditions depend on the patient preferences. In agreement with the new NICE guidelines «Eating disorders: recognition and treatment», adopted in May 2017², psychological treatment is the first line of therapy for anorexia nervosa in adults. Clinicians should explain to the person what the treatments involve to help them choose which they would prefer.

For adults with anorexia nervosa, consider one of:

- 1) Individual eating-disorder-focused cognitive behavioural therapy (CBT-ED) – 40 sessions over 40 weeks, with twice-weekly sessions in the first 2 or 3 weeks, or
- 2) Maudsley Anorexia Nervosa Treatment for Adults (MANTRA) – 20 sessions, with: weekly sessions for the first 10 weeks, and a flexible schedule after this up to 10 extra sessions for people with complex problems, or
- 3) Specialist supportive clinical management (SSCM) – 20 or more weekly sessions (depending on severity).

If individual CBT-ED, MANTRA, or SSCM is unacceptable, contraindicated or ineffective for adults with anorexia nervosa, consider one of these 3 treatments that the person has not had before or eating-disorder-focused focal psychodynamic therapy (FPT): typically consist of up to 40 sessions over 40 weeks.

According Endocrine Society Clinical Practice Guideline 2017¹ Progestin should be used to induce withdrawal bleeding (as an indication of chronic estrogen exposure):

- medroxyprogesterone acetate (5 to 10 mg/d for 5 to 10 days), or
- norethindrone acetate (5 mg/d for 5 to 10 days), or
- micronized progesterone (200 to 300 mg/d for 10 days).

Experts suggest against patients with FHA using oral contraceptive pills (OCPs) for the sole purpose of regaining menses or improving BMD. OCPs are acceptable for contraception and regain menses. No evidence that OCP improve BMD. OCPs may mask the return of spontaneous menses, particularly in patients with an energy deficit. Endocrine Society Clinical Practice Guideline 2017¹ recommends short-term use of transdermal E2 therapy with cyclic oral progestin (not oral contraceptives or ethinyl E2) in adolescents and women who have not had return of menses after a reasonable trial of nutritional, psychological, and/or modified exercise intervention.

Pregnancy. In agreement with an Endocrine Society Clinical Practice Guideline “Functional Hypothalamic Amenorrhea” 2017¹, clinicians should only induce ovulation in women with FHA that have a body mass index (BMI) of at least 18.5 kg/m² and only after attempts to normalize energy balance, due to the increased risk for fetal loss, small-for-gestational-age babies, preterm labor, and delivery by Cesarean section for extreme low weight.

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O89 Hermaphroditism in the Ob&Gyn practice

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The disorders of sex development (DSD) in patients with female phenotype and genital ambiguity are not common in the Ob&Gyn practice, but some of DSD should be considered as conditions, associated with significantly increased risk of developing germ cell tumors.

The most common XX-DSD is non-classic adrenal hyperplasia (NCAH) or congenital adrenal hyperplasia (CAH), whereas androgen insensitivity syndrome (AIS), an X-linked genetic disease, seems to be the most frequent one among XY-DSD. Testicular dysgenesis and ovotesticular disorder of sexual development (true hermaphroditism) are rarely observed, but their prevalence depends on race and ethnicity.

The diagnosis of disorders of sex development (DSD) is based on karyotype, altered hormone profile, and clinical manifestations. Early diagnosis and open communication with patients and families are the key concepts. The recent advances in the treatment of DSD include hormone replacement therapy following gonadectomy and new surgical techniques used for genital reconstruction. A multidisciplinary approach is recommended for clinical management of patients with DSD from infancy through to adulthood.

Two cases of patients (with XY-disorder of sex development and ovotesticular DSD - true hermaphroditism) will be presented and discussed.

Key words: ovotesticular disorder of sexual development; DSD; true hermaphroditism; genital ambiguity

O90 PELVIC FLOOR DYSFUNCTION IN REPRODUCTIVE AGE WOMEN

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The term 'pelvic floor disorders' (PFDs) refers to stress urinary incontinence, overactive bladder syndrome, pelvic organ prolapse and fecal incontinence. These disorders are prevalent in adult women. Childbirth is an important event in a woman's life. Vaginal childbirth is the most common mode of delivery and it has been associated with increased incidence of pelvic floor disorders later in life [Memon U., 2013]. According to different studies, the rates of PFD symptoms varies from 19.7 to 77.2% [Walker GJ, 2011, Awwad J, 2012]. The multifactorial nature of this disease is not always an independent cause of the patient's referral to doctors of different specialties, which leads to contradictory statistical data [Memon U., 2013]. So, the prevalence of PFD symptoms in women of reproductive age is poorly understood.

