

ISMAAR 2018

The Ninth World Congress on Mild Approaches in Assisted Reproduction



London, 12 - 13 April 2018

Royal College of Obstetricians
and Gynaecologists
London, UK

Congress accreditation

ISMAAR has submitted this programme for accreditation by the European Accreditation Council for Continuing Medical Education (EACCME).



ISMAAR 2018

The Ninth World Congress on Mild Approaches in Assisted Reproduction

WELCOME

We are delighted to welcome you to the Ninth World Congress on Mild Approaches in Assisted Reproduction.

Dear friends

It gives me immense pleasure to welcome ISMAAR World Congress back to London after 10 years as we also celebrate the 40th anniversary of human IVF.

When ISMAAR was initiated, the concept of mild approaches in assisted reproduction was a novel concept that had been adopted in only a few centers around the world.

Now both Natural and Mild IVF have moved to centre stage thanks to the influence of ISMAAR and the demands of many women who want a less drug-orientated IVF treatment.

ISMAAR aims to promote safer, affordable, woman-friendly and milder approaches in assisted reproduction in order increase safety, accessibility and equality in IVF. I am delighted that ISMAAR has made a global impact in spreading the important message about the benefits of natural cycle IVF and a more physiological approach to ovarian stimulation on the health and wellbeing of the woman and baby.

We are pleased with the success of ISMAAR but much more still needs to be done to achieve a greater safety, equality and accessibility in IVF throughout the world. We hope this World Congress will mark another important step towards this goal.

We have put together an excellent scientific programme and are delighted and grateful that so many leading international experts have joined our Faculty.

We hope you have a productive conference and an enjoyable time in London.

Geeta Nargund

President, ISMAAR

Geeta Nargund, UK

President

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This Congress is organised by Create Health Foundation, a charity devoted to the promotion of an evidence-based, holistic and supportive approach to women's reproductive health through education and research. Its aim is to be the most comprehensive, enlightened women's reproductive health charity across the world.



ACKNOWLEDGEMENTS

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Gedeon Richter are sponsoring this meeting with an exhibition stand and have no involvement with the educational content and/or organisation of this meeting.

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Exhibitors





ISMAAR 2018

The Ninth World Congress on Mild Approaches in Assisted Reproduction

CONGRESS PROGRAMME

Thursday 12 April, Nuffield Hall

13.00-13.55 Registration, Refreshments and exhibition (Reception Hall)

SESSION 1 - BEGINNINGS OF IVF

13.55-14.00 **Chair's welcome**

Geeta Nargund, President, ISMAAR, UK

14.00-14.15 **Opening lecture**

June Sarpong, MBE

14.15-14.30 **Beginnings of IVF**

Rene Frydman, Professor Emeritus, University Paris V and Consultant in Reproductive Medicine, Hospital Foch, Paris -Suresnes, France

14.30-14.45 **Embryology perspective**

Jonathan Van Blerkom, Professor, Department of Molecular, Cellular and Developmental Biology, University of Colorado, IVF Laboratory Director, Colorado Reproductive Endocrinology, Rose Medical Center, Denver, USA

14.45-15.00 **Ovarian stimulation perspective**

Stephen Hillier, Emeritus Professor of Reproductive Endocrinology, MRC Centre for Reproductive Health, University of Edinburgh, UK

15.00-15.20 Coffee, Refreshments and exhibition (Reception Hall)

SESSION 2 - REGULATION, FUNDING, ACCESSIBILITY AND ADD ONS IN IVF

15.20 Chairs: *Jane Stewart, Consultant in Reproductive Medicine, Chair, British Fertility Society and Ian Cooke, Emeritus Professor, Academic Unit of Reproductive and Developmental Medicine, UK*

15.20-15.35 **The challenging role of the regulator**

Nick Jones, Director of Compliance and Information, Human Fertilisation and Embryology Authority, UK

15.35-15.50 **The strategic approach to ethical & affordable IVF**

Praful Nargund, CEO CREATE Fertility and ABC IVF, UK

15.50-16.05 **Fertility funding**

Sarah Norcross, Director, Progress Educational Trust, UK

16.20-16.35 **Discussion**

16.35-16.50 **Add-ons in IVF - hype or hope?**

Willem Ombelet, Professor, Genk Institute for Fertility Technology, Belgium

16.50-17.00 **Closing remarks**

Geeta Nargund, President, ISMAAR, UK

17.00 **Close of Day 1**

Formal dinner at the House of Commons (Parliament)

