

Royal College of Obstetricians & Gynaecologists

India North International Representative Committee

Committed to Women's Health



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Welcome Address by Our Chair



Dr Ranjana Sharma Chairperson

As we make our way through our second year of the COVID-19 pandemic, we find ourselves growing ever-more comfortable with the digital way of communication. In this vein, I am delighted to introduce our second newsletter to you, presented digitally. This year's theme is dedicated to the issue of Infertility.

This e-newsletter has been meticulously compiled by Dr Chanchal and her Editorial Team. I thank everyone who contributed to the informative and evidence-based articles and I hope you, our reader, will find them valuable. I am sure Dr Jharna Behura's beautiful write-up about Odissa, you will be tempted to visit the place as a first-time or revisiting traveler.

Our newsletter comes at an opportune time, on the heels of our upcoming Annual Conference, which will take place virtually on 12th December 2021. Our speaker list is a star-studded one, including pioneers, researchers, and world-renowned authorities on their subjects. There will be eight pre- and post-conference workshops, along with a webinar on *Breast and Cervical Cancer Awareness*, amongst many other interesting events. We are also so pleased to have received numerous abstracts for the Free Paper Session and look forward to awarding the winners with a one-year annual membership of the RCOG.

The Conference has reached this shape after months of tremendous hard work of the Organizing Committee, the Convenors and Co-Convenors, as well as contributions from the faculty. The success of the Conference will now depend on the delegates. I invite you all to this academic bonanza and would be honored by your presence. I promise you; it will be an event to remember!

Now without further ado, please enjoy the newsletter.

May you have a happy, healthy and successful winter and New Year.

Kind regards

Ranjana

From the Editor's Desk



Dr Chanchal Member Representative IRC RCOG, North

Dear friends and colleagues,

Hope this 2nd edition of our newsletter finds everyone in good health and the best of spirits. With the rising hopes of soon leaving behind the COVID pandemic, I hope we will soon be able to meet in person. Till then we will continue to reach out to each other virtually. In this newsletter we've put our focus on (in)fertility and woven this newsletter around some related topics of interest.

I would also like to use this opportunity to invite everyone to upcoming AICCRCOG North Zone Annual Conference (Virtual) to be held on with a host of interesting pre- and post-conference workshops tailored to everyone's interest in our ever expanding field

of Obstetrics and Gynaecology. The detailed programme and registration link is included in the newsletter.

Best wishes,

Dr Chanchal

Recurrent Implantation Failure



Dr Mala Arora FRCOG, FICOG, FICMCH Director, Noble IVF Centre, Faridabad

The definition of Recurrent Implantation Failure has evolved over time. Orvieto and Zeyneloglu¹ described it as three failed IVF cycles with at least two good quality embryos replaced in each cycle. However with the advent of frozen thawed cycles the definition is revised by Coughlan² to "Failure to achieve a clinical pregnancy after 4 good quality embryo transfers with at least 3 fresh or frozen cycles in women under the age of 40 years. Biochemical pregnancies are classified as Implantation Failure, but there is no agreement to the HCG level considered significant. Some take the cut off value as > 5 and others >25 miu/l.^{3,4,5}

Couples with RIF are frustrated and often change clinics after each failed IVF cycle. It is important to record a detailed history of each IVF cycle making note of

the stimulation protocol and the quantity and quality of embryos. The investigations for the RIF are detailed and should be individualized after taking a detailed history and checking the previous records. BroadOutlineoftheinvestigationsis depicted in this flow chart.



Flow Chart for Investigations

Not mentioned in the table are latrogenic causes, which include poor laboratory culture conditions. Inconsistent temperature, CO2 levels, humidity and other offending agents in the laboratory like volatile organic compounds (VOC), fungal or bacterial spores which will diminish the implantation potential of the embryo. Regular Quality Control (QC) testing of the IVF laboratory environment should be a mandate.

Management

A new marker for implantation is Hyperglycosylated HcG (hhCG) It is produced by the cytotrophoblast and can be the earliest marker of implantation. Strom et al measures hhCG levels 6 days post blastocyst transfer and reported that a Clinical pregnancy is likely when the level is >300 pg/ml, Biochemical pregnancy between 75-300 pg/ml and no pregnancy if the hhCG levels are < 75 pg/ml.⁶

Other molecules that may serve as implantation markers are Leukemia Inhibitory factor (LIF), cellular adhesion molecules (CAM) and Integrins like $\alpha v \beta 3$, also prostaglandin levels in the endometrium.

Implantation is a poorly understood subject and our current knowledge about it is very patchy. Hence it is often frustrating to treat couples with RIF. However consultation with ART specialist that were involved in previous cycles and relying on a multidisciplinary team approach should be adopted. Appropriate counseling and addressing all the querries of the couple is as important as is individualized treatment protocol that should be drawn up, prior to proceeding with further treatment cycles. A summary of the management is highlighted in the table below.⁷

Maternal	Treatment	Embryonic	Treatment
Lifestyle Modification	Quit smoking/alcohol Maintain BMI (19-25 KG/M2)	Genetic factor PGT –A of embryos Parental Karyotype	PGDERA
Anatomic factor	Septum Resection Myomectomy Polypectomy Adhesiolysis Excision of Hydrosalpinx	Male factor contribution	DNA Fragmentation Index TESA-IMSI
Endometrial thickness and receptivity	Aspirin? Sildenafil? Mechanical stimulation Endometrial Scratch High dose estrogen treatment LIF? G-CSF? PRP-Stem cell injection	Stimulation Protocol	Check Previous Record Individualise stimulation Protocol
Immunologic factor	High dose IVIg Intralipid? Steroids in Peri implantation phase	Assuming the embryo ceases to develop in utero Optimise the Timing of Embryo Transfer	ERAS Testing
Thrombophilia and connective tissue disease	LMWH Aspirin Corticosteroids	Optimize Embryo Transfer	Mock Transfer in Previous cycle Ultrasound Guidance Partial Fill Bladder Sequential Embryo Transfer
Infections	Probiotics x 3 months Antibiotics According to organism isolated		Blastocyst culture Assisted hatching Sequential transfer Co-culture system
Progesterone support	Dydrogesterone has immune- modulatory properties started post ovulation		

