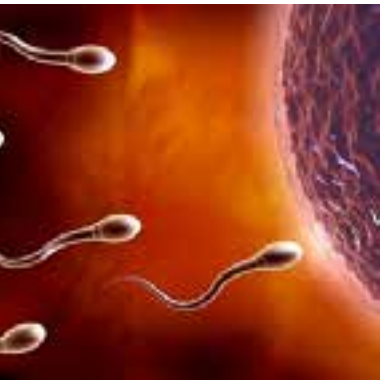
Scientific Tracks & Abstracts
November 02, 2017

Embryology 2017





World Congress on

Embryology and In vitro Fertilization

November 02-03, 2017 | Chicago, USA

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Is the cumulative live birth rate following *in vitro* fertilization (IVF) lower with provincial government coverage than prior to coverage?

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Introduction: To determine if there is a difference between the cumulative live birth rate per IVF cycle in good prognosis patients before and after IVF provincial coverage.

Background: Most studies conclude that the cumulative pregnancy rate depends on embryo quality and quantity, which is directly related to patient's age. In the best-case scenario, the cumulative pregnancy rate reaches 79% when the number of embryos reaches 15. Other studies reported 75% probability of live birth after six cycles of controlled ovarian stimulation and IVF.

Design of Study: Retrospective cohort study comparing IVF cycles between January 2008 to December 2009 (before coverage), and between January 2012 to December 2013 (during coverage).

Methodology: The study was carried out at a University-affiliated private IVF clinic. 298 good prognosis IVF patients from 2008-2009 and 610 patients from 2012-2013 were included. The cumulative LBR per IVF cycle was the main outcome measure; the secondary outcome measures were the type of protocol used, percentage of ICSI cycles, fertilization rate, proportion of day 3 versus (vs.) day 5 embryo transfers, average number of embryos transferred, average number of frozen embryos, the clinical pregnancy rate and the multiple pregnancies.

Results: No statistically significant difference in the cumulative LBR was seen; it was 44.8% in 2008-2009 but 40.3% in 2012-2013 with p=0.134. The long agonist protocol was used the most during 2008-2009 (75.5% of the cycles) compared to antagonist protocol in 2012-2013 (77.2%) p<0.01. There was no difference in the use of ICSI, but the fertilization rate in 2012-2013 (60.9% vs. 65.9%, p=0.001). The proportion of day 3 embryos transferred in 2008-2009 (82.2%) and 2012-2013 (43.9%), p=0.005, and the proportion of day 5 embryos transferred is 3.7% in 2008-2009 but 54.9% in 2012-2013, p<0.001. The average number of embryos transferred in 2008-2009 was 1.96 vs. 1.08 in 2012-2013. The average number of frozen embryos per cycle was not significantly different. The clinical pregnancy rate was not significantly different (56.8% vs. 54.3%). The multiple pregnancy rates were 19.4% in 2008-2009 and 0.5% in 2012-2013. In good prognosis IVF patients, the cumulative LBR per cycle started was not significantly different after IVF provincial coverage and the move towards eSET on day 3 or day 5. No advantage of transferring multiple embryos in this group of patients, and that transferring one at a time reduces significantly the multiple pregnancy rate and its complications.

Limitation & Conclusion: Not all of the patients have had all of their embryos transferred. The design of the provincial coverage influenced the management of the patients to a certain degree. Patients undergoing an IVF cycle will be able to know their CLBR from that cycle.

Speaker Biography

Dr Adwaa Khudhari is a Consultant in Obstetrics & Gynecology at Reproductive endocrinology & Infertility which is located at Jeddah, K.S.A

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The role of time-lapse monitoring during *in vitro* fertilization

Peter Kovacs
IVF Center, Hungary

Controlled ovarian hyper-stimulation is standard part of *in vitro* fertilization (IVF) treatment. Ideally it results in the retrieval of 10-15 oocytes that could give rise to the simultaneous developments of multiple embryos. Embryos are cultured under tightly controlled conditions that mimic the intra-tubal/intra-uterine environment. Removing them from this optimal environment compromises their development. Therefore, there is an important dilemma that the biologist faces that needs to be resolved. The embryologist would like to collect as much information as possible on the kinetic and morphologic changes that the embryos undergo but they also would like to keep them undisturbed as much as possible. Time-lapse (TL) embryo monitoring offers the solution. TL monitoring relies on the analysis of digital images taken by a camera that is either part of the incubator or is placed in a standard incubator. Time-lapse units come with custom-made software that creates a short film based on the images that can be analyzed without the need to take the embryos out of the incubator. This provides significantly more data on the kinetic and morphologic changes of early embryo development. This extra information could eventually be used to differentiate/rank the embryos. Over the past 6-8 years several groups collected morphokinetic data on embryos with known implantation outcome. Based on these markers various algorithms were proposed to identify the embryo with the highest implantation potential. External validation of these algorithms however has not been successful so far. In 2016 a new algorithm was built based on morphokinetic data of embryos with known implantation outcome from several independent clinics was published. It was suggested that this algorithm is universally acceptable. There are still only a few randomized controlled trials (RCT) that evaluated the full benefits of TL monitoring (undisturbed culture+algorithm based embryo selection). Most RCTs and their meta-analysis suggests improved clinical outcome when compared to outcome with standard daily morphologic assessment. During the presentation time-lapse technology, the key retrospective/prospective studies as well as the results of a meta-analysis based on the relevant RCTs will be discussed.

