March 2023

embrACE

Nurturing the bond between the Indian Embryologists

The official newsletter of the Academy of Clinical Embryologists, India

Artist : Emb Ramya Nayak B, Oasis Fertility Clinic, Secunderabad

embrACE

Volume 16, March 2023

Contents

PRESIDENT'S MESSAGE

Since change is unavoidable, we must face the difficulties that come with it. Adapting to novel scenarios is undoubtedly challenging, but those who are willing to modify as necessary, who are eager to learn and stay current, will only succeed and advance in their skills.

The ART community in our nation is facing many of these difficulties as a result of the ART and Surrogacy Regulation Bills that were presented and put into effect last year. The lack of concern shown by state and local authorities might make the situation much worse.

However, I have high hopes for my fellow clinical embryologists and IVF specialists in this country. There could be a few glitches at first, but after the water settles, everything will become more lucid and efficient.

Artificial intelligence is now present in every aspect of life, which is another significant shift this decade has brought about. This is also applicable to our field. But keep in mind that nothing can ever replace human knowledge. The technology is available to assist us, and we can only do this if we stay current on improvements.

Those who are currently working in the industry also need to refresh and improve their abilities.

By planning and developing our academic activities with an eye on future developments and technical/technological shifts in the field of reproductive medicine, ACE aims to support its members and the ART fraternity as a whole in the coming years.

We attended an extraordinary intellectual feast prepared by the Team Delhi of ACE last September. I must applaud the team's leaders, Drs. Ved Prakash and Gaurav Majumdar, for pulling off such a spectacular performance and setting a new standard.

Additionally, I want to thank the recently appointed ACE management committee. With their devoted efforts, I have no doubt that ACE will grow to new heights.

Dr. Rajvi Mehta and the ACE Newsletter editorial team, which also includes Drs. Rahul Sen and Sanketh S. Dhumal, deserve special recognition for their tireless efforts in gathering information, selecting, writing, editing, and inspiring young people to actively participate in the publication of this newsletter. They are always coming up with fresher concepts to liven up dry scientific education.

I send my warmest wishes to all of you.

Regards
Dr Sanjay Shukla

Secretary's message

Dear ACEians

After a highly successful annual congress at New Delhi, 2022, ACE is now gearing up for an eventful 2023, a year which promises to be an exciting year full of new initiatives and numerous academic activities planned. After the long COVID induced hiatus, as things finally seem to be coming back to normalcy, we endeavour to have regular physical meetings and focused events with curated content not just in traditional topics of interest for embryologists but some new areas such as Data Management and KPI's, practical quality control etc. This time, we will also try to venture into smaller and newer cities in different parts of India, so that can meet and share our knowledge and experiences with as many embryologists as possible.

I would like to congratulate Dr. Rajvi Mehta and her young liutenants Dr. Sanketh Dhumal and Dr. Rahul Sen for bringing out yet another stimulating newsletter which promises to be an engaging and interesting read. Amongst numerous things, the newsletter will feature a conversation with Dr. Yona Barak, the founder chair of Alpha Society of Reproductive Medicine. The newsletter also contains snippets from the latest papers related to basic science and ART, as well as a Journal club and a couple of interesting paper reviews.

Wishing all ACEians, a very happy and productive new year

And Happy reading

Dr. Gaurav Majumdar

Secretary

Academy of Clinical Embryologists

EDITORIAL

This is the 16th issue of the ACE newsletter which now has a name - EmbrACE. This name has been selected with deep thought as the name represents who we are, what we do and what we look forward to doing.

EmbrACE is the official newsletter of the Academy of Clinical Embryologists.

EmbrACE reflects the attitude of a clinical embryologist who nurtures human life at its start so that nature can progress unhindered. For us it is not nature vs nurture but both working in unison. An opportunity and responsibility which no other profession gives.

EmbrACE nurtures the bond between the Indian Embryologists where juniors and seniors both share many things with each other. Where seniors share their experiences while juniors spread their enthusiasm. Where juniors share their knowledge and seniors their wisdom.

We hope that our community grows intellectually as well as emotionally - where the 6 Hs come together - our hands, head and heart combine to work together to deliver the three Hs -a healthy embryo leading to a healthy baby and a happy family.

Regards

Rajvi H Mehta

Dialogue

In conversation with Dr Yona Barak, Israel

Dr Yona Barak, from Israel, is one of the senior-most embryologists in the world. She has been researcher, Director of Embryology at Tel Aviv Medical Centre and Herzilya Medical Center and is now owner and director of Dr Yona Barak Laboratories Ltd. She has set up ART laboratories across the world - USA., Germany, Czech Republic, Lithuania, Cyprus, Dominican Republic, India, Ukraine; Russia, Belarus and Poland. She was one of the founder members of Alpha, the international society of Clinical Embryologists.

Dr. Rajvi Mehta, our editor had an informal chat with Dr Yona Barak about herself and her experiences. We reproduce excerpts from an edited transcript of that interview.

How did you get interested in reproductive biology?