Summary

The table below summarizes the treatment options and their success rates, both in terms of implantation, clinical pregnancy and live births.⁸

Intervention	Implantation Rate (Treatment vs Control)	Pregnancy Rate (Treatment vs Control)	Live birth (Treatment vs Control)	Source
IVIG	34.4% vs. 13.7%	60.2 vs 39.3	49.8% vs 31.6%	Li et al ⁹
Peripheral Blood Mononuclear cells (PBMC)	22% vs 4.88%	39.58% vs 14.29%	33.3 %vs 9.58%	Li et al ¹⁰
G CSF	31.5% vs 13.9%	48.1% vs 25%	33.3% vs 17.3%	Li et al ¹¹
Antibiotics for CE	37% vs 17%	65.25vs 33%`	60.8vs 13.3%	Cicinelli et al ¹²
Salpingectomy	25.6% vs 12.3%	45.7% vs 22.5%	40% vs 17.5%	Strandell et al ¹³
Endometrial Scratch	22.7% vs 14.2%	66.7% vs30.3%	48.9% vs22.5%	Barash et al ¹⁴
IMSI	19.2% vs 7.8%	43.1% vs 10.5%	34.7% vs 0%	Shalom Paz at al ¹⁵

RIF is multifactorial in origin and requires careful case study of each IVF cycle, detailed investigation and appropriate treatment options. Alleviating emotional distress will require frequent and lucid counseling sessions. The couple should be counseled positively and given time to kick in Life Style changes if required. Freezing genetically tested and good quality blastocysts and transferring them during repeated embryo transfers often does the trick. Only when all options have been exhausted should the couple be advised Surrogacy.

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Artificial Intelligence in Optimization and Personalization of Fertility Treatments



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What is Artificial intelligence (AI)?

Al is a "partnership between man and machine". It is a computer program that can learn to execute tasks involving human intelligence. It has the potential to enhance clinical decisions through algorithms, automated communication, and clinical imaging. It involves learning, self-adapting and predicting machine leading to transformation.

How is it Used?

Reproductive experts can determine the best treatment for the individual infertility of patients by incorporating AI, machine learning (ML) and deep learning (DL).

Artificial Intelligence (AI) is a science to build intelligent programs and machines that can creatively solve problems, which has always been considered a human prerogative.

Machine Learning (ML) is a subset of AI that provide systems the ability to automatically learn and improve from experience without being explicitly programmed. In ML, there are different algorithms (neural networks) that help to solve problems.

Deep learning, or deep neural learning, is a subset of machine learning, which uses the neural networks to analyze different factors with a structure that is like the human neural system.

Where All AI can be Used in Reproductive Medicine?



The role of Al in Reproductive Medicine. Big data include electronic medical records (EMRs) and other data. EMRs can capture data from various ways and the data is analyzed using Al such as machine learning and natural language processing (NLP). Al has been used in the many aspects of reproduction, from research and experiment to clinical practice. This schematic reviews the seven main applications of Al in reproductive medicine. Wang R, Pan W, Jin L, et al. Artificial intelligence in reproductive medicine. *Reproduction*. 2019;158(4):R139-R154. doi:10.1530/REP-18-0523.

Prediction of Success Rate: By constructing a functional IVF prediction model combined with AI, clinicians can tailor personalized treatment of subfertile couples and improve the pregnancy outcome of ART. Several papers have described models to predict IVF outcomes, where different AI methods have been used with the accuracies from 59 to 84.4%. Although the accuracy of predictions is gradually improving, there remain various problems and the model cannot be applied in clinical practice well. The age, antral follicle count, AMH, number of the developed embryos and endometrial thickness are the usual optimal predictive features.

Semen Analysis and Selection

Al has been now used for semen analysis automatic evaluation, popularly called CASA (computerized assisted semen analysis). It has been also used for sperm morphology, DNA integrity as well as for sperm evaluating sperm morphology. Al can be applied for sperm selection. Due to the inherent lack of objectivity and the difficulty in the manual evaluation of the sperm morphology and the high degree of variation between laboratories, the automatic methods based on image analysis should be developed to gain more objective and precise results.

Embryo Selection

It is an objective tool and can be divided into automatic annotation of embryo development (Cell stages and cell cycles), embryo grading and embryo selection for implantation. Al and machine learning are being used to analyze time-lapse imaging data with computer algorithms. Al analyses morphokinetic embryo development data as well as use of computer vision with image processing software to examine raw timelapse images.

Al application showed in a study about 32% improvement in the prediction of successful implantation when compared to standard embryo morphological grading by highly skilled embryologists. Al algorithm that has outperformed human analysis, predicting human egg fertilization and blastocyst embryo development with 77% and 62% accuracy respectively.

Preimplantation Genetic Testing (PGT)

Al can be a useful prescreening tool that will allow us to identify and genetically test only those embryos that have a low likelihood of having genetic defects, lowering the overall cost of IVF for patients. Al is used to non-invasively analyze embryos and determine whether they are euploid or aneuploid. In fact, Al can be applied by deep learning through computer vision to embryo selection. Al was applied to PGT-A or interpretation and reporting of next-generation sequencing results (images) to eliminate operator subjectivity, ambiguous results and analyzing the impact of mosaicism.