Speaker Biography

Peter Kovacs has graduated from the Albert Szent-Gyorgyi School of Medicine in Szeged, Hungary and then completed his OB/GYN and Reproductive Endocrinology and Infertility training at the Albert Einstein College of Medicine in New York. Subsequently, he was invited to join the largest Hungarian IVF Center, Kaali Institute, and in 2008 was promoted to become the Medical Director. In 2005, he earned a PhD degree for studies regarding the reproductive effects of diabetes. His current research interest is focused on stimulation protocols, predictors of IVF outcome, and the clinical benefits of time-lapse embryo monitoring. He has published 40 peer-reviewed papers and several book chapters; he was the co-editor of the first Hungarian textbook on infertility evaluation and treatment.

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Ex vivo study of effect of wireless telephone radiation on human sperm

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Infertility is a major health problem in developed countries, with about 14% of couples in reproductive age facing a problem of childbearing. In 40% of these couples, infertility is attributable to the male companion, along with the absence of clinical etiology, enabling scientists to implicate modern lifestyle and to investigate various environmental risk factors, including radiation. The use of wireless technology at domestic and professional areas has been increased exponentially in the last decades and users are exposed regularly to a variety of wireless communication technology devices (cell phones, tablets, Wi-Fi routers, DECT) during communication. This study focused on the effect of non-ionizing radiation (NIR) emitted by a base of cordless DECT-type phone in human spermatozoa and in particular the plausible radiation-induced changes in quality parameters, which characterize the fertilizing ability. For this purpose, samples of fresh sperm were obtained from healthy donors, of reproductive age and divided into two aliquots. One aliquot was continuously exposed to non-ionizing radiation (1880-1890 MHz), for one hour (E field value of 2.7 V/m) and the other served as the control sample and treated under the same conditions without the presence of radiation. Motility of spermatozoa was decreased in the irradiated samples compared to the controls at a percentage of 8.6%. Reactive oxygen species (ROS) were measured by fluorometry and found to be elevated in irradiated samples by 24%, while DNA fragmentation was observed through fluorescent microscopy and calculated to be higher in the exposed samples approximately by 28%. Sperm also showed to be affected morphologically in mid-piece region and microtubules of axoneme of mitochondria and membranes as revealed by transmission electron microscopy. This *ex vivo* study demonstrated that human spermatozoa are vulnerable to low energy, NIR, due to the redox-status perturbation observed, which might have resulted subsequently in the rest sperm-parameters impairment, possibly contributing to male infertility.

Speaker Biography

A A Argyriou has 31 years of professional and research experience in Biology of Reproduction and Andrology. He has a Bachelor's in Biology from the University of Athens, Greece, D E A in Endocrinology and Development from the University of Caen, France, Diploma in Andrology from the University Paris XI, France and has done his PhD in Physiology of Human Reproduction from the University of Paris VI, France. As a Senior Clinical Embryologist in IVF Laboratories, he has attended multiple seminars in advanced IVF laboratory methods, teaching both undergraduate and Post-graduate students and published scientific papers and articles. He delivered lectures to academic and scientific audiences as a Member of Greek and International Scientific Associations and a regular Member of the National Committee of Medically Assisted Reproduction in Greece

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Notes:

The effects of advancing age on semen quality and sperm DNA fragmentation index

Carlos Rivas, Láyonal Acosta, Jheny Díaz, Lissett Chiscul, Elmer Chavez and **Luis Gonzales**
Gestar *In Vitro*, Perú

Background: The aim of the present study was to determinate the correlation between the advancing age on semen quality and sperm DNA fragmentation index.

Methods: Prospective study conducted at the Laboratory of Andrology ¨Gestar *In Vitro*¨ (Chiclayo – Perú). 693 patients were analyzed from September 2013 to September 2017. The semen samples were analyzed acording to the criteria WHO 2010. The Index Sperm DNA fragmentation (IFA) was determined using the tets Sperm chromatin Dispersion. For determination on the median was used SPSS 22 software. In the population was determined the Spearman correlation between sperm parameters and IFA and age.

Results: The patients' ages ranged 17 to 70 years. The means and median were 37.73 and 37 years respectively. The patients were divided into four groups: <30 years, 30-39 years, 40-50 years and ≥50 years. We determined an inverse correlation between the age and volume (r=-0.134 *P*=0.000), progressive motility (r=-0.136 *P*=0.000), normal morphology (r=-0.101 *P*=0.008), vitality (r=-0.167 *P*=0.000). We determined a significant positive correlation between age and IFA (r=0.302 *P*=0.000). Patients ≥ 45 years showed higher levels of IFA (23.5% vs 16% *P*=0.000) compared with patients <45.