Objective was to estimate frequency of pelvic floor dysfunction (PFD) symptoms in reproductive age women and their relationship with childbirth.

Methods. In this study included 1637 women between the ages of 18 and 45 (mean age 30.8 ± 5.7 years old) who were questioned using the PFDI-20 questionnaire (Pelvic Floor Inventory Questionnaire) and the Female Sexual Function Index (FSFI).

Results. The results of the study showed the PFD symptoms in almost half of reproductive age women: symptoms of POP were recorded in 46.6%, colorectal anal symptoms – in 43.3%, and urinary incontinence – in 49.7% of women. According to the FSFI questionnaire, the frequency of sexual disorders was 80.7%. The relationship between symptoms of PFD and childbirth was established: symptoms of POP ($\chi^2=92.96$, $p=0,0001$), colorectal anal symptoms ($\chi^2=132.22$, $p=0,0001$) and urinary symptoms ($\chi^2=123.68$, $p=0,0001$). The relationship of sexual disorders with the presence of childbirth was not established ($\chi^2=0.1005$, $p=0,751$).

Conclusion. Thus, the results of this study showed a high incidence of symptoms of pelvic floor dysfunction in women of reproductive age and its relationship to childbirth has been established, which requires the development of a set of measures to prevent these disorders in women in the postpartum period.

Conflict of interest. The authors do not have a conflict of interest.

CONCURRENT SCIENTIFIC SESSION 21:
Reproductive surgery special interest
group session III

O91 Does Surgical Removal of Fibroids improve Fertility Outcome: "New Data"

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Uterine leiomyomas are benign solid tumors occurring in about 20% to 30% of women during their reproductive years. Submucous myomas may present a greater risk to the patient than either the intramural or subserous varieties because they cause excessive uterine bleeding, usually during menses, and they can cause dysmenorrhea as well as interfere with normal reproductive mechanisms. Hysteroscopy is an excellent method for not only identifying intrauterine lesions but also for removing them. The relationship between uterine fibroids and infertility has long been a concern to the gynecologic community, but the medical literature regarding this important topic is problematic. Uterine myomas are heterogeneous tumors in composition, size, location, and number; variations in any of these factors could possibly alter the effect on a woman's fertility status.

- Uterine myomas (fibroids) occur in 20%–50% of reproductive-age women.
- Uterine myomas may be identified in approximately 5%–10% of infertile women, only 2%–3% of infertility may be attributed to the effects of myomas when all other causes are exclude

There are 5 types of fibroids based on their locations. Submucous myomas were classified into the following three types: type 0 pedunculated myomas, not involving the myometrium; type 1 with <50% myometrial involvement; and type 2 with >50% myometrial penetration.

First of all, we all know infertility and uterine fibroids, we have no problem with submucous fibroids but especially subserous and intramural fibroids are common debates in gynecology. Therefore, there are some questions we should ask to ourself:

- What is the relation ???
- Which way do fibroids influence fertility ???
- Are all fibroid locations interfere in fertility ???
- Does myomectomy has success ???
- Do fibroids have an impact on ART cycles ???
- Which myomectomy technique has priority ???
- Does myomectomy has risk ???

Fibroids are common in reproductive age % 20-30 and Incidence of fibroids in infertile women %1 -2.4 So there should be a major relation between them and the most common accepted ways for influence are.....

- Hindered gamete transportation,
- Failure of implantation
- Increased uterine cavity irregularity,
- Endocervical ve fallopian tubal ostium obstruction,
- Prostaglandine induced uterine contraction,
- Endometrial changes (atrophy, ulceration, focal hiperplasia and polips),
- Vascular changes (venous congestion, etc.),
- Anovulation.
- Complications

In addition to all ways, also the second common ways for infertility cause are the complications....

- Spontan Abortion
- Premature labor
- Ectopic pregnancy
- IUGR
- Abruption of Placenta
- Malpresentation
- Dystocia
- Postpartum Hemorrhage

When evaluating the outcomes of women with any location of fibroid, the relative risks of clinical pregnancy, implantation, and ongoing pregnancy/live birth were all significantly lower in women with myomas than in control subjects. In addition, the spontaneous abortion rate was significantly greater in women with fibroids. No significant difference in preterm delivery rates was observed

The women with SM fibroids, compared with infertile women without fibroids, demonstrated a significantly lower clinical pregnancy rate, implantation rate, and ongoing pregnancy/live birth rate and a significantly higher spontaneous abortion rate. No difference was seen in rate of preterm delivery.

Women with IM fibroids produced significantly lower clinical pregnancy rates, implantation rates, and ongoing pregnancy/live birth rates and significantly higher spontaneous abortion rates. No difference was seen in the rate of preterm delivery.