Endometrial Receptivity Assessment and Optimization

Al can be used for evaluation of defects in endometrium, used for visualization of uterine abnormalities. This evaluation can be used for prediction of implantation results. Machine learning–derived algorithm may assist clinicians in making an efficient and accurate initial judgment. Embryo receptivity assessment helps in transferring embryos at ideal time and thus improving success rates.

Miscarriage: Studies have reported up to 77% accuracy rate of pregnancy loss prediction, raising expectations that similar data may be used to prospectively select euploid embryos for transfer.

Quality Control: AI can improve results by keeping quality control of a successful lab through automation,

bringing objectivity to diagnostics and enhanced decision making rather than relying on limitations by human because of biases and subjectivity.

Advantages and Challenges: An AI ART software can have many advantages like decrease interobserver variability, adjustment of drug doses in oocyte stimulation and thus reduce adverse effects such as hyperstimulation, decrease face-to-face medical contacts and thus increase medical and user productivity, better selection of sperm samples and evaluation of oocyte quality and embryo selection. Application of AI can be extended further by including patient characteristics like age, endocrine status, clinical diagnostics. AI lower mistakes in performing tasks regardless of the external environment, perform tedious repetitive tasks, organizing medical records and thus leads to digital transformation and automatization for the benefit of subfertile couples.

At the same time, it should be emphasized that computer can not completely replace human decisionmaking and substitute human compassion. There are however some other dilemmas like initial cost of deployment, the protection of personal data and corresponding legislation and the integration of human experience in clinical decision with ethical dilemmas of relying on machine to replace human decisionmaking.

Conclusion

Al application can help clinical decisions to be more accurate, prompt and objective. Al will not be able to replace reproductive medicine Consultants and embryologists but may improve clinical outcome. In future, the capabilities of AI techniques are likely to improve and may shorten time to pregnancy through improved IVF cycle efficiency (reduction of failed retrievals, transfers, miscarriages) and from replacement of a single, euploid embryo resulting in a healthy, live-birth. Al is an instrument to support clinical decision-making.

"Excellence is never an accident. It is always the result of high intention, sincere effort, and intelligent execution; it represents the wise choice of many alternatives - choice, not chance, determines your destiny."

- Aristotle

Ovum Pick Up and Embryo Transfer

Webinar and Live Workshop organised at AFGC, New Delhi under aegis of AICC RCOG NZ, 19th & 26th September, 2021

Summary & Key Learning Points

Before ovarian pick up the patient's general physical condition should be checked and pre-anaesthesia checkup (PAC) must be done. The ovarian stimulation protocol must be adequate and proper consents need to be taken. COVID testing must done at the start of the stimulation and 48 hours before estimated time of HCG trigger. Before starting the ovum pick up procedure, one must ensure that our setup is in place. Before starting the oocyte pick up we must clean the vagina with normal saline thoroughly and then dry it. It is done either under deep sedation or total intravenous anesthesia using propofol.

There are various oocyte collecting needles, most are 33 cm in length and 17G in diameter. They are connected on one side to suction tubing and other side to the test

tube. The connection should be secure and there must no cracks in the glass tube. The test tube must be kept at 37 deg C, the suction pressure should be 100-140 mm Hg. The needle guide is securely attached to the ultrasound probe. The ultrasound probe with needle guide must be gently inserted and the ovary scanned for the number of follicles and accessibility. The probe then must be securely held against the vaginal wall and the needle inserted slowly. The needle must enter the follicle through the vaginal wall and must start with the follicles which have easier access and slowly go into the deeper follicles. Each follicle must be fully aspirated and then we move to the next follicle. Curettage of follicles is often done to ensure complete emptying. The probe should not be moved with needle in place from side to side, it should always be taken out and re-aligned in the next ovary. The embryologist mentions the number of oocytes being collected.



Absence of fluid after aspiration may be due to poor suction pressure, cracking in the collecting tube or loose connection, or a clot or block in the needle. All these must be checked if there is no fluid after aspiration. If there is no oocytes in the follicular fluid, the time of HCG must be reconfirmed and urine pregnancy test should be done on the follicular fluid. If an agonist trigger has been taken the ovulation kit showing the LH surge may be done on the follicular fluid to confirm administration. If they are negative then a repeat trigger can be given and the procedure repeated 24-32 hours later. If they are positive sometimes just continuing





with further follicle may yield the egg or it could be the rare syndrome of true empty follicle syndrome where the LH and HCG receptors are defective.

Once the egg pick pick up is complete the speculum should be re-inserted and vagina inspected for bleeding spots. Majority of the bleeding spots settle on applying pressure.

According to ESHRE guideline one must have done at least 30 ovum pick ups under supervision to be able to perform OPUs independently and have done 250 procedures to become an expert.

Thus, a methodical approach to an apparently simple procedure like ovum pick up yields the optimum outcome.



"Practice is funny that way. For days and days, you make out only the fragments of what to do. And then one day you've got the thing whole. Conscious learning becomes unconscious knowledge, and you cannot say precisely how."

- Atul Gawande

Fertility Preservation in Breast Cancers (BC)-Salient Points



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- Breast cancer is one of the **most common malignancies in women of childbearing** age, with 15–25% of patients belonging to premenopausal age group and around 7% below the age of 40.1 High efficacy of treatment has led to an increasing number of young women surviving breast cancer before having fulfilled their reproductive wishes and with the majority desirous of having children.²
- The threat of treatment-related infertility along with fears of a potential negative impact of pregnancy in BC evolution as its hormone driven adds to the patients stress, affecting their treatment decisions hence the need for sensitive and comprehensive reproductive counselling at the time of breast cancer diagnosis.