Conclusions: The results indicate that advanced age effects semen quality and increases the IFA.

Speaker Biography

Dr Carlos Rivas is a physician in reproductive medicine. He is the medical director of Gestar *In Vitro* center, he is the member for Latin American Net of Human Reproduction and society of Gynecology and Obstetrics in Peru. He is also attached with membership of association and society of reproductive medicine.

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Sperm DNA fragmentation on normozoospermic patients

Jheny Díaz, Láyonal Acosta, Carlos Rivas, Lissett Chiscul, Elmer Chavez and **Luis Gonzales**
Gestar *In Vitro*, Perú

Background: The aim of the present study was to determinate the incidence of sperm DNA fragmentation in normozoospermic patients.

Methods: Prospective study conducted at the Laboratory of Andrology ¨Gestar *In Vitro*¨ (Chiclayo – Perú). 495 patients were analyzed from September 2013 to September 2017. The semen samples were analyzed acording to the criteria WHO 2010.The Index Sperm DNA fragmentation (IFA) was determined using the tets Sperm chromatin Dispersion. For determination on the median was used SPSS 22 software.

Results: The patients' ages ranged 17 to 70 years. The means and median were 37.73 and 37 years respectively. The patients were divided into four groups: <30 years, 30-39 years, 40-50 years and ≥50 years. We determined an inverse correlation between the age and volumen (r=-0.134 *P*=0.000), progressive motility (r=-0.136 *P*=0.000), normal morphology (r=-0.101 *P*=0.008), vitality (r=-0.167 *P*=0.000). We determined a significant positive correlation between age and IFA (r=0.302 *P*=0.000). Patients ≥ 45 years showed higher levels of IFA (23.5% vs. 16% *P*=0.000) compared with patients <45.

Conclusions: The results indicate that advanced age afectts semen quality and increases the IFA.

Speaker Biography

Dr Jheny Diaz is a physician in gineco-obstetra, she has specialization in assisted reproduction. She has worked as an medical assistant at Clinica Servimedicos and Gestar *In vitro* center. She is a member of Latin American Net of Human Reproduction and society of Gynecology and Obstetrics in Peru.

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Extracellular vesicles-the potential for translational research in reproductive sciences

Shlomit Kenigsberg
Juno Fertility, Canada

Discarded biological materials retrieved during IVF procedures are a precious source of information about tissues and organs of the reproductive system. These materials include serum, blood, follicular fluid, granulosa and cumulus cells, discarded embryos, embryo culture media, seminal fluid, sperm and testicular tissues. However, in a busy IVF laboratory, the collection and the processing of these samples for research purposes is challenging and requires not only skilled scientists and clinical coordinator, but also the engagement of the clinic staff-the embryologists, nurses, receptionist and physicians. Extracellular vesicles (EVs), mainly micro-vesicles and exosomes are released by cells and tissues and were found in everybody fluid tested so far including the above sources. These EVs contain proteins, DNA, and subsets of mRNA, miRNAs and other non-coding RNAs derived from the parental cells. Due to selective cargo-loading into the EVs, these 'bullets of information' are potential biomarkers and can also be used for therapeutic purposes. In the present talk, the author will discuss the current finding from EVs studies in reproductive-related fluids, as well as the collection, process, analysis, and storage of ART-related samples in her laboratory. At the end of this presentation, participants will be able to understand the basic structure and function of EVs (exosomes), discuss methods to collect and isolate exosomes and apply these methods to their research and current findings from EV's studies in reproduction.

Speaker Biography

Shlomit Kenigsberg is an Independent Scientific Advisor. Her recent position is the Director of Scientific Affair in a leading Canadian company for Life-Sciences products, and a Senior Research Associate at Create Fertility Centre from Toronto Canada. She obtained her PhD studying DNA-methylation in the human malaria causing agent, *Plasmodium falciparum*, graduating in 2001, together with an MBA degree. Her first position was as a Product Manager for QIAGEN, an international BioTech company. She then accepted a Post-doctoral fellowship with the Department of Human Genetics at Ben-Gurion University, where she studied differential gene expression in polycystic ovarian syndrome (PCOS) using microarray technologies. This unique experience led her to join Create Fertility Centre in 2006 as a Senior Research Associate to establish a new reproductive biology research laboratory and basic research program. Her recent projects focused on isolation and characterization of exosomes from various body fluids and conditioned media in the IVF lab. The project included downstream applications such as small RNA qPCRs arrays, NGS technologies, bioinformatics analysis, and proteomics. Although her specialty is in Ovarian Biology, she was also involved in mesenchymal-stem cells (MSCs) and andrology related research projects.