Women with no cavitary involvement had a significantly decreased implantation rate and ongoing pregnancy/live birth rate as well as an increased spontaneous abortion rate compared with non fibroid control subjects. No significance was seen in clinical pregnancy rates or preterm delivery rates

So all types have an effect on fertility But What is the chance of treatment? As I said before fibroids reduce fertility..... and some authors maintain that myomectomy should be offered to infertile women. And Finally the results of myomectomy are.... Myomectomy leads to %25-70 conception rates, Miscarriage rates reduce dramatically from %50-63 to 7.1-20, After the surgery the conception rates improve within 3-12 months In the first year % 32-56 of patients have conceive.

One of the most advocated opinion is that.... Intramural

fibroids related with endometrial cavity reduce ART success. The supporters suggest that ... Intramural fibroids related with endometrial cavity reduce ART success. And also Fibroids with submucous component leads to failure in ART cycles.

There are several excellent reasons for avoiding myomectomy in the infertile woman with IM myomas.

- Abdominal or laparoscopic myomectomy can be associated with
 - significant morbidity,
- including infection,
- damage to internal organs,
- risk of blood or blood product transfusions.
- Also of concern for the infertile woman is the
 - high rate of postoperative adhesion formation, especially with myomectomies performed through posterior uterine incisions

Add to these the risks of uterine rupture during pregnancy and increased likelihood of cesarean section, and there are many reasons to be wary of myomectomy when the indications are unclear.

CLINICAL MANAGEMENT

Medical Treatment

- OCPs
- Gonadotropin- releasing hormone (GnRH) agonists
- Androgen therapy with gestrinone or danazol
- P4 antagonist- mifepristone
- Selective estrogen receptor modulators (SERMs)
- Selective progesteron receptor modulators (SPRMs)
- Aromatase inhibitors

Although myoma volume may be reduced approximately 50% by medical treatments, the uterus typically returns to pretreatment size after the medications are discontinued. There is no evidence that fertility improves with medical therapy.

Medical therapy also may delay more effective treatments and therefore cannot be recommended for the treatment of infertility.

Surgical Treatment

Indication

- Women who wish to maintain potential fertility.
- SM or IM fibroid distorting the uterine cavity
- Fibroids >5cm
- Multiple fibroids
- 75% of conceptions following myomectomy occur in the first year (Dessole et al, 2001), with PR drops sharply after this time.
- If possible, therefore, the surgery should be timed to take place when a woman is ready to start a family

Abdominal Myomectomy is The route of choice for:

- large SS or IM fibroids (>7 cm),
- when multiple fibroids (>5) &
- The incidence of adhesions is extremely high
- Incision posterior of the uterus - 94%
- Incision anterior of the uterus - 55%

Recently published two studies suggest that with 4 year follow up there are not any differences between Laparotomic and laparoscopic myomectomy.

- They have equal results in Cumulative pregnancy rate, Preterm labor risk, Abortion rate, Caesarean ratio, Recurrence rate
- And also they have equal pregnancy and recurrence rates

Robotic-assisted technology, in its present state, is enabling more surgeons to perform endoscopic surgery. Its advantages are 3D Vision and a faster learning curve for suturing and operating while sitting. It's an exciting enabling technology with a great future.

The other important risk after myomectomy is uterine rupture. There were 10 cases reported especially after laparoscopic myomectomy. The risk factors for uterine rupture are reported as... Inappropriate uterine repair, Increased energy use for haemostasis, (electrocautery, unipolar or bipolar), and Poor recovery. Recently defined Laparoscopic Assisted Myomectomy might be a solution and alternative to laparoscopic myomectomy. With this operation technique we could have Reduced operation time, Appropriate uterine incision repair, Prevention of unnecessary electrocautery usage, Reduced postoperative adhesion.

O92 Hydrosalpinx and treatment options in ART, what to choose?

Nahed Hammadih

O93 TOTAL LAPAROSCOPIC HYSTERECTOMY: TIPS AND TRICKS

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Introduction: Hysterectomy is one of the most commonly performed surgical procedures worldwide. As a minimal invasive approach, vaginal hysterectomies have been performed successfully for almost two centuries. However, more recently Reich et al. introduced the laparoscopic hysterectomy. Laparoscopic hysterectomies have been clearly associated with decreased blood loss, shorter hospital stay, faster return to normal activities, and fewer abdominal wall infections when compared with abdominal hysterectomies.

Despite the advent of minimally invasive procedures, abdominal hysterectomy remains the most common surgical approach, over half of hysterectomies being performed via a laparotomy. The vaginal approach is less expensive, but may be challenging in patients with a history of an adnexal mass, endometriosis, pelvic pain, and prior abdominal surgery, or in patients with a narrow pubic arch or poor vaginal descent. Hence, vaginal and laparoscopic hysterectomies are preferable to abdominal hysterectomy whenever

possible and that a laparoscopic hysterectomy should be attempted when vaginal hysterectomy is not possible.