I was always in love with science. During my initial years in my BSc, I used to work on plant disease, I also was meaning to do my Masters on plant disease but during an exam I happened to meet one of the Professors of reproductive medicine. We started talking I got so excited and did my Masters and PhD under him. Call it destiny. He was working on in vitro oocyte maturation, I got fascinated by their work and I made up my mind for going in this field.

How did you become an embryologist and end up setting up your own lab apart from the research field?

IVF is one of the unique areas where scientists and clinicians work together. In the Bible it is mentioned that God created the world in 6 days and then on the sixth day he made men and women with the gift of fertility. Working in such a field where I utilise science and technology to help people to bear children is something I feel grateful for.

As you said about the Bible and religious views did you ever had any opposition from religious orthodox societies?

Yes, we did have problems in the beginning but it wasn't religious one. The problem was the couples were worried if there oocytes will get mixed up. So we had to give them the full inspection of our lab so that they were relieved about it.

How did you feel when an outsider witnessed your working in the lab?

It was first published in the papers that we prevent the mixing of oocytes but I thought it was unnecessary. In the lab embryologists had to perform many steps so the mixing of oocytes is the rarest thing that can happen in the lab. To respect the decision of the patients we allowed them into the lab.

How was your experience in moving to different cultures while setting up labs in different parts of the world?

It was really good while I was moving from country to country. I also got to know about different cultures and traditions

What was the reason for setting up labs in Poland?

My roots are actually connected to Poland as my father was born there and my mother's Israeli. So I wanted to be connected with my roots and make my father proud due to which I set up labs in Poland.

What do you feel about the different work cultures in different countries?

While working in different countries the language was the main barrier but I respected different cultures and it made my work easier.

Of all your travels is there any particular place that you have liked the most?

I don't have a specific one as I have loved all the places that I have visited. But if you want one then it's going to be India!

What is it that you like so much about India?

I love everything about India the people, the food, their culture and their tradition. I even cook Indian food at home some days.

Do you think of technologies that can help us in the future picking up the right sperm?

It is a kind of dream for now. Choosing sperm manually does take a lot of training, equipment and effort. While working once it took me 9 hours to find seven sperms which was really difficult and tiresome.

Would you like to share about your work in replacing PVP with hyaluronic acid?

PVP is made from silica particles and PVP was expected to cause some alternations in the DNA of oocyte. Using Hyaluronic acid can prevent this as it contains sugars that the cell can digest and I love to perform ICSI that way.

At a point of time, I have heard that IVF treatment was free in Israel. Would you like to put some light on it?

in Israel we had this insurance policy that used to cover the IVF treatment. It had an age limitation of 45 years for females. The couples can go for free cycles till they have two children.

Is there any specific reason why so many people are going for IVF treatment in Israel considering the population?

As you know the treatments are free so it gives opportunity to people to go for it.

Do you have any advice for the new generation of embryologists?

I would like to give the young embryologist advice of working with the heart. You need to know what's happening inside the dish. Once you get to know that then you are all set for working and trouble shooting.

What keeps you going in this field?

For me investigations and research in science is very interesting. When patients call and come to thank me about their pregnancy it really makes me excited. The pictures of oocyte and sperm under the microscope under the screen are really exciting.

Transcribed By: Em. Adyasha Senapati, Dr. Rahul Sen

The entire interview can be viewed on: https://www.youtube.com/watch?v=xNkLNRbryNk

Journal Club

Birefringence properties of human immotile spermatozoa and ICSI outcome

- Christina, Magli et al, RBMOnline 2022.

Summarised by : Dr. Parvathi Devi Tatapudi

Introduction:

Asthenozoospermia, a decreased or absence of sperm motility in the ejaculate, is a cause of infertility. It is a complex disorder whose aetiology is linked to intrinsic and extrinsic factors (Chen et al.,2022). In its most severe form, a condition known as complete asthenozoospermia, where motility is totally lacking, making it impossible for the sperm to reach and fertilize the oocyte. Absence of sperm motility is also very common in surgically retrieved samples, both from the epididymis and from the testis. For patients with this condition, ICSI represents the only option to achieve fertilization, embryo development and live births. However, the injection of immotile spermatozoa has been shown to have a negative impact on fertilization and embryo development, although the implantation of the resulting embryos was not decreased (Bartolacci et al., 2018; Mazzilli et al., 2017; Sathananthan et al.,1996). With the aim of avoiding the injection of necrotic spermatozoa in the absence of sperm motility, several strategies have been proposed, including exposure to pentoxifylline, hypo-osmotic swelling test, laser assisted sperm selection, magnetic activated cell sorting and polarization microscopy (reviewed by Ortega et al., 2011

Recently it was also shown that analysis of the sperm head birefringent patterns permits discrimination between cells with an intact acrosome from those that have already completed the acrosome reaction. As already described, sperm cells with a total birefringent head have an intact acrosome, whereas those with a partial birefringence localized in the post-acrosomal region have already undergone the acrosome reaction (Gianaroli et al., 2010). Preliminary studies supported the use of polarization microscopy during ICSI in the case of samples with total asthenozoospermia, with the best results achieved when injecting sperms that had already completed the acrosome reaction

(Gianaroli et al., 2008, 2010,).