Effect of Cancer and Its Treatment

- Studies suggest cancer itself can lower AMH and inhibin-B levels and elevate follicle stimulating hormone (FSH) concentration especially in older women and those with hormone positive cancers.³
- The main determinants of chemotherapy-induced amenorrhea and/or loss of fertility are age of the woman at the time of chemotherapy, dose and number of cycles of agent received.
- The aklylating agents, especially cyclophosphamide-one of the oldest and most effective drugs used in BC is also one of the most potent in reducing ovarian follicular reserve. For eq-a woman who takes the equivalent of 2.4-3 g/m2 of cyclophsophamide over 12–16 weeks can count on adding an approximate 10 years to her ovarian reproductive age or 1.5–3.0 years per cycle.⁴

Degree of risk	Treatment type/regimen	Comments
High risk (>80%)	• 6 cycles of CMF, CEF, CAF or TAC in women aged \ge 40 years	Significant decline in AMH concentrations after treatment
Intermediate risk (20% - 80%)	 6 cycles of CMF, CEF, CAF or TAC in women aged 30-39 years 4 cycles of AC in women aged ≥ 40 years 4 cycles of AC/EC → taxane 4 cycles of dd (F)EC → dd taxane 	Significant decline in AMH concentrations after treatment
Low risk (<20%)	 6 cycles of CMF, CEF, CAF or TAC in women aged < 30 years 4 cycles of AC in women aged < 40 years 	Significant decline in AMH concentrations after treatment
Very low or no risk	 Antimetabolites (methotrexate, fluorouracil) Vinca alkaloids Tamoxifen Bevacizumab (?) Trastuzumab, lapatinib and T-DM1 (?) 	No change in AMH concentrations after treatment
Unknown unclear/risk	 Platinum and taxane based chemotherapy Most targeted therapies (including monoclonal antibodies and small molecules): pertuzumab, everolimus, CDK4/6 inhibitors Immunotherapy GnRHa plus an aromatase inhibitors 	

Table 1: Estimated risk of treatment-related amenorrhea in breat cancer patients receiving systemic anticancer therapies.⁵

BRCA Gene

- The BRCA gene mutation is an important **inherited tumor suppressor gene** that leads to Hereditary Breast and Ovarian Cancer Syndrome (HBCD).
- Lower levels of Anti-Mullerian Hormone (AMH) are found in BRCA 1 & BRCA 2 carriers with an earlier age
 of natural menopause especially in BRCA 1 carrier. Hence young adults with the BRCA mutation should
 be counselled regarding this potential decrease in ovarian reserve and should be offered early fertility
 preservation.
- **Pre-Implantation Genetic testing** of the embryos at the time of IVF with transfer of unaffected embryos is an option.

Fertility Preserving (FP) Options

- These can be divided into three groups: (1) Cryopreservation of oocytes/ embryos (2) Reducing impact of chemotherapy on ovarian function, and (3) Ovarian tissue cryopreservation before the beginning of chemotherapy.
- The most established and standard strategies are embryo and oocyte cryopreservation using controlled ovarian stimulation (COS).

FP Options



Strategies to Prevent Rise of Estradiol (E2) during COS

- Although the natural cycle IVF does not increase serum E2 level above the physiologic levels, it is not a realistic option for fertility preservation in cancer patients as the egg/embryo yield per cycle is too low and there is no time for multiple IVF cycles in most cases.
- Antagonist cycle with tamoxifen or letrozole along with gonadotropins.
- 1. *Tamoxifen* Tamoxifen is a well-known selective estrogen receptor modulator with antagonist effect on the breast.

- 2. Aromatase Inhibitors (AI)-Letrozole, a potent third generation AI.
 - letrozole 5 mg is started on the second day of the cycle Recombinant FSH (150–300 IU) with or without human menopausal gonadotropin (hMG) is given 2 days after the initiation of letrozole. A GnRH antagonist is administered in flexible or fixed dose regimen and trigger is with GnRH agonist.
 - In terms of peak E2 levels, ovarian stimulation with letrozole plus a gonadotropin resulted in much lower levels compared with tamoxifen plus gonadotropin.



It can be continued post egg retrieval surgery to keep the E2 levels low.

COS Protocols

- Individualised approach- some BC patients might have a weaker response to COS, hence realistic and appropriate counselling. Around 2 weeks are needed for the COS.
- *"Random-Start"* This novel technique is based on the demonstration follicle-recruiting waves during a normal menstrual cycle and thus COS can be **initiated anytime** in cycle. This strategy is has been found to be as effective as conventional start protocols with an advantage of a decrease of the total time required for ovarian stimulation.⁶
- GnRHa trigger- to lower the risk of hyper-stimulation syndrome (OHSS)
- *Dual Stimulation*-To increase the oocyte yield it has been proposed to perform two consecutive ovarian stimulation cycles in a menstrual cycle.⁷



Ovarian Tissue Cryopreservation (OTC)

- Ovarian tissue cryopreservation is an option for women who cannot delay treatment and undergo COS or in pre-pubertal girls. This procedure requires a surgery to remove either the whole / piece of the ovary which is then prepared and cryo-frozen. At a later stage this is then thawed and then surgically re-implanted either in the ovarian fossa (orthotopic implantation) or elsewhere eg forearm / abdomen (heterotopic implantation).
- This procedure helps restore both fertility and endocrine hormonal function, however life of graft can vary and may need further re-implants to maintain function.

- Older patients patients (>38 years) and those with low serum AMH levels are not good candidates for ovarian cryopreservation and should be counselled appropriately.
- Potential risk of reintroduction of cancer cells, hence careful selection of cases.
- This is still considered an **experimental** procedure, hence this option should be exercised in a research setting.