The relatively slow adaptation of laparoscopic hysterectomy may be attributed to inadequate exposure and training during residency, insufficient experience and training, lack of hospital equipment, and inadequate support from colleagues. Therefore, transferring and sharing information about laparoscopic hysterectomy and both theoretical and practical educations become more important.

Surgical Technique: Total laparoscopic hysterectomy should carry a step by step approach. Perhaps the most important step should be considered as preparation and positioning. The patient should be at dorsal lithotomy position and the table should be in the lowest position. A urinary catheter and a uterine manipulator which exactly fits the cervix should be placed before starting the operation. And then abdominal entry and trocar placements should be performed carefully. A Verres needle could be used or not. Trocars should be placed in the most comfortable way for both the primary surgeon and assistant. In case of oophorectomy the infundibulopelvic ligament and in case of ovarian preservation the utero-ovarian ligament can be desiccated by bipolar grasper or advanced bipolar energy modalities. For both procedure, the surgeon should try to be close to the ovaries. Also, the uterus should be pushed upwards and to the contralateral side. On the next step, the bladder should be mobilized. The round ligament should be transected and the leaves of broad ligament separated. Correct plane is important; where the peritoneum separates easily with gentle manipulation. The vesicouterine peritoneal fold should be identified before continuing further dissection. It's important to stay in the loose areolar tissue.

Next step is ligation of uterine vessels and it's very important to first skeletonize them. Two cuts should be done with the energy device in an inverted V shape antero-medial and postero-medial to the vascular pedicle. Pushing cephalad with uterine manipulator helps to move the vessels away from the ureters. On the next step, which is colpotomy, vaginal fornices should be identified while pushing cephalad with the uterine manipulator. The surgeon should either see the indentation of the colpotomizer of the manipulator or be able to palpate it with a laparoscopic instrument. The energy device is then used to cut circumferentially around the cup. According to previous studies, colpotomy seems to be one of the most important rate limiting steps.

To remove the uterus, it should be pulled down into the vagina if it fits and remained there to maintain pneumoperitoneum. If the uterus is large, it can be morcellated transvaginally by using a number 10-blade scalpel. However, this type of morcellation requires attention, because the traction of large uterus can also bring the bladder or rectum down to the morcellation area. The surgeon can prefer either no. 0 absorbable polyglactin or no. 0 barbed suture (V-loc) while closing the vaginal cuff. However, other

types of sutures are also available for cuff closure. The vaginal mucosa, pubocervical fascia and rectovaginal fascia should be carefully included. Each bite should be approximately 0,5-1 cm thickness. The barbed sutures and standard sutures result in similar time and complication rates. To decrease the risk of vaginal cuff dehiscence, the surgeon should try to use less energy during colpotomy, use suturing rather than electrocoagulation for hemostasis, suture double layer, and use double ended barbed suture.

Total laparoscopic hysterectomy is a safe and feasible procedure for women who need hysterectomy. There are no specific contraindications for this procedure such as previous abdominal surgery, obesity, or large uterus. So, an experienced surgeon should always try best to perform the hysterectomy via laparoscopic route rather than open.

CONCURRENT SCIENTIFIC SESSION 22: Controlled ovarian stimulation

O94 Highlights and updates in recurrent implantation failure 2018

Frederic Mitri

O95 Could AMH be used in diagnosis of PCOS or PCOM?

Mahmoud Gehad

O96 Discordance between anti-Müllerian hormone (AMH) and antral follicle counts (AFC): causes and significance

Elnashar A

Key words: AMH, AFC, Discordance

Study question: what are causes and significance of discordance between AMH and AFC?

Summary answer: Discordance between AMH and AFC is not only due to technical limitations of AFC or variability of AMH assay but also to patient specific features.

What is known already: AMH and AFC are the best predictors of quantitative ovarian reserve. There is a strong positive correlation between AFC and AMH.

Study design, size, duration: A literature search for English articles, related to discordance between AMH and AFC, including articles published in Pub Med. from 2010 till August 2018.

Participants/materials, setting, methods: A literature review

Main results and the role of chance: Discordant AMH and AFC is encountered in 16% to 32% depending on the definition. Etiology of discordance: I. Analytical variability of the AMH assay used (intra- and inter-assay variability, incubation period, pre dilution and the method used original manual or the new automated) II. Technical limitations of AFC. (1. Over count the AF due to inclusion of atretic follicles and other ovarian sonolucencies 2. Scanning difficulties associated with overweight 3. Inter-cycle variation of AFC. 4. Inter-observer variations and recounting of follicles that have already been identified. 5 Antral follicles are not producing the same amount of AMH) III. Patient-specific features: In higher than predicted group: LH was significantly related to the difference between measured AMH and predicted AMH. There is a positive correlation between serum LH and AMH levels. In lower than predicted group: Increase in BMI, shortening of menstrual cycle length, high FSH or Low testosterone may be the cause.