The current study documents the experience derived from the selection of immotile spermatozoa based on their birefringence properties. Both ejaculated samples and testicular samples with total asthenozoospermia were included.

Materials and methods

Patients: A total of 192 consecutive ICSI cycles from 156 patients were included in the study. All patients had a normal karyotype and the mean female age was 34.9 +/- 4.4 years. A severe male factor was indicated as the main cause of infertility. Ejaculated sperm samples with complete asthenozoospermia were used in 83 cycles, and cryopreserved testicular spermatozoa in 109 cycles with non-obstructive azoospermia (World Health Organization, 2021). In all samples, there was a total absence of sperm motility. Using polarized microscope sperm cells were scored to identify those with a birefringent head with the 40 X objective, but the 63 X objective was used for a more detailed morphological analysis.

Three main patterns of sperm head birefringence could be seen

- Total birefringence: indicative of the presence of an intact acrosome
- Partial birefringence (localized in the postacrosomal): spermatozoon that had undergone the acrosome reaction(Gianaroli et al., 2010).
- Total absence of birefringence

Before assessing the birefringence pattern, each sperm was repeatedly rotated to exclude any influence by the relative position between the spermatozoa and the light source.

After Ovarian stimulation and ovum pick up . ICSI was performed after 4-6 hours of incubation of oocytes. Approximately 16 hours after ICSI oocytes were observed for presence of PN, were scored 64 hours for number and morphology of nuclei and blastomeres, and percentage of fragmentation, were recorded (Alpha Scientists in Reproductive Medicine and ESHRE Special Interest Group Embryology, 2011). Embryos with regular morphology and development were selected either for transfer or cryopreservation.

The primary outcome of the study was the cLBR per ICSI cycle. Secondary outcome measures were clinical pregnancy rate per embryo transfer, implantation rate and miscarriage rate.

Results:

Almost half of testicular samples had nonbirefringent cells (45.9%), whereas in ejaculated samples, this proportion was significantly lower (20.5%, $P < 0.001$). Seventy-three deliveries resulted with 38.0% cLBR per ICSI cycle. The injection of birefringent spermatozoa led to significantly higher rates of fertilization, embryo development and implantation compared with the absence of birefringence ($P < 0.001$). Similarly, the resulting cLBR were 53.6% and 9.0%, respectively ($P < 0.001$). Spermatozoa with partial head birefringence yielded significantly higher fertilization and embryo utilization rates compared with total birefringence. The cLBR showed the same trend (62.7% and 46.7%, respectively, $P = 0.048$). Multiple logistic regression analysis showed the pattern of partial birefringence to be strongly associated with live birth rate.

Conclusions:

When exposed to polarised light, immotile sperm cells that exhibit birefringence have a greater chance of triggering fertilisation and embryo development than non-birefringent cells. Additionally, in both ejaculated and testicular samples, a pattern of partial birefringence connected to a reactive acrosome is the most powerful predictor of live birth delivery.

Opinion - Utility of the HOS Test

- *Dr.G.Shiva Krishna, Virinchi Hospitals, Hyderabad*

Hypo-osmotic swelling (HOS) test is a sperm functional test which is used for checking vitality of spermatozoa where the motility of the spermatozoa is diminished1. HOS Test helps in identifying immotile viable spermatozoa in Kartagener's syndrome, Immotile cilia syndrome, Complete Asthenozoospermia and in patients of Azoospermia where they have undergone Testicular biopsy procedures like TESE, TESA and MICRO TESE1, 2. Azoospermia accounts for 20% of the male infertility cases and 1 in 20000 men suffer from kartagener's syndrome2, 3.

HOS test helps in identifying immotile vital spermatozoa and Intra Cytoplasmic Sperm Injection (ICSI) is done in cases of Infertility with the above conditions. Fertilization rates are 75 % with Normozoospermia whereas fertilization rates are 43% with HOS subjected spermatozoa - which is quite low 4, 5. It is not clear if the low fertilization rates are because of the underlying pathology causing the condition or due to the injection of an apoptotic spermatozoon. HOS test cannot distinguish between Non apoptotic spermatozoon and Apoptotic spermatozoon. Some cases are quite unpredictable as there are cases reported with complete fertilization failure3. Low fertilization rates results in low clinical pregnancy rate as there are lack of embryos due to low fertilization rates.

One of the possible causes could be the limitation of HOS test as it can detect the cell which has undergone Necrosis but not Apoptosis. HOS test is a vitality test based on the plasma membrane integrity. Coiling of tail shows vitality as plasma membrane integrity is maintained and uncoiling of tails indicates dead spermatozoa when subjected to hypo-osmotic conditions (150mosm)1, 6. Apoptosis is a programmed cell death where the plasma membrane integrity is maintained.