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Valproic acid improved *in vitro* development of pig cloning embryos but did not improve survival of cloned pigs to adulthood

Xi-Jun Yin, Jin-Dan Kang, Hai-Ying Zhu, Long Jin and **Guo Qing**
Yanbian University, China

The objective was to examine the effects of valproic acid (VPA), a histone deacetylase inhibitor, on *in vitro* and *in vivo* development of Wuzhishan miniature pig somatic cell nuclear transfer (SCNT) embryos. Experiment 1 compared *in vitro* developmental competence of nuclear transfer embryos treated with various concentrations of VPA for 24 h. Embryos treated with 2 mM VPA for 24 h had a greater rate of blastocyst formation compared with control or embryos treated with 4 or 8 mM VPA (21.5% vs. 10.5%, 12.6%, and 17.2%, P<0.05). Experiment 2 examined the *in vitro* developmental competence of nuclear transfer embryos treated with 2 mM VPA for various intervals after chemical activation. Embryos treated for 24 h had higher rates of blastocyst formation than the control or those treated for 4 or 48 h (20.7% vs. 9.2%, 12.1%, and 9.1%, P<0.05). In experiment 3, an average of 207 (range, 192–216) nuclear transfer embryos from the VPA-treated group were transferred to surrogate mothers, resulting in three pregnancies. Two of the surrogates delivered a total of 11 live piglets. However, for unknown reasons, nine of 11 piglets in the VPA-treated group died within 1 to 5 d after birth. Untreated control embryos (average, 205; range, 179–225) were transferred to four surrogate mothers resulting in three pregnancies, two of which delivered a total of 12 live offspring, although four of 12 piglets in the VPA untreated group died (cause unknown) within 1 to 3 d, whereas eight of the 12 piglets in the VPA-untreated group survived more than 3 or 4 mo. The average birth weight of the two litters from the VPA-treated group tended (P<0.05) to be lower than that from the control groups (551.6 g vs. 675.2 g). In conclusion, VPA treatment increased the blastocyst formation rate of SCNT porcine embryos; both VPA-treated and the untreated clones developed to term, but offspring from VPA-treated embryos had a lower survival to adulthood than those from control embryos (18.2% vs. 67.0%; P<0.05).

Speaker Biography

Xi-Jun Yin is working as the Director of Jilin Provincial Transgenic Animal and Embryo Engineering Laboratory at Yanbian University. His research goal is to increase reproductive efficiency of swine and to expand the genetic potential present in pig embryos. Recently, his research team successfully produced myostatin gene knockout double-muscled adult pigs.

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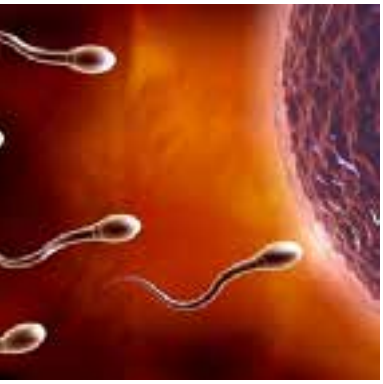

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Recurrent implantation failure and IVF

Kaberi Banerjee
Advance Fertility and Gynae Centre, India

Recurrent implantation failure (RIF) is a distressing and frustrating entity which means failure to achieve a clinical pregnancy after transfer of at least four good-quality embryos in a minimum of three fresh or frozen cycles in a woman under the age of 40 years. It mainly depends on embryonic and uterine factors. Embryonic factors include poor-quality oocyte, poor-quality spermatozoa and parental chromosomal anomalies. Uterine factors include uterine cavity abnormalities/pathologies and immunological factors. Embryonic factors are managed by selecting proper ovarian stimulation protocol, better selection of sperms by ICS or IMSI and better selection of embryo by performing blastocyst or sequential transfer, assisted hatching, preimplantation genetic screening (PGS), by using embryoscope etc. Uterine factors are managed by performing diagnostic or operative hysteroscopy, providing medical treatment to improve endometrial lining and also providing immunotherapy. In our center, in failure cases, after proper counseling, we perform pre IVF hysteroscopy, give immunotherapy in the form of IV immunoblobulins, perform ICSI, assisted hatching, sequential transfer and also offer PGS in some cases. Success rate can improve in women with recurrent implantation failure if embryonic and uterine factors are managed well.

Speaker Biography

Kaberi Banerjee is a seasoned Obstetrician and Gynecologist with more than a decade of experience in IVF infertility management. She is an infertility and IVF Specialist, trained from the prestigious Guys and St. Thomas Hospital, London, where she went as a commonwealth scholar. She has spent three years in London (UK) and done rigorous training in infertility and IVF. She has worked as Senior IVF specialist in major corporate hospitals in Delhi and performed more than 3000 IVF cycles so far. Her field of expertise includes repeat IVF failures and its treatment, donor and surrogacy procedures. She is currently working as a Clinical Director of Advanced Fertility and Gynecology Center, New Delhi. She has received many renowned national awards, including IMA award in IVF in 2007 and Bharat Jyoti Award in 2008, for outstanding contribution in Medicine. She is the organizing chairperson of CUPART (Current Practices and Recent Advances in ART), an International organization to facilitate right treatment and research in fertility and IVF; founded in the year 2011. She has also been a key speaker in this field in many national and international platforms.