Limitations, reasons for caution: Discordance between AMH and AFC is associated with difficulties in pre-treatment counseling and ovarian stimulation planning.

Wider implications of the findings: When AMH and AFC are discordant ovarian responsiveness is intermediate between that when both are concordant on either end and an intermediate dose of Gonadotrophin is recommended as compared to those with concordant AMH and AFC categories on either end.

Study funding/competing interest(s): Non
Trial registration number (if registered clinical trial)

CONCURRENT SCIENTIFIC SESSION 23: Infertility

O97 The virtue of ultrasound prior to IVF

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A septate uterus has been shown to be associated with a very high pregnancy wastage rate of >70%. More recently, a small uterine septum, or arcuate uterus, has been considered an important risk variable for preterm birth. In addition, there is higher prevalence of a septate uterus in patients with repeated in vitro fertilization and embryo transfer (IVF-ET) failure (1.2%). Furthermore some reports suggested higher prevalence of a septate uterus in patients with early pregnancy loss after IVF-ET (9.7%).

The overall belief of experts in the area ultrasonography of uterine cavity disorders is that transvaginal saline infusion hysterosonogram

(SIH) with three dimensional ultrasonography and hysterosalpingogram (HSG) is highly sensitive in the diagnosis of major uterine malformations. However, it is not sufficiently sensitive in the diagnosis of minor uterine abnormalities. In our experience, transvaginal 2D US and SIH with 2D US are only useful in the presence of a complete uterine septum or significant incomplete uterine septum, but not helpful in the diagnosis of subtle cases of incomplete septum and arcuate uterus.

The gold standard for diagnosing a uterine septum and arcuate uterus is transvaginal SIH with 3D US and diagnostic hysteroscopy. However, HSG is a test that is still being used during evaluation of infertility and in some cases of recurrent pregnancy loss (RPL), Fayed, et al. reported high sensitivity of HSG in detecting significant uterine septum. In addition, we observed high accuracy of HSG in detecting significant incomplete uterine septum. Recent data from our unit suggested that the accuracy and sensitivity of HSG in detecting subtle uterine anomalies is poor. Limited data in the literature suggested poor sensitivity of HSG in detecting endometrial cavity abnormalities in general.

The purpose of this presentation is to illustrate that when dealing with an arcuate uterus or a subtle incomplete septum there appears to be conflicting findings on various imaging studies. This may result in under diagnosis of such anomalies. In turn, it is not unreasonable to think that such undiagnosed subtle uterine anomalies may account for some cases of unexplained infertility and RPL. In 50% of patients with RPL, the etiology is unexplained and in 25-30% of infertility patients, the etiology is unexplained. The diagnosis and management of these subtle uterine abnormalities may improve pregnancy rates and reproductive outcome in such patients. Specifically, we will focus on the two imaging studies that are now considered the gold standard for the diagnosis of uterine anomalies. These are transvaginal 3D US and SIH with 3D US. We will compare the findings of these tests with the findings on HSG, @D US and diagnostic hysteroscopy in 8 cases.

O98 Is there an alternative option for immature oocytes in IVF/ICSI program?

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In IVF/ICSI program, the maturation state of retrieved oocytes still relatively unpredictable depending on each patient profile. Even after controlled ovarian stimulation (COS), it is frequent to retrieve immature

oocytes in 15-20% of total population. Unfortunately, these immature oocytes (at germinal vesicle or metaphase I stage, denuded or not) are generally discarded. However, in vitro maturation (IVM) could present the best alternative option especially for patients with polycystic ovarian syndrome (PCOS) and in oncofertility been a part of fertility preservation. Indeed, IVM is technically as an adjunct tool to IVF and a mild way to mime the physiological oocyte maturation while the IVM medium or the general approach utility still until now debate in ART. Recently, our recent published work about new IVM approach for PCOS patients based on supplementation of heterologous follicular fluid and supernatant of cultured cumulus-granulosa cells (HFF/CGC-IVM) showed an improved embryological results (79% of maturation rate and 53% of blastulation rate) compared to other IVM systems and in vivo maturation results after COS. Indeed, this new IVM rescue approach of denuded immature oocytes could encourage researchers and IVF specialists to implement it in IVF/ICSI program despite wasting a chance of potential fertility improvement.