19.00 Reception

19.00 Dinner

22.30 Carriages

Dress code: Black tie, cocktail dresses



CONGRESS PROGRAMME

Friday 13 April, Nuffield Hall

08.00-08.45 Registration - Refreshments and exhibition (Reception Hall)

SESSION 3 - PERSONALISED IVF STIMULATION

08.45-08.50 **Chair's welcome**

Rene Frydman, Professor Emeritus, University Paris V and Consultant in Reproductive Medicine, Hospital Foch, Paris -Suresnes, France

08.50-09.00 **Louise Brown**

09.00-09.15 **Natural IVF - across ages**

Sherman Silber, Managing Director, Infertility Center of St. Louis, USA

09.15-09.30 **Individualised IVF stimulation**

William Ledger, Senior Vice Dean of Medicine; Head of Obstetrics and Gynaecology, UNSW, Sydney, Australia

09.30-09.45 **The experience with Tamoxifen**

Svend Lindenberg, Professor, Copenhagen Fertility Center, Denmark

09.45-10.10 **Discussion**

10.10-10.30 Coffee, Refreshments and exhibition (Reception Hall)

SESSION 4 - DEBATE AND FREE COMMUNICATIONS

10.30 *Chair: Pasquale Patrizio, Professor, Obstetrics and Gynaecology and Reproductive Sciences, Yale University School of Medicine, USA*

Debate: We can achieve better outcomes with mild stimulation IVF

10.30-10.45 **For:** *Geeta Nargund, President, ISMAAR, UK*

10.45-11.00 **Against:** *Andrea Borini, Clinical Director, 9.baby - Tecnobios Procreazione, Italy*

11.00-11.15 **Responses and votes**

11.15-12.00 **Free communications with discussion afterwards**

*Chairs: Stuart Campbell, Consultant and Director of Ultrasound, CREATE Fertility, UK
Dimitrios Nikolaou, Consultant Gynaecologist, Chelsea and Westminster Hospital, London, UK*

Transfer of embryos accumulated over 3 natural/natural modified IVF (ICSI) cycles: a better approach for women with critically low ovarian reserve?

Adrija Kumar Datta

In-vitro maturation of oocytes in a woman with gonadotropin-resistant ovary syndrome associated with a novel combination of FSH receptor gene variants

Pierre Miron

Gonadotropin-free modified natural cycle in the context of near-empty ovarian reserve

Luan Au

Endometriosis pathogenesis: role played by the oxidative stress due to mthfr mutations

Arthur Clement

Impact of non steroidal anti-inflammatory drugs (NSAID) such as ibuprofen on follicular fluid, ovulation and oocyte competence

Alexandra Kohl Schwarz

12.00-13.00 Lunch and exhibition (Reception Hall)

SESSION 5 - OPTIMISING IVF OUTCOMES

13.00 **Chairs**

William Ledger, Senior Vice Dean of Medicine; Head of Obstetrics and Gynaecology, UNSW, Sydney Australia and Botros Rizk, Professor and Head, Reproductive Endocrinology & Infertility, Department of Obstetrics and Gynaecology, University of South Alabama, USA

13.00-13.15 **Oocyte quality and limitations of IVF**

Pasquale Patrizio, Professor, Obstetrics and Gynaecology and Reproductive Sciences, Yale University School of Medicine, USA

13.15-13.30 **Improving implantation**

Michael von Wolff, Professor, Head Physician, University Women's Hospital, Division of Gynaecological Endocrinology and Reproductive Medicine, Switzerland

CONGRESS PROGRAMME

- 13.30-13.45 The role of advanced ultrasound**
Stuart Campbell, Consultant and Director of Ultrasound, CREATE, Fertility, UK
- 13.45-14.00 The role of hysteroscopy**
Rudi Campo, Medical Director and President, European Society for Gynaecological Endoscopy (ESGE), Belgium
- 14.00-14.15 Discussion**
- 14.15-15.00 Free communications with discussion afterwards.**
The risk for small for gestational age children tends to be higher in conventional gonadotropin-stimulated IVF compared to natural cycle IVF
Alexandra Kohl Schwartz
Treating couples carrying methylenetetrahydrofolate reductase (mthfr) c677t mutations with 5-methylene-tetrahydrofolate (5mthf) improves their fertility outcomes
Yves Menezo
Embryo utilisation rates after natural and mild cycles
Martin Wilding
-
- 15.00-15.20 Coffee, Refreshments and exhibition (Reception Hall)**