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The biotechnology of the human embryo

Vasil Galat
Northwestern University, USA

Complex approaches of embryo engineering, collectively named the biotechnology of the human embryo, are becoming an essential part of reproductive medicine. They include preimplantation diagnosis; reproductive cloning; interspecies chimaeras; artificial gametes; embryo editing; mitochondrial transfer; stem cell technologies and iPSC. Their impact on broad aspects of human health, reproductive and therapeutic medicine will be discussed in this presentation.

Speaker Biography

Vasil Galat is an Assistant Professor in the Department of Pathology at Northwestern University's Feinberg School of Medicine and director of SMCRI Stem Cell Facility. He has previously worked clinically in IVF programs and preimplantation diagnosis. He has an extensive expertise in stem cell research and was the first to introduce human embryonic stem cells harboring mutations specific for human diseases thus opening a new field of research for developmental diseases currently known as disease in the dish. He has published widely on subjects ranging from embryology to the directed differentiation of iPSCs. The recent achievement of his lab in producing hematopoietic cells from pluripotent cells provides a promising therapeutic tool for the cure of cancers and some other blood-immune related disorders.

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Clinical exome sequencing screening of subfertile individuals participating in in vitro fertilization program: A pilot study

Anastasios Argyriou[1], Danny Dafnis[1], Ioannis Giakoumakis[1] and **Pantelis Constantoulakis[2]**
[1]Mediterranean Fertility Institute, Greece
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Recent advances in genome analysis using next generation sequencing (NGS) allows simultaneously analyzing hundreds and thousands of genes for mutations that either cause or predispose to diseases and/or pathologic phenotypes. We have chosen to apply an advanced clinical exome sequencing panel (powered by Sophia Genetics DDM) on an Illumina NextSeq-500 platform that analyses in detail at least 11 Mb of human expressed DNA that contain more than 4500 genes with disease- causing mutations, according to the Human Gene Mutation Database (HGMD). We selected and targeted on 103 genes involved in human infertility, according to the Human Phenotype Ontology (HPO) database, which uses updated information from validated sources (Decipher, Orphanet, OMIM). The population we studied in this preliminary effort is 12 unrelated volunteers that were participating in IVF programs and exhibited unexplained subfertility and 2 control fertile subjects. Next generation sequencing and detailed bioinformatics analysis of the infertility related genes revealed pathogenic and/or likely pathogenic mutations in most of the sub-fertile individuals, whereas no mutations were found in the 2 fertile controls in any of the genes studied. The number of samples analyzed is very small to draw conclusive results, but this pilot study suggests that genetic factors that predispose various fertility related functions may play significant role in cases of repeated IVF failures. Given the significant cost and health burden of repeated efforts for fertilization this new genomic era offers a novel approach in selecting the couples that must think of alternative reproduction options.

Speaker Biography

Anastasios Argyriou has 31 years of professional and research experience in Biology of Reproduction and Andrology. (Bachelor in Biology, University of Athens, Greece, DEA in Endocrinology and Development, University of Caen, France, Diploma in Andrology, University Paris XI, France, PhD in Physiology of Human Reproduction, University of Paris VI, France). As a Senior Clinical Embryologist in IVF Laboratories, he has attended multiple seminars in advanced IVF laboratory methods, teaching both undergraduate and Post-graduate students and published scientific papers and articles. He delivered lectures to academic and scientific audiences as a member of Greek and International Scientific Associations and a regular member of the National Committee of Medically Assisted Reproduction in Greece.

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Evaluation of *in vitro* fertilization outcomes using interleukin-8 in culture medium of human preimplantation embryos

Guanyou Huang
Guizhou Medical University, China

Currently, the morphological method is mainly used for selecting embryos which are to be transferred, but this method is relatively poor for prediction of successful implantation. In recent years, non-invasive observation of embryo development has been considered as a better method of embryo viability assessment. The assessment of embryo quality and prediction of *in vitro* fertilization (IVF) outcome with cytokines in the culture media (EM) of human pre-implantation embryos (HPE) has been explored for years. Researchers have detected tumor necrosis factor alpha (TNF alpha) and leukemia inhibitory factor (LIF) in EM of HPE, and have raised the possibility that LIF could have a function as a factor required for embryo implantation and that high TNF alpha concentrations seem to be predictive of implantation failure. However, we could not find the elevation of TNFα in the EM of human embryos (D3). In this study, the potential of interleukin 8 (IL-8) in the EM of HPE have been determined, and the relationship of the IL-8 with embryo quality and the outcome of clinical pregnancy has been investigated. The EM from HPE (D3) of IVF/ICSI patients was collected and luminex high-throughput protein analysis was used to determine the contents of cytokines in the samples. The results showed that in patients with media from transferred embryos being tested positive for IL-8 (IL-8 positive group), the pregnancy rate, implantation rate and number of live births per *in vitro* fertilization (IVF) or intra-cytoplasmic sperm injection patient (N LBPP) were higher than that in patients with media being tested negative for IL-8 (IL-8 negative group), and the positive predict value of the IL-8 for predicting the chance of pregnancy was 56.86%. Compared with the IL-8 negative group, a higher pregnancy rate was observed in the IL-8 positive group when the patients received equal quality embryos. Thus, in the EM from HPE, IL-8 may be an independent predictor for pre-transfer assessment of the embryo development potential in IVF patients.