Key words: immature oocytes, in vitro maturation, polycystic ovarian syndrome, fertility.

O99 Comparing the effect of protocols (Long agonist, agonist stop, antagonist, closed HMG) used with poor responder in IVF cycles on the ovum's number and quality

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To find out the best protocol for poor responder to have biggest number of ovum retrieved (OR) with better quality. Our study focused on which is the best protocol for poor responder in IVF cycle to get best quality and bigger number of ovum? According to the result that we observed from our study that. The first description of patient who was a poor responder occurred 28 years ago. A patient responding with a decreased follicular response and low estradiol (E2) level to ovarian stimulation by FSH/HMG was reported resulting in few oocytes being retrieved and few transferred embryos. After that many studies were done about poor responders, which found insufficient evidence to identify the use of any particular intervention to improve treatment outcome in poor responder. Study design, size, duration: cohort retrospective analytical study was inducted in Misurata fertility Center, Libya, during the period from December 2017 to April 2018, which sized with 94 case

were included. Participants / materials, setting, data collected retrospectively in Misurata fertility Center, 94 patient were under went induction of ovulation in IVF cycles who met the selection criteria was: 1. Aged 35-45 years old. 2. Their AMH levels 0.1-1 ng/dl. 3. AFC on D2 \leq 5 in each ovary. 4. basal FSH \leq 15 mIU/ml. 5. E2 level in D6 of stimulation $<$ 650pg/ml. 6. ovum retrieval $<$ 10 ovum. 94 IVF cycles were performed with different protocols: (long agonist_agonist stop_antagonist_clomiphene citrate HMG). IVF cycle were controlled with regular trans vaginal ultrasound sonography (TVS), E2, LH, serum levels, follow up on D2, D6, D8 respectively until cycle complete OR data were analyzed. Main result and role of chance. Limitation, reason for caution: 1. difficult to collecting data. 2. Loosing contact with the patient after finishing the cycle. 3. Missing a big number of patients due to male factor infertility and other endocrinal and organic abnormalities. Wider implication of the finding: other study in the future must be do prospectively on large number of patient. From our study the best protocol for poor responder is Antagonist protocol because given the best result. Keywords: protocols, HMG, IVF cycles, ovum retrieved, FSH/HMG

ORAL PRESENTATIONS SESSION 7:
Molecular biology

O100 GM-CSF(SARGRAMOSTIM) treatment in women with recurrent implantation failure undergoing transfer of single healthy blastocyst after PGS: A RANDOMIZED CONTROLLED TRIAL

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Objective. The GM-CSF is a cytokine promoting leukocyte growth as well as trophoblast development. We described that this cytokine may be used in the treatment of recurrent abortion. We tested in this randomized controlled trial the use of GM-CSF (sargramostim) in the treatment for recurrent implantation failure in women undergoing IVF.

Design: A controlled randomized study conducted on women with Recurrent Implantation Failure.

Material and Methods The study was conducted to the CERM, Rome, Italy, from the January 2016 to December 2017 on 73 women with recurrent implantation failure after IVF cycles. This study was approved by IRB. Inclusion criteria were: at least 9 good embryos previously transferred, women less than 38 years old, absence of systemic diseases. These women underwent IVF cycle and PGS on developed

blastocysts. Single healthy blastocyst transfer was performed in the next cycle using only chromosomally healthy blastocysts. Patients were randomly divided in two groups: one (36 women) treated with subcutaneous GM-CSF 1.5mg/kg/daily (60-100) from the day of embryo transfer to the day of β -hcg day and if it was positive the treatment was continued for other 40 days: the control group (37 women) was treated with subcutaneous saline solution infusion in the same way of the study group. Primary outcome was the pregnancy rate.

Results. Epidemiological data of the two groups did not show statistically significant differences. Pregnancy rate in the group treated with GM-CSF was 75.0% (27/36) whereas in the control group was 43.2% (16/37), $P=0.0087$. No side effects were observed.

Conclusion The clinical use of GM-CSF in women experienced implantation failure may be useful, even though more studies are needed to confirm these findings.

O101 FSH receptor polymorphism in Lebanese men undergoing ICSI: Correlation with semen parameters and ICSI outcome.

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Keywords: ART Outcome; FSH Receptor polymorphism
Study question: Does FSH Receptor polymorphism have any impact on spermatogenesis and ART outcome?

Summary answer: FSHR polymorphism in males affects spermatogenesis, embryogenesis and ICSI outcomes.

What is known already : Infertility affects 10 to 15 % of couples. Male infertility is a complex disease and is assumed to be a polygenetic disease amended by environmental, lifestyle and occupational factors.