SESSION 6 - DEBATE, IVM, FERTILITY PRESERVATION AND PERI-NATAL OUTCOMES

- 15.20** Chairs: *Jonathan Van Blerkom, Professor, Department of Molecular, Cellular and Developmental Biology, University of Colorado, IVF Laboratory Director, Colorado Reproductive Endocrinology, Rose Medical Center, Denver, USA and Rex Scaramuzzi, Emeritus Professor, UK*
Debate: Is there a role for pre-implantation embryo screening in context of mild stimulation IVF?
- 15.20-15.35 For PGS:** *Dagan Wells, Associate Professor, Nuffield Department of Women's and Reproductive Health, UK*
- 15.35-15.50 Against PGS:** *Pasquale Patrizio, Professor, Obstetrics and Gynaecology and Reproductive Sciences, Yale University School of Medicine, USA*
- 15.50-16.00 Responses and votes (votes will take place before and after the debate)**
- 16.00-16.15 Discussion**
- 16.15-16.30 Innovative and safe protocols for fertility preservation for cancer**
Michaël Grynberg, Obstetrician and Gynaecologist, Reproductive Medicine, Head of Department of Reproductive Medicine & Fertility Preservation, University Hôpital Antoine Béclère, France
- 16.30-16.45 The role of IVM in current IVF practice**
Ri-Cheng Chian, Professor and Director, Shanghai 10th People's Hospital of Tongji University, Shanghai, P. R. of China, (Canada and China)
- 16.45-17.15 Free communications with discussion afterwards**
Chairs: *Michael von Wolff, Professor, Head Physician, University Women's Hospital, Division of Gynaecological Endocrinology and Reproductive Medicine, Switzerland and Uma Gordon, Consultant in Reproductive Medicine, Bristol, UK*
Fertility preservation discussions in young women with breast cancer
Kathryn Brown
Should ICSI be used in women with advanced maternal age?
Ma Long
Only women's age and the duration of infertility are prognostic factors for the success rate of Natural Cycle IVF (NC-IVF)
Mirja Amadea Minger
- 17.15-17.30 Peri-natal outcomes and ART**
Anja Pinborg, Professor of Reproductive Medicine, Rigshospitalet, University of Copenhagen, Denmark
- 17.30-17.45 Discussion and closing remarks**
Geeta Nargund, President, ISMAAR, UK
- 17.45 CLOSE OF CONGRESS**

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1. Ziebe et al., A randomized clinical trial to evaluate the effect of granulocyte-macrophage colony-stimulating factor (GM-CSF) in embryo culture medium for *in vitro* fertilization. Fertil Steril. 2013 May;99(6):1600-9.



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BEGINNINGS OF IVF

Opening Lecture

June Sarpong, MBE

June Sarpong is an established 'TV' Presenter, who has enjoyed a 20-year career, in which she has become one of the most recognisable faces of British television, as well as being one of the UK's most intelligent and dynamic hosts. June is one of the only hosts of her generation that is equally comfortable interviewing politicians, celebrities and members of the public.

June began her career at Kiss 100 and later became a presenter for MTV UK & Ireland, but it was when she started on Channel 4's 'T4' that she became such a household name. She was one of the female faces on the show for 9 years, even interviewing Tony Blair for an exclusive special, 'When Tony Met June' in 2005, with unprecedented access to the then British Prime Minister.

June has taken on the world's most challenging live audiences, hosting 2005's major Make Poverty History event in London's Trafalgar Square and presenting at the UK leg of Live Earth in 2007. In 2008 alongside Will Smith she also hosted Nelson Mandela's 90th Birthday celebrations in front of 30,000 people in London's Hyde Park. Not only this, June has interviewed and introduced some of the world's biggest names including HRH Prince of Wales, Bill Clinton, Al Gore, Bono, George Clooney and 50 Cent.

June has worked extensively with HRH Prince Charles for ten years as an ambassador for his charity the Prince's Trust, whilst campaigning for The One and Produce (RED). June was awarded an MBE in 2007 for her services to broadcasting and charity, making her one of the youngest ever people to receive an MBE.