Medical Protection of Ovaries

- Temporary suppression of ovaries by administration of GnRH analogs before and during chemotherapy.
- Ideally start 1 week before chemotherapy and continue till completion of chemotherapy.
- Exact mechanism of action not fully elucidated, it is thought that with suppression the number of primordial follicles entering the growing pool decreases, thus making them less sensitive to the gonadotoxic chemotherapy.
- **NOT** be seen as an **alternative** to embryo/oocyte cryopreservation, though can be used as a concomitant treatment.
- The safety of this strategy was observed irrespective of hormone receptor status.⁸
- Not standard therapy yet.

Pregnancy after Breast Cancer

- Ideal interval to start planning pregnancy is **not clear** but its sensible to wait until the patient is at lower risk of relapse, until the anticancer therapy is out of a patient's system (i.e. up to 3–6 months following the last administered dose) and depending on the prescribed duration of adjuvant endocrine therapy in hormone positive cancers.
- Several population-based retrospective studies where patients were matched for age, disease stage, and year of diagnosis, demonstrate that the **relative risk of death was lower** for women who conceived after BC than for those who did not.⁹
- Data suggest that pregnancy after breast cancer does **not negatively impact** patients' prognosis or recurrence, irrespective of the hormone receptor status of the tumor and should not be discouraged.⁹
- However some studies observed a slightly higher incidence of birth complications (i.e. caesarean section, preterm birth, babies with low birth weight) in patients as compared to controls.¹⁰
- Women undergoing **pelvic irradiation** can experience uterine damage with a possible increased risk of miscarriage, preterm birth, and low birth weight.¹¹
- For all these reasons, a close monitoring of pregnancy in such patients is recommended.

Additional Options

All options need to be carefully discussed with the patients including -

Natural conception

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- Donor Egg
- Surrogacy
- Adoption

Consents

• Detailed and sensitive counselling on use of stored gametes in event of death.

Future

- Germ cells In vitro production
- In vitro tissue maturation /culture
- Isolated follicle culture in 2D/3D culture systems

Conclusion

Dedicated multidisciplinary program with integrated onco-fertility units will facilitate timely communications between oncologists and fertility specialists along with positive outcomes for fertility preservation and improved quality of life of the survivors.

Resources

Patients

- American Society of Reproductive Medicine Patient education video, www.reproductivefacts.org/resources/ educational-videos/videos/full-length-videos/videos/fertility-preservation-for-cancer-patients/?_ga = 2.124770254.531824791.1588016469-586388077.1547138741
- Oncofertility Consortium, https://oncofertility.northwestern.edu/for-patients.
- American Society of clinical oncology online information for patients, www.cancer.net/navigating-cancer-care/ dating-sex-and-reproduction/fertility-concerns-and-preservation-women.
- Fertile Future (Power of Hope programe), https://fertilefuture.ca/programs/power-of-hope/
- · Decision aid: https://fertilityaid.rethinkbreastcancer.com/decision-aid/
- Option grid (1 page): www.womensresearch.ca/research-areas/cancer/ruby-study/fertility-preservation.

Health Care providers

- American Society of Reproductive Medicine guideline document, www.asrm.org/globalassests/asrm/asrmcontent/news-and-publications/practice-guidelines/for-non-members/fertility_preservation-in-patients_ undergoing_gonadotoxic_therapy_or_gonadectomy.pdf
- Oncofertility Consortium, https://oncofertility.northwestern.edu/
- International Society of Fertility Preservation, www.isfp.fertility.org/
- Canadian Fertility and Andrology Society, https://cfas.ca/
- American Society of Clinical Oncology 2018 guideline update, https://ascopubs.org/doi/pdf/10.1200/ JCO.2018.78.1914

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"We've been wrong about what our job is in medicine. We think our job is to ensure health and survival. But really it is larger than that. It is to enable well-being."

- Atul Gawande

Gonadotropins in ART - Quiz



- Ques 1: What factors should be considered in deciding the gonadotropin dose for COS?
 - A. Age and BMI
 - B. AMH and AFC
 - C. Basal FSH
 - D. All of the above

Dr Puneet Kochhar MD, DNB, MRCOG, FICOG Consultant ObGyn & Fertility Specialist, Elixir Fertility Centre, New Delhi

- Ques 2: Which gonadotropin preparation has the best efficacy and safety profile in ART cycles?
 - A. rFSH
 - B. uFSH-HP
 - C. HMG
 - D. All of the above

Ques 3: Which is the ideal COH protocol to prevent OHSS in Hyper responders?

- A. Long downregulation
- B. Microdose flare
- C. Short (antagonist) protocol with hCG trigger
- D. Antagonist protocol with agonist trigger

Ques 4: Which is the optimal OI drug for women with hypogonadotropic hypogonadism (HH)?

- A. Clomiphene citrate followed by HMG
- B. rFSH
- C. HMG
- D. Letrozole

Ques 5: What is the role of HCG in ART cycles?

- A. To stimulate proliferation of granulosa cells, leading to follicular growth
- B. To up regulate the appearance of LH receptors on the granulosa cell membrane
- C. Resumption of meiosis and oocyte maturation
- D. To support an early pregnancy once established

Ques 6: The newer long-acting FSH-CTP (corifollitropin alpha) has duration of action lasting:

- A. 3days
- B. 1 week
- C. 2 weeks
- D. None of the above

Ques 7: In GnRH-antagonist protocol, the ideal time to start the antagonist is:

- A. Day 21 of previous menstrual cycle
- B. Day 6 of stimulation
- C. When E2 > 400pg/ml or dominant follicle > 14mm
- D. Both B & C are correct

Ques 8: Which of the following protocols has the highest incidence of OHSS?

- A. Step-up regimen
- B. Fixed dose regimen
- C. Step-down regimen
- D. Combined regimens with CC/Letrozole and gonadotropins

Ques 9: What is the commonest side effect of gonadotropin use?

- A. OHSS
- B. Ectopic pregnancy
- C. Adnexal torsion
- D. Ovarian malignancy

Ques 10: Gonadotropins should not be used for ovarian stimulation in which group of women with anovulation?