FSH plays a key role in the maintenance of qualitatively and quantitatively normal spermatogenesis and it acts through FSH Receptor (FSHR).

Among several SNPs within the FSHR gene, G29A, A919G and A2039G have been reported to affect the receptor function.

Although several epidemiological studies have been conducted, the impact of FSHR polymorphisms on male infertility remains unclear and the impact of polymorphism on ICSI outcome haven't been studied before.

Study design, size, duration: A single centered prospective study in AL HADI ivf center.

Participants/materials, setting, methods : The present study aimed to find a correlation between the independent variable: FSH receptor polymorphism (mainly two FSHR SNPs at positions A919G, A2039G)

in male patients undergoing ICSI procedure and other dependent variables: fertilization rate, embryo grading, implantation rate and semen parameters (count, motility...).

Our study enrolled 293 patients undergoing ICSI procedure at AL HADI IVF CENTER between 1st of May 2017 and 31st of December 2017. They underwent semen and hormonal analysis, DNA extraction for PCR-RFLP analysis of both T307A variant and N680S.

Main results and the role of chance:

The most frequent polymorphism found in our population is thr/ala + asn/ser (24 %). We found a higher fertilization rate and a higher implantation rate with the polymorphism ala/ala+asn/asn (p value= 0.0095).

A strong correlation between the different FSH receptor polymorphisms and spermatogenic factors was also found. The best spermatogenic factors were associated with thr/ala+ser/ser polymorphism. However, spermatozoa count is significantly lower with the polymorphisms ala/ala+asn/asn and ala/ala+ser/asn.

Limitations, reasons for caution : So many factors other than FSH receptor polymorphism, such as the number of oocytes injected and fertilized, the number of embryos obtained and transferred, the female age and BMI and so many other factors are affecting the ICSI outcome.

One more limitation is that our study was not limited to infertile couples due to male infertility, so ICSI was performed on oocytes from fertile and infertile women. Despite these limitations our study demonstrated strong association, never reported before, between the FSHR polymorphisms and the following failure or success rate of fertilization and implantation. Yet, further investigations are recommended to be conducted on other ethnic populations to confirm the results of this study.

Wider implications of the findings: Our results point out to the importance of the FSHR genotyping in predicting the effectiveness and the success rates of assisted reproductive techniques in treating infertility. Further investigations are recommended to be conducted on other ethnic populations.

Study funding/competing interest(s): We have no conflict of interest. This study was completely funded by AL HADI IVF center.

O102 G-CSF treatment increases treg peripheral blood levels in women with recurrent miscarriage M

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Problem: We previously showed that G-CSF may be useful in the treatment of recurrent miscarriage. The G-CSF is a cytokine promoting leukocyte growth, but also trophoblast development. In this study we tested by

flow cytometry the number of Treg cells in peripheral blood of patients treated with G-CSF.

Methods: The blood samples of 10 women with Recurrent Miscarriage treated with G-CSF (60 microgram daily from the day of ovulation through the 9th week of gestation), of 10 women with recurrent miscarriage treated with placebo (saline infusion from the day of ovulation through the 9th week of gestation) and in 10 physiological pregnancies, were collected at 7/8 week of gestation. Leukocytes extracted from peripheral blood samples were stained for Flow cytometric analysis using FACScalibur (Becton Dickinson) All antibodies used were purchased eBiosciences. Treg cells were the CD4+CD25+Foxp3+. Statistical analysis was performed using unpaired t test.

Results: Treg levels in peripheral blood of women treated with G-CSF during pregnancy were statistically significant higher than in women with RM treated with placebo and in women with physiological pregnancy (P < 0.001 and P < 0.01 respectively). The other populations of lymphocytes did not show statistically significant differences.

Conclusions: G-CSF administration in women with Recurrent Miscarriage increases the number of Treg cells in the peripheral blood. This may be one of the mechanisms of action in the positive effect of G-CSF on the pregnancy outcome in these women.

ORAL PRESENTATIONS SESSION 8: Ovarian stimulation

O103 Anti-Müllerian hormone is a reliable predictor of cycle cancellation in women of different age group during antagonist protocol ICSI.