June is the co-founder of the WIE Network (Women: Inspiration & Enterprise). WIE first launched in New York in 2010, and then in the UK 2012. This acclaimed conference has featured leading speakers from a wide range of industries, with previous speakers including Sarah Brown, Melinda Gates, Arianna Huffington, Donna Karan, Queen Rania, Nancy Pelosi and Iman.

After living in America for 8 years, June moved back to her hometown of London in 2015, and appeared as a panellist on ITV's 'Loose Women'. She is now a regular panellist on Sky News' new weekly current affairs discussion show, 'The Pledge'.

In addition, June released her book 'Diversify: Six Degrees of Integration'. In the book, June puts the spotlight on groups who are often marginalised in our society, including women, those living with disabilities, and the LGBTQ community. Diversify uncovers a new approach to how we work, learn and live can help us reach our maximum potential, lessen the pressure on the state, and solve some of the most stubborn challenges we face. The book publishes fascinating new research from Professor Anthony Heath and the team at Nuffield College, Oxford University, on the costs of discrimination and the benefits

of diversity, in a very divided world. Through their research, they have specifically calculated that the cost of discrimination in the UK is 127 billion pounds a year.

June has worked extensively with the UN Trust Fund which was created in partnership with UN Women and the Secretary General's office. She is a tireless campaigner for gender equality and women's reproductive choices. She deeply cares about social mobility and equal and fair access to healthcare.

Beginnings of IVF

The natural cycle, the oocyte picked up by laparoscopy was the first proposition.

Ovarian stimulation allows the production of many embryos and as a consequence, a high level of twins and triplets.

Neonatologists claim this is a disaster due to prematurity and growth retardation which are common complications of multiple pregnancy. Then there is the occurrence of embryo freezing and development until the blastocyst stage with culture which changes the situation, giving the possibility for a couple to have as many children as they wish, but one by one. We are coming back to one embryo transfer, but we have to define better what is a TOP embryo.

Rene Frydman

Professor Emeritus, University Paris V and Consultant in, Reproductive Medicine, Hospital Foch. Paris -Suresnes, France

National positions held: Member of the National Committee of Human Rights; Member of the National Committee of Ethics for the Sciences of Life and Health; Counselor of the Minister of Research.

Awards of distinction: Chevalier of the French Order of Merit; Commander of the French Legion d'Honneur.

Authors of almost 500 international scientific publications in the Reproduction area.

Areas of special interest and accomplishments: Rene's special areas of interest in Gynaecology and Obstetrics include infertility and high-risk pregnancy and surgical gynaecology. His work in infertility led with his biologists and physician collaborators to the first baby born as a result of in vitro fertilization in France, February 1982. Also to the first baby born in France after embryo freezing in 1986, after PGD in 2000, after in vitro maturation in 2003, and after oocyte freezing in 2011 (more than 400 Scientific publications). His other area of interest has been biomedical ethics. His work in this realm led to many invitations by religious authorities of the Vatican, Jerusalem and of the Reform Church to debate the moral issues created by the use of the techniques of artificial procreation. He has had active participation in the preparation on the law on bioethics.



BEGINNINGS OF IVF

Embryology perspective

The origin of clinical IVF was based on decades of earlier studies from model system proving that it could produce normal offspring. Contemporary clinical IVF is relatively routine and clearly an easier undertaking owing to the commercial availability of equipment and materials (e.g. media), the availability of reference laboratories for PGT, and fully automated recording system incorporating competence biometrics. It is not too difficult to predict that the entire IVF process will become significantly simplified and automated and the role of the embryologist one of gamete collector, embryo 'returner' and systems monitor as artificial intelligence algorithms are introduced for embryo selection. It seems evident that the next stage in the evolution of IVF will not require a comprehensive understanding of the molecular and cellular biology of gametogenesis and embryogenesis. However, this will change significantly should gametes derived from patient stem cells become a reality in infertility treatments. Yet there remains an important role for embryologists with a good scientific grounding to make observations that may improve oocyte and embryo competence selection. My presentation will briefly focus on how differences in the bioenergetic state of the oocyte and individual blastomeres can be estimated microscopically with confirmation from ATP content and heat signatures associated with intracellular energetics.