White et al. have revealed some of the ultra-morphological characteristics of an Apoptotic cell7. These characteristics are: (1) electron-dense nucleus (marginalization in the early phase); (2) nuclear fragmentation; (3) intact cell membrane even late in the cell disintegration phase (4) disorganized cytoplasmic organelles; (5) large clear vacuoles; and (6) blebs at the cell surface. As apoptosis progresses, these cells will lose the cell-to-cell adhesions and will separate from neighboring cells. During the later phase of apoptosis, the cell will fragment into apoptotic bodies with intact cell membranes and will contain cytoplasmic organelles with or without nuclear fragments. Phagocytosis of apoptotic bodies can also be appreciated with TEM.

The function of Hypo-osmotic swelling test therefore is of concern. We hypothesize that immotile spermatozoa after subjecting to Hypo-osmotic swelling test cannot differentiate apoptic spermatozoa.

References:

1. G.Shiva Krishna, N.Pandiyan. A New Simple test for checking vitality of spermatozoa. Chettinad Health City Medical Journal 2015; 4(1): 24 – 27.
2. Gamze Sinem, Kubilay, Akarasu Eran Ahmet Zeki, Cem . Kartagener's Syndrome and Intracytoplasm›c Injection of Ejaculated Immotile Spermatozoa Selected by Hypo-Osmotic Swelling Test. J Turkish Assoc, Vol. 8(2); -German Gynecol 2007:211-214.
3. Jisun Lee et al. Effect of in vitro outcomes: an experience at a single university hospital testicular spermatozoa culture on pregnancy . Univ J Med 2021;38(1):53-59.
4. Edson Borges et al. Fertilization and pregnancy outcome after intracytoplasmic injection with fresh or cryopreserved ejaculated spermatozoa. Fert Ster 2007;87:316 –20.
5. Hassan N.Sallam etal. The use of the modified hypo-osmotic swelling test for the selection of immotile testicular spermatozoa in patients treated with ICSI: a randomized controlled study.Human Reproduction 2005;20:12.
6. R S Jeyendran, H H Van der Ven, M Perez-Pelaez,B G Crabo, L J D Zaneveld. Developmen of an assay to assess the functional integrity of the human sperm membrane and its relationship to other semen characteristics. Journal of Reproduction and Fertility 1984; 70:219-228.
7. White MK, Cinti C. A morphologic approach to detect apoptosis based on electron microscopy. Methods Mol Biol 2004;285:105–11.
8. Susan Elmore. Apoptosis :a review of programmed cell death .pub med 2007;35(4):495-516.

ART Law Update
Jan 24, 2023 notification

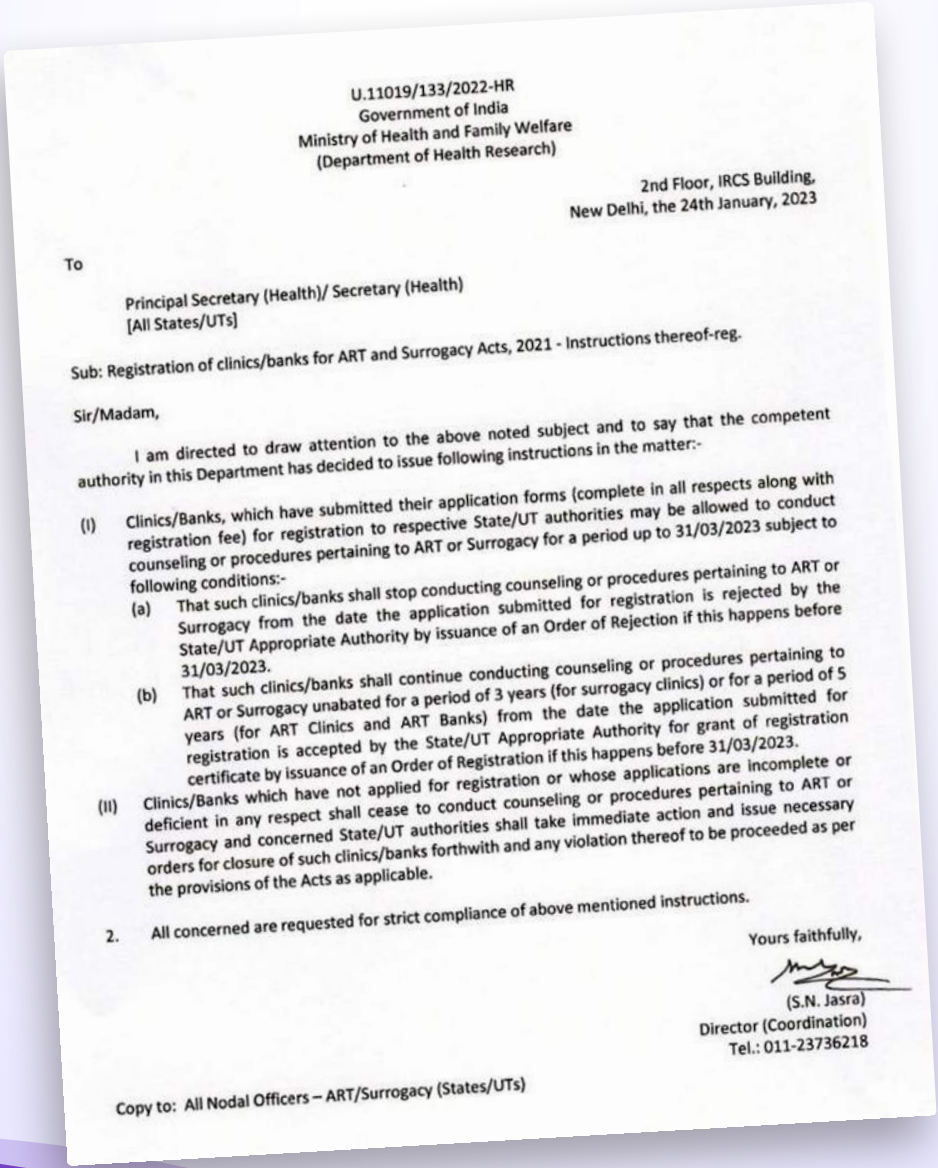
The notification issued on dated 24th January 2023 by Government of India, Ministry of Health & Family Welfare (Department of Health & Research) stated and drew attention regarding the instruction for registration of clinics and banks for ART. It states the clinics/ banks which have submitted their application forms for the registration to respective state/ UT authorities may be allowed to conduct counseling or procedures pertaining to ART & surrogacy for a period of up to 31st march subjected to following conditions –