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Abnormal ovarian reserve test (ORT) results and, woman age are strong predictors of cycle cancellation during assisted reproductive technique. Use of anti-Müllerian hormone, can help to decide cycle cancellation during ICSI at different age groups. To recognize the association of AMH, FSH, AFC with oocyte yield, and their ability to predict poor response and cycle cancellation of different age groups received antagonist protocol for ICSI to help individualize fertility management in accordance to age. Thus, retrospective study of 491 cases received ovarian stimulation for ICSI by antagonist protocol during the

period of (2013-2014), at Misurata fertility Center was conducted. Sonographic data were collected during early follicular phase by counting antral follicles in both ovaries. An antagonist protocol was applied to all patients of different age groups. Cycle cancellation occurred in (24.64%) of stimulated patients. The mean age for the patients with cancelled cycles is higher than the age of those with completed cycles ($p=0.0075$), and (16.7%) got pregnant. The age of the women who got pregnant is lower than the age of non-pregnant women ($p=0.0059$). When investigating the three age groups, AMH was a fair test for the discrimination between cancelled and completed cycles for age group >39 but a poor test for the discrimination for younger age group. On logistic regression analysis, AMH was an independent predictor of cycle cancellation especially for women with advanced reproductive age. After controlling for the other independent variables (FSH), the significant association between AMH and cycle cancellation remained strong ($p<0.0001$) on multivariate logistic regression analysis. In conclusion, we found that serum AMH levels can be used as fair predictor test for cycle cancellation especially in older age group patients. The odds of having a cancelled cycle for women of advanced reproductive age with low AMH is 5 times more than those with normal AMH level in the same age group. Its use can help to individualizing treatments protocols and counseling in different age groups. Counseling plays important role in addressing psychological issues discussing the risks of cycle cancellation due to cost\benefit, and treatment options to ensure maximal therapy benefits and outcomes. Keywords: Antimullerian hormone, outcomes, AMH, cycle cancellation. Different age groups, Reliable Predictor, Antagonistic protocol ICSI.

ORAL PRESENTATIONS SESSION 9: Fertility Management

O104 Spontaneous pregnancy outcome after Hysteroscopy Metroplasty of Uterine Septa for Infertile and Bad Obstetric History Patients

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Infertility is a worldwide problem of reproductive health, it affects an estimated 15% of couples globally, amounting to 48.5 million couples. The aim of our study to evaluate the spontaneous pregnancy and live birth outcome following hysteroscopic septal

resection in patients with primary infertility and bad obstetric history. Study design used as retrospective cohort study: A retrospective, descriptive, analytical study including one hundred patients, attended infertility center Misurata during the period January 2016 December 2017 (two years). Mean age 30 y. They had history of infertility and bad obstetric history (abortion and preterm delivery). Hysteroscopic Metroplasty performed via bipolar versapoint system. Reproductive performance in the form of live birth after septum resection analyzed during the period of one year after the operation. Our results show Hysteroscopic septal resection was performed on sixty patients (60%) with primary infertility, postoperative pregnancy rate was 28.3%, and live birth rate was 21.7%, other forty patients (40%) with abortion and bad obstetric history 50% got spontaneous pregnancy, 42.5% of them got live birth. In Conclusion: Hysteroscopic septum resection using bipolar versapoint system can significantly improve the live birth rates in patients with history of infertility and BOH. Keywords: Infertile, Outcome, Hysteroscopy, Uterine Septa, and Bad Obstetric

ORAL PRESENTATIONS SESSION 10: Ovarian stimulation

O105 Comparing the effects of palm pollen with letrozole + tamoxifen in PCOS infertile woman on reproductive Parameters and related side effects

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Introduction: polycystic ovary syndrome (PCOS), one of the most common causes of infertility due to anovulation, affects 4–7% of reproductive women. The aim of this research is to compare the effects of palm pollen with letrozole + tamoxifen in PCOS infertile woman on reproductive Parameters and related side effects in Jahrom city.

Methods: This comparative clinical trial was done on 30 infertile PCOS women referred to Dr. rasekh clinic with aged 18-42 years. patients were randomly allocated to either case or control group. The control group

prescribed letrozole + tamoxifen and Case group palm pollen from third to eighth day of menstrual cycle. Transvaginal ultrasound parameters including, Ovarian follicular size, numbers and endometrial thickness during treatment and based on these parameters continue these regimens and prescribed trigger drug. Also, the medical and palm pollen side effects are considered.

Results: Endometrial thickness in palm pollen groups and tamoxifen+letrozole groups had significant difference in first visit ($P < 0.019$) respectively but no significant difference in the second and third visit in two groups. In the first visit, there was a significant difference in the size of left ovarian follicles in case and control group ($P < 0.004$), but in the second and third visit, the left ovarian follicle size in case group was larger than control group, without significant difference statistically. In the first visit, there was a significant difference in the size of right ovarian follicles in case and control group ($P < 0.001$) but, no significant difference in second and third visit. The incidence of ovarian hyperstimulation syndrome (OHSS) was negative in both groups.

Conclusions: because of significant effects of palm pollen on increase of endometrial thickness and size of dominant follicle, therefore, we recommend, this low costs, low side effect regimen in treatment of PCOS patients.

Key words: PCOS, palm pollen, drugs, reproductive parameters, side effect