- A. WHO1
- B. WHO2
- C. WHO3
- D. None of the above

Answers

- Ans 1: D (All of the above)
- Ans 2: D (All of the above)
- Ans 3: D (Antagonist protocol with agonist trigger)
- Ans 4: C (HMG)
- Ans 5: C (resumption of meiosis and oocyte maturation)
- Ans 6: B (1 week)
- Ans 7: D (both B&C)
- Ans 8: C (Step-down regimen)
- Ans 9: A (OHSS)
- Ans 10: C (WHO3 Hypergonadotropic Hypergonadism)

Cultural Heritage of Odisha ...an ode to my home



Dr Jharna Behura MD, FRCOG, WHO Fellowship in High Risk Pregnancy, Senior Consultant Kasturba Hospital, Delhi

Lingaraja Temple

Odisha, formerly known as Orissa is a heritage and culturally enriching state in East India. Known as the land of God, this coastal state offers marvellous architectural wonders in its temples.

Architecture

The finesse and grandeur of Odisha's architecture is exhibited in its temples. Some of them are among the finest in the country. Of these, the most important are the Lingaraja Temple, (Bhubaneswar) built in 11th century, Jagannath Temple at Puri (12th century) and the great Sun Temple at Konark (13th century). This forms the golden triangle of Odisha- Bhubaneswar, Konark and Puri. These temples are built in the style of 'Kalinga' architecture.

The largest of all temples in the Temple City of Bhubaneswar, it is one of the major tourist attractions of the state with over 6000 visitors on a daily basis. Here, Lord Shiva is worshipped as Harihara, a combined form of Vishnu and Shiva. The temple represents the quintessence of the Kalinga architecture, culminating the medieval stages of the architectural tradition at Bhubaneswar. The temple is believed to be built by the kings from the Somavamsi dynasty, with later additions from the Ganga rulers.



Jagannath Temple

The coastal town of Puri enshrines Lord Jagannath in this colossal temple. It is one of the Char Dham pilgrimages that one is expected to cover at least once in his lifetime. The temple is world-famous for its annual chariot festival or Rath Yatra, in which the three principal deities are pulled on huge and elaborately decorated temple cars. Unlike the stone and metal icons found in most Hindu temples, the image of Jagannath (which gave its name to the English term ' juggernaut') is made of wood and is ceremoniously replaced every twelve years.



Sun Temple

Designed in the silhouette of a gigantic chariot along with seven horses and twenty-four wheels, this entire temple was conceived as a chariot of the Sun God. It reflects the remarkable genius of architects that envisioned and went through with it. A UNESCO World Heritage Site, the precision and intricacy of its sculptural work is worth seeing.

Art Culture of Odisha

Pattachitra (Cloth Painting)

Literally, 'Patta' means cloth and 'Chitra' means picture. The themes and motifs are mythological, typically revolve around the jagannath and Vaishnava sect. Lord jagannath and Krishna-Radha paintings are a favourite among buyers. Since it is a traditional art-form, the Chitrakara's (painter) very home is his own studio where his family members act as helping hands. The final painting is rendered in the form of a design on a canvas with decorative borders. Sometimes, palm-leaves are also used to form the canvas.





Rock Paintings

Rock art in Odisha dates back to the prehistoric period according to the earliest reports found at Viramkhol in Jharsuguda district. With the reign of Ashoka the great, Buddhist sculptural art gradually changed the degree of Odisha's artistic flair. Even today, the caves of Ratnagiri, Lalitgiri and Udaygiri have not faltered to showcase the wonderful legacy of sculptural brilliance that some of our finest carvers left behind. Buddhist rock carvings at Ratnagiri



Sand Art

With clean, fine-grained sand and water as its raw materials, this is an indigenous form of art. It is practised on the beaches of Puri with subjects ranging from Hindu deities to international occasions. With the help of tourism, this art-form has developed exponentially and found worldwide recognition.

Sand art by legendary sand artist Sudarshan Patnaik

Silver Filigree

Locally known as 'Tarakasi', this art form is about 500 years old. It hails from Cuttack, the Silver City of Odisha. The process consists of drawing silver through a series of consecutively smaller holes to produce fine strands of wire. Usually, Tarakasi

jewellery is used to embellish Durga idols during Durga Puja in Cuttack and adorned by Odissi dancers.

Appliqué Work

This is a famous fabric craft originating from a village called Pipili where locals call it 'Pipili Chandua Kama'. Unknown to many, Pipili holds an entry in the Limca Book of Records for the world's largest thematic applique work. Like Pattachitra, appliqué work also originated as temple art, essentially limited to umbrellas and canopies to be used in the annual Rath Yatra. Nowadays, its usage is more in the household, decorative and festival products. The craft involves embroidery and stitching with occasional mirror work.



Traditional Pipli Appliqued Umbrellas

Brass and Dhokra Works

A 4000-year old craft form, Dhokra is a casting method that combines metallurgical skills with wax techniques. It is a bell metal tribal craft that uses an alloy of tin and copper or brass and zinc. Various utility items including utensils, pots and pans, lamps and even tribal jewellery are fashioned out of it.

Dance

Originally performed by Devadasis, Odissi bears the closest resemblance to temple culture than any other existing form of dance. It traditionally depicts the divine love between Lord Krishna and his consort Radha, drawing inspirations from the lyrical compositions of poet Jayadeva. The dance basically involves a mythical story, symbolic costumes, abhinaya (expressions), mudras (gestures) and is extremely graceful.

Other Important Dance Forms include

Chhau

This is a form of tribal martial dance that originated in Mayurbhanj. Two groups of dancers armed with swords and shields, alternatively attack and defend themselves with vigorous movements and elegant stances all to a background music noted for its rhythmic complexities and vigorous percussion.