That such Clinics/ Banks shall stop conducting counseling or procedures pertaining to ART or surrogacy from the date the application submitted for registration is rejected by the State / UT AA by issuance of an order of rejection if happens before 31st March, 2023.

That such clinics/ Banks shall continue conducting counseling or procedures pertaining to ART or surrogacy unabated till the period registration is accepted by the State/ UT AA for grant of registration certificate.

Clinics/ Banks who have not applied for registration or whose application are incomplete or deficient in any respect shall cease to conduct counseling or procedures pertaining to ART or surrogacy and concerned State/ UT AA shall take action and issue necessary orders for closure of such Clinics/ Banks.

All concerned are requested for strict compliance of above-mentioned instructions.



U.11019/133/2022-HR
Government of India
Ministry of Health and Family Welfare
(Department of Health Research)

2nd Floor, IRCS Building,
New Delhi, the 24th January, 2023

To

Principal Secretary (Health)/ Secretary (Health)
[All States/UTs]

Sub: Registration of clinics/banks for ART and Surrogacy Acts, 2021 - Instructions thereof-reg.

Sir/Madam,

I am directed to draw attention to the above noted subject and to say that the competent authority in this Department has decided to issue following instructions in the matter:-

(I) Clinics/Banks, which have submitted their application forms (complete in all respects along with registration fee) for registration to respective State/UT authorities may be allowed to conduct counseling or procedures pertaining to ART or Surrogacy for a period up to 31/03/2023 subject to following conditions:-

(a) That such clinics/banks shall stop conducting counseling or procedures pertaining to ART or Surrogacy from the date the application submitted for registration is rejected by the State/UT Appropriate Authority by issuance of an Order of Rejection if this happens before 31/03/2023.

(b) That such clinics/banks shall continue conducting counseling or procedures pertaining to ART or Surrogacy unabated for a period of 3 years (for surrogacy clinics) or for a period of 5 years (for ART Clinics and ART Banks) from the date the application submitted for registration is accepted by the State/UT Appropriate Authority for grant of registration certificate by issuance of an Order of Registration if this happens before 31/03/2023.

(II) Clinics/Banks which have not applied for registration or whose applications are incomplete or deficient in any respect shall cease to conduct counseling or procedures pertaining to ART or Surrogacy and concerned State/UT authorities shall take immediate action and issue necessary orders for closure of such clinics/banks forthwith and any violation thereof to be proceeded as per the provisions of the Acts as applicable.

2. All concerned are requested for strict compliance of above mentioned instructions.

Yours faithfully,

(S.N. Jasra)
Director (Coordination)
Tel.: 011-23736218

Copy to: All Nodal Officers – ART/Surrogacy (States/UTs)