Speaker Biography

Guanyou Huang has his expertise in reproductive immunology and embryo development potential improving the progress of assisted reproductive technique. He raises the hypothesis for prediction of embryo developmental potential and pregnancy based on immune characteristics. He intends to establish a system to assess embryo quality, namely, establish a new and effective system to assess embryo quality on the basis of secretory and immune function of corresponding embryo.

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Proper autophagy is indispensable for early embryonic morphogenesis

Xuesong Yang, Guang Wang and **Xin Cheng**
Jinan University, China

People have known that autophagy plays a very important role in many physiological and pathological events. But autophagy role on embryonic morphogenesis still remains obscure. Using embryonic chick and mouse models, we first demonstrated that autophagy relevant genes such as *Atg7*, *Atg8* and *Beclin1* express in many germ layers at gastrula embryos, implying that autophagy might be involved in those embryonic morphogenesis. Further interference of autophagy with autophagy inhibitor or activator could lead the malformations of heart tube, abnormal cell migration and differentiation of neural crest cells, improper angiogenesis etc. Down-regulation or up-regulation of *Atg7* gene also caused the similar phenotypes *in vivo* and *in vitro*. The corresponding mechanisms for each dysplasia were investigated in further detail. Taken together, our experimental data revealed that autophagy is indeed involved in regulating the crucial gene regulation and corresponding morphogenesis at early embryo development.

Speaker Biography

Xuesong Yang is currently working as a Professor at Jinan University Medical College, China. He received his Bachelor's and Master's degree from Harbin Medical University, China and then received his Doctorate from Tokyo Medical and Dental University School of Medicine, Japan. After having worked in University of Manchester and University of Dundee, UK for 11 years, he took the position at Jinan University Medical College. His research interests contain: exploring embryos as the possible models for stem cell applications on regenerative medicine, the regulations of coordinated signaling pathways on mesoderm and neural crest cell migration during gastrula embryo development, the investigation of gene-regulatory elements on birth defects. So far, he has published 86 SCI scientific papers including Developmental Cell, PNAS, Current Biology and Development, Developmental Biology and Oncogene.

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New monoterpenoid by biotransformation of thymoquinone using Aspergillus niger

Mohammad Yasin
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Microorganisms have been used extensively for hydroxylation of terpenoids since their enzymes catalyze reactions with high regio- and stereospecifity. Their ability to oxidize terpenoidal compounds has an immense synthetic and commercial importance. The hydroxylation of a large number of substances, including terpenoids, has been studied by employing a variety of microorganisms. However, no studies on the transformation of thymoquinone, by fungi have been reported in the literature. Thymoquinone (2-Isopropyl-5-methyl-[1,4]benzoquinone, C10H12O2) (1), a monoterpenoid isolated from the seeds of Nigella sativa, has been shown to have anti-tumor activity against liver, prostate, colon, breast, lung and pancreatic cancer. Thymoquinone (1) has been also shown to have antioxidant, analgesic and anticonvulsant effects. Microbial transformation of thymoquinone (1) by suspended cell-cultures of the plant pathogenic fungus Aspergillus niger resulted in the production of three metabolites. These metabolites were identified as 5-isopropyl-2-methyl-2,4-cyclohexenone lactone (2), hydroxythymoquinone (3), and 4-hydroxy-2-isopropyl-5-methylphenol (4) by different spectroscopic methods. Metabolite 2 was found to be a new compound. Compound 4 showed potent antioxidant activity.

Speaker Biography

Mohammad Yasin Mohammad has obtained his BSc degree (Chemistry) in 2004 from the University of Jordan in Amman, Jordan, MSc degree (Organic Chemistry) in 2008 from the University of Karachi, Karachi, Pakistan, and PhD degree (Organic Chemistry) recently in 2013 from HEJ Research Institute of Chemistry, International Center for Chemical and Biological Sciences, Karachi-75270, Pakistan. He is currently working as Assistant Professor at the Faculty of Pharmacy, Middle East University, Amman-11831, Jordan. His research interests are in natural products chemistry and in microbial biotransformation of steroids as well. His future plan is to establish a research in the field of Natural Products Chemistry. He wishes to contribute in raising standards of education and research in Jordan.

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The role of microorganisms in steroidal hormones transformation

Bushra Abdul-Hadi[1] and **Mohammad Yasin Mohammad**[2]
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Biocatalysis concept is based on the use of biological catalysts (enzymes, living organisms and cells) to perform chemical conversions on organic compounds. Biotransformations have been applied for the conversion of a variety of organic compounds, especially steroidal and terpenoidal compounds, since it is difficult to carry out direct chemical changes on unreactive carbon centers of steroidal molecules by conventional chemical reactions. Steroids are generally present in animals, plants and fungi. All steroids that are found in animals and fungi are biosynthesized from the lanosterol. While those found in plants are biosynthesized from the cycloartenol. Both lanosterol and cycloartenol are derivatives of a triterpene squalene. Microorganisms have been used extensively for the transformation of steroids and particularly steroidal hormones since their enzymes catalyze reactions with high regio- and stereospecifity. In this study, microbial transformations of steroidal hormones have been compiled and covered

Speaker Biography

Bushra Abdul-Hadi has obtained her PhD degree (Therapeutics and Clinical Pharmacy) in 2012 from Hungary. She is currently working as an Assistant Professor at the Faculty of Pharmacy and Medical Sciences, Al-Ahliyya Amman University, Amman, Jordan. She wishes to contribute in raising standards of education and research in Jordan.