Dalkhai (Sambalpuri)

There are many other forms of Sambalpuri dance but Dalkhai is the most famous one. It originated in the tribes of Sambalpur and is continued to be performed especially in festivals like Dussehra.

Heritage of Handloom in Odisha

Textile of Odisha is a reflection of its cultural ethos with intricate weaves giving it a distinct personality. The thread work, motifs and vibrant colours make them rich and desirable.

Some Famous Textiles of Odisha

Sambalpuri - Sambalpuri sarees particularly are known for the utilization of traditional themes taking after its relationship with this shoreline state, for example, Sankha or shell, phula or flower, and chakra or wheel, swans, fish.

Ikat









Bomkai Silk

Woven on a pit loom, Bomkai, which is also known as Sonepuri, is an extraordinary fabric that results from the confluence of two extremely popular components of the Orissa textile industry. It is an outcome of lkat and embroidery interwoven into each other.

Berhampuri Paata

Berhampuri Saree or Berhampuri Patta is a GI product from the Silk City of India, Berhampur in Orissa.

Khandua Paata



It is a traditional hand-woven saree woven on wooden looms using pure tussr yarns. Khandua Sarees (Maniabandi or Kataki), dedicated to Lord Jagannath of Puri Dham, one of the sacred places of India, dates back to the 12th century.

Kotpad

Kotpad Sarees are vegetable-dyed fabric weaved by the tribal Mirgan community of Kotpad village in the Koraput district of Orissa. These are usually cotton sarees with solid borders and pata anchal. The ingredients for the rich textures are aul (madder) tree roots, tussar silk, and cotton yarns.

Habaspuri

The kondha weavers from Chicheguda, Kalahandi district are attributed to the weaving of this exquisite piece. It has taken its name from the Habaspur village where it was originally woven during the 19th century.

Saktapar/Pasapali



Pasapali or Saktapar Sarees are one variant of the Sambalpuri sarees of Orissa. They are mainly weaved in the Bargarh district. 'Pasapali' comes from the word 'pasa' meaning chess or gambling games using a chessboard. Hence, they have detailed chequered patterns of different variety and color combinations.

Compiled by

Dr Jharna Behura

MD, FRCOG UK Senior Consultant O&G Kasturba Hospital Delhi-110092







Empowering the Youth.. Pratisandhi Foundation



Dr Seema Sharma DGO, MD, FICOG, FRCOG Director, Srishti Fem Care Senior Consultant, Apollo Cradle and Cloud9

Pratisandhi Foundation is a youth-led nonprofit organization working towards sexual health and education in India. It was cofounded by myself and MsNiyati Sharma. Our mission is to make judgement-free and medicallyaccurate sexuality education accessible for adolescents and young adults across India. We want to empower the youth to make informed decisions about their sexual health without fear. Pratisandhi began in 2018 and has since impacted over 15,000 individuals through educational interventions and community awareness drives. Pratisandhi currently has a network of 100+ volunteers pan-India having committed over 50,000 volunteer hours.

https://www.pratisandhi.com









North Zone Activities (July 2021- November 2021)

S. No	Academic Activities/Events	Venue	Date/ Time
1.	Panel discussion: Breast feeding with FOGsd and Lady Irwin College, Delhi University	Virtual	4.8.2021
2.	Advances in Sexual Health	Virtual	14.8.2021
3.	MRCOG Part 2 Course on Weekly Basis Spread Over 20 Weeks	Virtual	15.8.2021
4.	Workshop on Ovum Pickup and Embryo Transfer	Virtual	19 & 26.9.2021
5.	AICC RCOG Master Class Series: Maternal Fetal Medicine	Virtual	04.07.2021
б.	AICC RCOG Master Class Series: Obstetrics	Virtual	01.08.2021
7.	AICC RCOG Master Class Series Urogynaecology and Pelvic Organ Prolapse	Virtual	05.09.2021
8.	Best Paper Presentations of 34 th Annual AICC RCOG Annual Conference 2021	Virtual	15.10.2021
9.	OI and COS: Current Perspective (AICC RCOG NZ Pre Congress Workshop)	Virtual	18.11.2021





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Welcoming Everyone to the AICC RCOG NZ **Annual Conference, 2021**