Update on Boards and Appropriate Authorities

List of Boards & Appropriate Authority Formed (as of) FOR MORE DETAILS VISIT: https://artsurrogacy.gov.in/			
DIVISION/ STATES	**BOARD**	**APPROPRIATE AUTHORITY**	**DATE OF FORMATION**
National	Yes	No	04.05.2022
Andhra Pradesh	Yes	Yes	11.07.2022
Arunachal Pradesh	Yes	Yes	01.07.2022
Assam	Yes	Yes	30.08.2022
Bihar	No	No	No
Chattisgarh	Yes	Yes	18.04.2022
Goa	Yes	Yes	05.08.2022
Gujrat	Yes	Yes	25.08.2022
Haryana	Yes	Yes	23.07.2022
Himachal Pradesh	Yes	Yes	14.09.2022
Jharkhand	Yes	Yes	25.8.2022
Karnatka	Yes	Yes	08.08.2022
Kerala	Yes	Yes	20.06.2022
Madhya Pradesh	Yes	Yes	26.05.2022
Maharastra	Yes	Yes	13.07.2022
Manipur	Yes	Yes	14.07.2022
Meghalaya	Yes	Yes	31.08.2022
Mizoram	Yes	Yes	10.03.2022
Nagaland	Yes	Yes	27.07.2022
Odisha	Yes	Yes	04.06.2022
Punjab	Yes	Yes	12.05.2022
Rajasthan	Yes	Yes	08.08.2022
Sikkim	Yes	Yes	19.11.2022
Tamil Nadu	Yes	Yes	07.06.2022
Telangana	Yes	Yes	15.06.2022
Tripura	Yes	Yes	19.1.2023
Uttar Pradesh	No	No	No
Uttrakhand	Yes	Yes	01.10.2022
West Bengal	Yes	Yes	06.07.2022
UNION TERITORRIES OF INDIA			
Chandigarh	Yes	Yes	3.8.2022
Andaman & Nicobar Islands	Yes	Yes	9.9.2022
The Government Of Nct Of Delhi	No	No	No
Dadra & Nagar Haveli, Daman & Diu	No	No	No
Jammu & Kashmir	No	No	No
Ladakh	No	No	No
Lakshadweep	No	No	No
Puducherry	No	No	No

For details : https://artsurrogacy.gov.in/
Compiled by Dr. Rahul Sen, Jaipur

Breaking ART News

- compiled by **Dr. Sanketh Dhumal Satya**

Study finds why many IVF embryos fail to develop?

Researchers at Columbia University Vagelos College of Physicians and Surgeons have found that most mistakes in DNA replication during cell division lead to chromosomal abnormalities in human embryos, which is a major cause of the failure of in vitro fertilization (IVF). These errors occur during the early phase of cell division, rather than during the final stage, as previously thought. Obstacles within the DNA's double helix cause duplication of the DNA to pause or stop, resulting in DNA breakage and abnormal numbers of chromosomes. These spontaneous errors can occur as early as the first cycle of cell division in human embryos. The researchers hope that further studies on DNA damage during replication will lead to methods to reduce the risk of genetic abnormalities and embryo attrition for patients undergoing IVF.

Reference: Katherine L. Palmerola et al, Replication stress impairs chromosome segregation and preimplantation development in human embryos, Cell (2022). DOI: 10.1016/j.cell.2022.06.028

Does an Embryo tells us the time?

The timing of polarization is crucial for proper embryonic development, and a new study from the laboratory of Caltech developmental biologist Magdalena Zernicka-Goetz has uncovered the signals that mouse embryos follow to initiate polarization. The study identified two important steps that are necessary for the correct timing of polarization in the mouse embryo: zygotic genome activation and the action of three specific factors (Tfap2c, Tead4, and RhoA) that work together to initiate polarization. The team also developed a quantitative model of the polarization process itself, which correctly matched microscope imaging of embryos. This research sheds light on the molecular mechanisms underlying embryonic development, which is critical for understanding how life begins. The team is now studying to what extent the polarization timing mechanism in the mouse embryo is similar to the analogous process in human embryos.

Reference: Meng Zhu et al. Developmental clock and mechanism of de novo polarization of the mouse embryo, Science (2020). DOI: 10.1126/science.abd2703

Do human embryos and cancer share the same starting fuse?

Scientists have developed a model of how the switch that initiates embryonic development works. The model suggests that the events that accompany fertilization act synergistically to switch on embryo gene expression. The team has extended the model to predict that the switch that begins embryo formation may also initiate cancer. The team has found that the switch in embryos involves genes called oncogenes that play key roles in cancer. Studying embryos will help us identify the embryonic switch and reveal how it is activated, which will show us where to look to illuminate the origin of cancer: the lighting of the blue touch paper. In due course, this promises to reveal new diagnostic markers that can be used to anticipate and prevent cancer.

Reference: Anthony C.F. Perry et al, The initiation of mammalian embryonic transcription: to begin at the beginning, Trends in Cell Biology (2022). DOI: 10.1016/j.tcb.2022.08.008

The Black Box behind Preimplantation Embryo Development

Researchers from KU Leuven, Babraham Institute, Radboud University, Ghent University and IMBA have discovered that the protein PRC2 regulates the first cell fate decision of embryonic development. This new insight into human development could help us to understand early pregnancy loss in the future. Our bodies contain hundreds of different cells that perform a wide variety of functions and are part of the different tissues and organs, but interestingly, each cell in our body contains the same DNA. Understanding the right switch is important as parts of the DNA are switched on or off to activate the correct genes at the right time. By using the blastoid model, the team has used stem cell embryo models to study how the human embryo grows during the first week of development.