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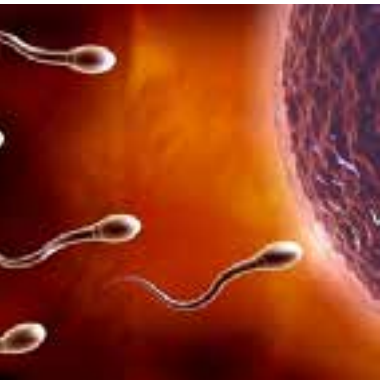
Video Presentation

Embryology 2017



World Congress on

Embryology and In vitro Fertilization

November 02-03, 2017 | Chicago, USA

Management of dysfunctional uterine bleeding (DUB)

Sujata Sanjay
Sanjay, Orthopaedic, Spine and Maternity Centre, India

Abnormal uterine bleeding is the common presenting complains in the Gynaecology outpatient department in all age groups. Dysfunctional uterine bleeding (DUB) is the diagnosis given to women with abnormal uterine bleeding in whom no clear etiology can be identified. DUB has been observed in both ovulatory and anovulatory cycles. Nonsteroidal anti-inflammatory drugs such as mefenamic acid or indomethacin will be the first choice for many women as they have few side effects and it is only necessary to take them when menstrual bleeding occurs. When contraception is also required, combined oral contraceptives are helpful. Progestogen and danazol therapy are also effective, although side effects do occur. A new development has been the levonorgestrel-containing intrauterine contraceptive device which has been shown to result in large decreases in menstrual blood loss. For those women who would like a surgical approach but do not want to undergo hysterectomy, the relatively new technique of endometrial resection results either in amenorrhoea or reduced menstrual blood loss in the majority of women. Adolescent DUB is due to immaturity of the hypothalamus and pituitary and menstrual cycles may be anovulatory. In teenage girls organic disease is rare and DUB usually gets resolved spontaneously. That's why they are treated expectantly and curettage is often delayed. In the middle years of reproductive life (20-39yrs), benign organic disease is common, and curettage is usually performed to exclude complications of pregnancy and other disease. Conservative therapy is usually indicated, though hysterectomy may be indicated if bleeding is severe or recurrent and patient has completed her family. Perimenopausal DUB is due to the decreased number of ovarian follicles and their increased resistance to gonadotrophin stimulation, there is a possibility of malignancy. So, these women should always be investigated by curettage or hysteroscopy without delay. Although conservative therapy may be tried as a temporizing measure, hysterectomy is often indicated

Speaker Biography

Dr. Sujata Sanjay is not only an eminent and highly proficient and capable doctor of repute, but she is also sincerely dedicated to the cause of the poor people and particularly to those of the backward areas like Uttarakhand, where poverty reigns supreme and the people are virtually deprived of even ordinary medical. Dr. Sujata Sanjay has within a period of 6 year, treated more than 5800 patients in 201 free medical camps which have been regularly organized in the state of Uttarakhand. Her simple and sympathetic nature towards patients has been appreciated and has helped her establish her name in Uttarakhand. Dr Sujata had been awarded "# 100 WOMEN ACHIEVERS AWARD" By Ministry of Women and Child Development (MWCD), Government of India. Awarded by President of India, Shri. Pranab Mukherjee, at Rashtrapati Bhawan, New Delhi on January 22 2016) only gynecologist from all over India "FOGSI the Padmashree Kamlabai Hospet Award" At 59th All India Congress of Obstetrics & Gynaecology (AICOG) at Agra Jan 2016 (First time for Uttarakhand)

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The immunopathology of regression in keratoacanthoma

Fathia A Bayoumi
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Background: Keratoacanthoma (KA) has a tendency for either progression or spontaneous regression. Regression is a phenomenon present in a variety of cutaneous lesions. It is likely that certain immunologic mechanisms explain the phenomenon of spontaneous regression occurring in KA. Causes and detailed mechanism of this regression are still not completely elucidated. Recent studies suggested that the tumor regression is dependent mainly on the stromal immune response.

Aim: As a first step in confirming or refuting this hypothesis, we did an immunohistochemical study of KA. Also we correlated between the tumor size, rate of proliferation and stromal infiltration by cytotoxic T lymphocytes which release granzyme-B.