Royal College of Gynaecologists

Obstetricians & AICC RCOG North Zone **Annual Conference (Virtual)**

Registration free but Mandatory

Theme: Recent Updates in Obstetrics & Gynecology Practice

Date: 12th December 2021, Sunday- 01:00 - 08:00 pm

Registration / Viewer's Link: https://bit.ly/NZAnnualConference2021

India North



Dr Ranjana Sharma Organising Chairperson, RCOG NZ



Dr Anita Kaul Organising Vice Chairperson, RCOG NZ



Dr Shelly Arora Organising Secretary, RCOG NZ



Dr Mamta Dagar Organising Secretary, RCOG NZ



Dr Gayatri Juneja **Organising Joint** Secretary, RCOG NZ



Dr Pulkit Nandwani Organising Joint Secretary, RCOG NZ

Scientific **Brochure**

Abstract Submission till 28th November 2021

SCIENTIFIC PROGRAM 12th DECEMBER 2021

TIME		HALL A	HALL B
1:00 - 1:10 PM	WELCOME ADDRESS		
1:10 - 1:30 PM	Chairpersons	Dr Narendra Malhotra Dr Seema Thakur Dr Kaberi Banerjee Dr Chanchal Singh	Dr Reva Tripathi Dr Kiran Guleria Dr Ashok Kumar Dr Sweta Gupta
	Торіс	Thrombophilia & Heparin use in miscarriage - is it time to stop?	PCOS- Long term consequences
	Speaker	Dr Hassan Shehata, UK	Dr Adam Balen, UK
1:30 - 1:40 PM	Audience Interaction		
1:40 - 2:00 PM	Chairpersons	Dr Jaideep Malhotra Dr Poonam Tara Dr Surveen Ghumman Dr Tanya Buckshee	Dr J B Sharma Dr Amita Jain Dr Sandhya Jain Dr Monika Gupta
	Торіс	Preventing and Managing Miscarriage	POP with and without Urinary Incontinence: Choosing the right Surgery
	Speaker	Dr Arri Coomarasamy, UK	Dr Ajay Rane, Australia
2:00 - 2:10 PM	Audience Interaction		
2:10 - 2:30 PM	Chairpersons	Dr Uma Ram Dr S N Basu Dr Sushma Sinha Dr Sangeeta Gupta	Dr Sonia Malik Dr Mala Srivastava Dr Meeta Singh Dr Dinesh Kansal
	Торіс	IOL at 39 weeks for Nulliparous women- How to Counsel?	The Current use of HRT: should more women use HRT?
	Speaker	Dr Tony Tan, Singapore	Dr Mary Ann Lumsden, UK
2:30 - 2:40 PM	Audience Interaction		
2:40 - 2:50 PM	Mobility Break		
	INAUGURATION		
2:50 - 3:20 PM	Chief Guest Dr Ranee Thakar		
	Guests of Honour Dr Urmil Sharma, Dr Bhaskar Pal, Dr Achla Batra, Dr Hrishikesh Pai		

	KEY NOTE ADDDESS			
3:20 - 3:50 PM	Chairpersons	Dr Ranjana Sharma, Dr U P Jha, Dr Alka Kriplani, Dr Suneeta Mittal		
	Торіс	Management of women at increased risk for ovarian cancer - current status and future strategies		
	Speaker	Dr Usha Menon, UK		
3:50 - 4:00 PM		Audience Interact	ion	
4:00 - 4:10 PM	Mobility Break			
4:10 - 4:30 PM	Chairpersons	Dr Aruna Nigam Dr Madhu Goel Dr Indu Chawla Dr Jyotsna Suri	Dr MM Samsuzzoha Dr Priya Ganesh Dr Saritha Shamsunder Dr Pulkit Nandwani	
	Торіс	Assisted vaginal birth should be abandoned in the 21st Century	Genomic applicability for identifying women at increased risk of gynaecological cancer	
	Speaker	Dr Tim Draycott, UK	Dr Ranjit Manchanda, UK	
4:30 - 4:40 PM	Audience Interaction			
4:40 - 5:00 PM	Chairpersons	Dr Nirmala Agarwal Dr Tamil Selvi Dr Jayasree Sundar Dr Arbinder Dang	Dr Jyotsna Acharya Dr Madhu Ahuja Dr Ragini Agarwal Dr Priyata Lal	
	Торіс	Obstetric Anal Sphincter Injuries (OASIs) - Diagnostic tips and principles of repair	Enhanced Recovery After Surgery (ERAS)	
	Speaker	Dr Abdul Sultan, UK	Dr Suganya Sukumaran, UK	
5:00 - 5:10 PM	Audience Interaction			
5:10 - 5:30 PM	Chairpersons	Dr Manju Puri Dr Parag Biniwale DR Jaydeep Tank Dr Shweta Gupta	Dr Asmita Rathore Dr Sanjay Sharma Dr Anita Sabharwal Dr Gayatri Juneja	
	Торіс	Delivery of the second twin	Indian Standard of Care for transgender Population: Gynaecologists' approach	
	Speaker	Dr Julian Robinson, USA	Dr Mala Arora, India	
5:30 - 5:40 PM	Audience Interaction			
5:40 - 5:50 PM	Mobility Break			

	KEY NOTE ADDRESS			
5:50 - 6:20 PM	Chairpersons	Dr Anita Kaul, Dr Sohani Verma, Dr Pratima Mittal, Dr Kamal Buckshee		
	Торіс	Stillbirth: Prevention and improving Care		
	Speaker	Dr Alexander Heazell, UK		
6:20 - 6:30 PM		Audience Interaction		
	PANEL DISCUSSION			
6:30 - 7:30 PM	Торіс	Advancing FetoMaternal Care: Managing Pregnancies in High Risk Situations	Adnexal Masses at different stages of life	
	Experts	Dr Sandeep Guleria Dr Ratna Puri Dr Mohammad Asim Siddiqui	Dr Amita Suneja Dr Sandeep Mathur Dr Ekta Dhamija	
	Moderators	Dr Anita Kaul Dr Mamta Dagar	Dr Ranjana Sharma Dr Seema Singhal	
	Panelists	Dr Anjila Aneja Dr Uma Pandey Dr Neema Sharma Dr Jharna Behura Dr Jyoti Bhaskar Dr Akshatha Sharma	Dr Amita Maheshwari Dr Shalini Rajaram Dr Shelly Arora Dr Meena Naik Dr Vinita Jaggi Dr Sarika Gupta	
7:30 - 7:40 PM	Audience Interaction			
7:40 - 7:50 PM	Vote of Thanks			

AICC RCOG NZ Annual Conference Workshops



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Royal College of Obstetricians & Gynaecologists

International Representative Committee

AICC RCOG North Zone Annual Conference 12th December, 2021

Theme

Recent Updates in Obstetrics & Gynecology Practice

Abstract Submission closes on 28th November 2021

Grand

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Some Fun, Some Academics..



WORKSHOP ON OVUM PICK UP A NEW DELHI UNDER AEGIS OF AICC





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HALL - A









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Royal College of Obstetricians & Gynaecologists

India North International Representative Committee

Committed to Women's Health

Thank You

"Hope is the thing with feathers that perches in the soul And sings the tunes without the words And never stops at all."

- Emily Dickinson

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