Reference: Maarten Dhaenens, Integrated multi-omics reveal polycomb repressive complex 2 restricts human trophoblast induction, Nature Cell Biology (2022). DOI: 10.1038/s41556-022-00932-w. www.nature.com/articles/s41556-022-00932-w

Danger Zone - Embryos inadvertently destroyed

In May 2021, a fertility clinic in the US, performed ART followed by embryo biopsy for PGT-A for a couple. There were 7 embryos biopsied and the couple was updated about the development. They awaited the phone call to know how many of these were "normal" and they believed "their children were among those embryos."

They did receive the phone call but it was not to inform them about the number of normal embryos and the day of transfer. The call was to inform them that all the embryos were destroyed. How did that happen? It did not happen during biopsy or cryopreservation. It happened because the embryos dried up in the absence of oil.

The couple has sued the clinic and the case is in court. They have been offered another IVF cycle which the couple is ready to undergo but are "traumatised."

Comments :

It is appreciable that the Clinic was honest and forthright to the couple and told them the truth despite being aware of the consequence. They could have hidden it under some garb but they decided not to do so. That is commendable!

But how did this happen? How can one forget to add oil to a dish?

This was reported in the Washington post and therefore we do not have any technical details of the culture techniques. There are many human/technical errors possible in IVF - this is surely not one of them and indeed quite rare.

What do we learn from this…

- It is ideal to prepare culture dishes a day before so that the media is equilibrated under oil irrespective of whether one cultures in droplets or 4-well dishes or centre-well dishes. Then there is no
- Even if the medium had not dried out, it would still have been inappropriate culture conditions, with quite severe osmolality changes if one would have even transferred the embryos into culture medium not covered with oil.
- Even if one does open culture, wherein oil is not used, then the volume of the medium is quite a lot, nearly 0.7 ml or more, and the medium cannot dry off.
- It is most likely that the embryos were transiently transferred into culture medium following biopsy and then "forgotten"

Whatever the case, it turned out to be a disaster for the couple, the embryologist and the Clinic.

https://www.washingtonpost.com/nation/2022/04/21/ivf-clinic-destroyed-embryos-lawsuit/

Embryologists Creativity Corner

The touch of a miracle

Confined in solitude are these delicate hands
Moving swift yet soft, somehow steady and waft

Ever so ready to nurture, providing plenty to the new life's demands
As gentle as a mother's touch,
shielding the growing life from danger, their love is such

The hands wander off into a stream of tasks
Tightening knobs, pressing pipettes, adjusting masks

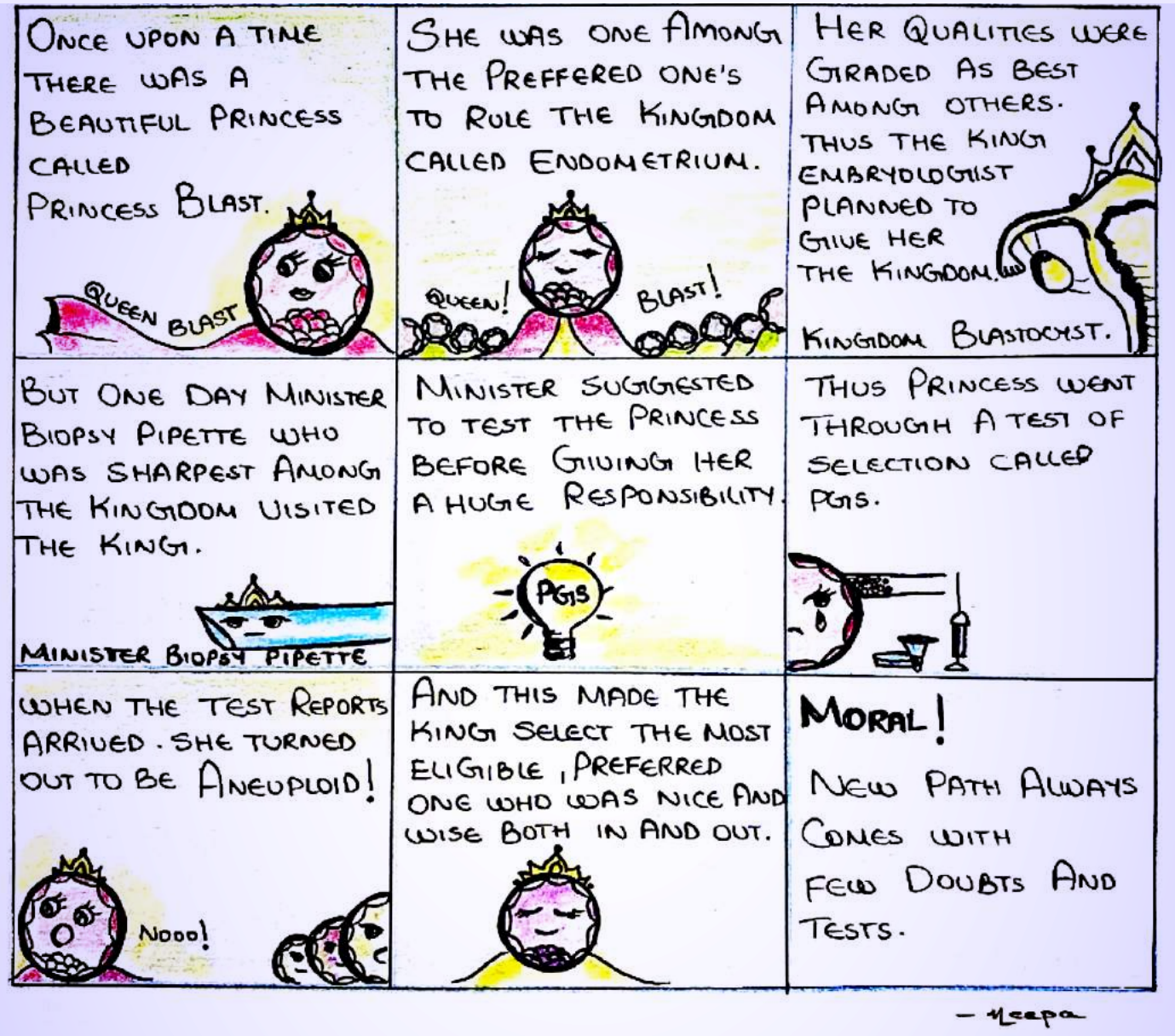
Every minute is spent with the utmost care,
harmonious is the moment that the new life and these hands share