Methods & Results: This is a case series study done on 20 cases of KA that were examined and clinicopathological findings were reviewed. Immunohistochemical stains using PCNA, P53 and granzyme-B were done. PCNA showed positive staining in all cases (100%) with significant positive correlation with the tumor size (0.5, $p<0.02$). P53 was positive in 16 cases (80%) with highly significant positive correlation with the tumor size (0.63, $p<0.0028$). Granzyme-B was positive in the stromal lymphocytes and histiocytes only in 6 cases (30%) with highly significant negative correlation with the tumor size (-0.79, $p<0.0001$). Negative correlation between PCNA overall score and granzyme-B was evident (-0.37) and between P53 overall score and granzyme-B also (-0.38). The mean total score for granzyme-B was higher (1.04+0.23) in tumors less than 1 cm in size if compared with that in tumors more that 1cm in size (0.66+0.12).

Conclusion: The increased release and/or activity of granzyme-B as CTL-mediated response were considered to be a central effector mechanism in tumor regression in KA.

Speaker Biography

Fathia A Bayoumi is graduated from the faculty of medicine, Ain-Shams university (MBBCH), Masters and PhD in Pathology from Zagazig University, Egypt is working in Medcare hospital United Arab Emirates as a consultant histopathologist. She worked as the Chief Academic Officer and Head of Department of Pathology, Dubai Medical College, United Arab Emirates.. In addition, she obtained a Masters in Health Professions Education from Maastricht and Suez Canal University. With her vast experience as Professor and Head of Pathology department, in addition to her role as Chief academic officer, Prof. Fatehia is acclaimed to be one of the best teachers by the students. Having more than twenty four years of experience in medical education in the UAE, she has pioneered many significant improvements in medical education in DMC. During the two years, when she served as Dean of College, she geared the college through several key milestones such as integration of curriculum and international accreditation, way back in 1998, taking DMC to the forefront of integrated teaching in the country. She continues to give leadership to the academic affairs, continuously updating the curriculum and introducing innovative tools of education. Her urge to excel has taken the educational system of the college to the next level through sharing of best practices and strategic partnerships. Prof. Fathia brings to the college, the latest in international health sector through her participation in international societies like International Academy of Pathologists. Prof. Fatehia enjoys a respectable position as one of the top academic pathologists in the country. Her involvement in the Emirates Pathologists' Association has led to DMC hosting their meeting on several occasions. She is She is a member of international academy of pathologists -Arab Division (IAP-AD), in United States and Canadian Society of Pathologists (USCAP) and Emirates Medical association (EMA). Prof. Fathia is an avid researcher and serves as a research guide and reviewer to several groups of students and doctors. Her areas of research include immunohistochemistry and genetic profiles of different disorders, in which she has published several research articles. She has participation as attendance, speaker, presenter in 38 scientific conferences and workshops and published 37 scientific papers in reputable journals. Prof. Fathia Ali Bayoumi, is the Secretary General of the Medical Research Fund (MRF), DMC which aims to improve the standards of healthcare nationally and regionally through research programs. The Medical Research Fund is highly dependent on a national effort that engages individuals, groups and the corporate sector to usher in a new era of medical achievement in the United Arab Emirates. The Medical Research Fund was launched in April 2008 and received a lot of medical research proposals out of which 12 have been accepted for the fund.

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Challenges and perspectives of teaching embryology in a low-income setting: Cameroon

Gregory Halle-Ekane
University of Buea, Cameroon

The broad and dynamic nature of embryology has always made it a difficult topic to teach. Following the dramatic explosion of molecular embryology from the early 1990s, educators are faced with the dilemma of what should be taught to students within the limited hours of lecture. A medical embryology course should provide students the scientific basis for understanding mechanisms underlying both normal and abnormal development and provide avenues for medical research. To achieve this, different tools which have been developed to facilitate the teaching of this course are quasi inexistent in most low-income countries. This presentation aims at highlighting the challenges and perspectives in the teaching of embryology in a low-income setting with the hope of enhancing inter-university partnership as a measure to fill this gap.

Speaker Biography

Gregory Halle-Ekane is a practicing Obstetrician and Gynaecologist working in the Buea Regional Hospital and the Douala General Hospital, Douala. The latter is a tertiary centre that serves the Central African sub region. He is currently, the Vice Dean In-Charge of Research and Cooperation in the Faculty of Health Sciences, University of Bueaand also the country's Coordinator for the Geneva Foundation for Medical Education and Research, Switzerland. He is Consultant Sector Editor for the African Journal of Integrated Health and a peer reviewer of six international journals. Since 1996, he participated in the design and oversees some screening and treatment of cervical cancer programs at the local and national levels. He has also been involved in many research projects in the area of maternal and perinatal health. He coordinates research and teaching activities between the Faculty of Health Sciences, University of Buea and other health facilities in Cameroon (e.g Cameroon Baptist Convention Health Services and Catholic Health Services) working to improve health care through educational, research and clinical care improvement collaborations. Specifically, he mentors and supervises local and visiting Ob/Gyn trainees including visitors to the CBCHS through the UAB-Cameroon Health Care Collaboration Initiative. He also mentors fellows of the Afya Bora Consortium and collaborates with other US Universities (Universities of Arizona and Washington).

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