In these hands is the destiny of new hope,
At times the hands get creased with failure, remember,
there is no time to mope

The hands that work this hard
Make happiness an Embryologist's part

- Vaibhavi Kulkarni, IIARTRC, Mysore

New Paths



- Neepa Lobo, Gunusheela Fertility, Bengaluru

11 INTERNATIONAL CONGRESS OF ACE 2023

ACADEMY OF CLINICAL EMBRYOLOGISTS, INDIA

BENGALURU, KARNATAKA

VENUE

Lalith Ashok Hotel, Bengaluru

22 23 24

SEPTEMBER 2023

10th International Congress of ACE 2022 NEW DELHI

Dr Bob Edwards oration was presented by Dr. Rima Dada (New Delhi) on Sperm - A Cell in Crisis - Impact on Embryo Development

Keynote presentation were delivered by Dr. Birol Aydin (Ukraine) on Risk Management in IVF Lab & Mattan Levi on New Technologies in The Next Generation IVF Lab

Inaugural program & Life Time Achievement Felicitation of Prof. Dr. M L Swarnkar

Dr Subhash Mukherjee oration was delivered by Dr Thomas Ebner on Safety Aspects of Artificial Oocyte Activation Reconsidered

Winners of oral and poster presentations at ACE 2022 NEW DELHI

ACADEMY OF CLINICAL EMBRYOLOGISTS, INDIA

11TH International Congress of ACE 2023

On 22nd, 23nd and 24th SEPTEMBER 2023

Welcome to Bengaluru

@ Lalith Ashok Hotel, BENGALURU

Founder President

Dr. M.S.Srinivas

Past Presidents

Dr. Alex C. Varghese

Dr. Charudutt Joshi

Dr. Varsha Samson Roy

Dr. Priya Kannan

Dr. Dakshinamoorthy Swaminathan

Dr. Ved Prakash

President

Dr. Sanjay Shukla

Vice President

Dr. Sujatha Ramakrishnan

Secretary

Dr. Gaurav Majumdar

Joint Secretary

Dr Sushil Kumar Chopra

Treasurer

Dr. Parasuram Gopinath

Joint Treasurer

Dr. Rajvi Mehta

Executive Members


Dr. Charulatha Chaterjee


Dr. Deepthi Repalle


Dr. Falguni Patro


Dr. Gaurav Kant


Dr. Harsha Bhadarka


Dr. Nagaraj Patil


Dr. Paresh Makwana


Dr. Pranay Ghosh


Dr. Rahul Sen


Dr. Sanketh Dhumal Sathya

Co-opted Members


Dr. Keshav Malhotra


Dr. Naval Shah


Dr. Nishad Chimote


Dr. Prabhakar Singh

Invited members


Dr. Akash Agarwal


Dr. Pankaj Kaingade


Dr. Sargunadevi

Follow ACE on

Become a Member

Become a member to participate and contribute to our activities :

- Lifetime membership Rs.5900/-
- Refer to https://www.theaceorg.in/membership/ for registration and membership benefits

Keep in Touch

ACE HEAD OFFICE

Mr Prakash, Academy of Clinical Embrologists India

#324, RD Complex, 2nd Floor, 8th main, 3rd stage,

Basaveshwarnagar, Bengaluru 79, India +91 7022914453

ace.embryo@gmail.com

Briogyn

Follitropin ALFA, with Auto-Pen

ZyhMG HP 75 150

Menotrophin

Naturogest

Natural Micronised Progesterone

zydus

Dedicated To Life