Jonathan Van Blerkom

Professor, Department of Molecular, Cellular and Developmental Biology, University of Colorado, IVF Laboratory Director, Colorado Reproductive Endocrinology, Rose Medical Center, Denver, USA

Jonathan Van Blerkom is a professor in the Department of Molecular, Cellular and Developmental Biology at the University of Colorado in Boulder and IVF Laboratory Director at Colorado Reproductive Endocrinology at the Rose Medical Center in Denver. He has been engaged in studies of molecular and cellular aspects of mammalian development since 1970 and beginning in 1982, in clinician IVF and studies of human follicles, oocytes and embryos. Professor Van Blerkom has published numerous original research articles, reviews, and co-authored or edited six books dealing with early mammalian development, including the human. He has been an invited speaker at numerous international conferences and symposia. Some of his current research centers on improving the functionality and adaptability of the simplified culture system he developed for IVF and on how the molecular organization of the plasma membrane is regulated with respect to the acquisition of developmental competence for the human oocyte and preimplantation embryo.

Ovarian stimulation perspective

Proof of concept that laparoscopically collected oocytes could be fertilised in vitro used "low amounts of hormones to stimulate the ovary and then a touch of HCG to induce the ripening programme." However, clinical in vitro fertilisation (IVF)/embryo transfer (ET) trials using eggs from HMG/HCG-stimulated women were initially unsuccessful, leading Edwards and Steptoe to wave "goodbye to the fertility drugs...[and]... collect the single egg ripening naturally within the mother." The switch to natural cycle IVF/ET succeeded, resulting in Louise Brown's birth in 1978. Other would-be IVFers, confounded by the intricacies of natural cycle IVF, successfully resorted to controlled ovarian stimulation using HMG and/or clomiphene citrate with HCG ovulation trigger to generate multiple eggs and embryos (and maternities). Stimulation protocols were further refined by incorporating gonadotrophin-releasing hormone (GnRH) superagonists to over-ride interference caused by endogenous hormone release. Forty years on, GnRH protocols using stimulation by pure or synthetic gonadotrophins prevail; collection of double-digit oocyte numbers is the norm. Natural cycle IVF remains in the background and modifications exist that use low-dose gonadotrophins and/or clomiphene, with GnRH antagonist to suppress the spontaneous LH surge. The debate continues whether such 'mild/minimal' stimulation protocols offer genuine clinical benefit.

Stephen Hillier

Emeritus Professor of Reproductive Endocrinology, MRC Centre for Reproductive Health, University of Edinburgh, UK

Steve Hillier is Emeritus Professor of Reproductive Endocrinology and Honorary Professorial Fellow at the Medical Research Council Centre for Reproductive Health, University of Edinburgh. His career at Edinburgh spans over 30 years as researcher, clinical laboratory director and academic leader. Previously, he helped set up one of the earliest successful IVF units in the UK at the Hammersmith Hospital, London. He was a founder member of the Human Fertilisation and Embryology Authority (HFEA). Honours include Fellowship of the Royal College of Gynaecologists ad eundem. His research focus is mainly on ovarian pathophysiology with multiple peer-reviewed publications and a prize-winning textbook to his name.

SESSION 2 - Regulation, funding, accessibility and add ons in IVF

The challenging role of the regulator

This talk locates the HFEA's role within the sector it regulates and how it balances its formal and informal roles. In ensuring standards are met, promoting improvements in care and the quality of provision, meeting the information needs of patients, acting within a competitive and plural provider environment, carrying out its functions proportionately with the right incentives - and setting the tone. The talk will also cover important forthcoming changes to the HFEA Code of Practice.

Nick Jones

Director of Compliance and Information, Human Fertilisation and Embryology Authority, UK

Nick has been a director at the HFEA since 2010. He is responsible for the inspection function and for the Register of treatments. Prior to joining the HFEA he worked for the Care Quality Commission and its predecessor organisations, in strategy development and policy. He lives in North London with his partner and three sons.

The strategic approach to ethical & affordable IVF

As we approach the 40th anniversary of the first successful IVF birth, IVF companies and organizations continue to grow exponentially.

This presentation will examine how to formulate a strategic approach to the development of an IVF organization, with a particular emphasis on utilizing a "value-based" approach. Survey work detailing the preferences of IVF patients in the UK will be considered, as will an introduction to strategic-thinking and its application to the IVF sector. The experiences of delivering both natural/mild IVF and affordable IVF will be explored, with a view to sharing learnings of successful approaches.

Praful Nargund

CEO, CREATE Fertility and ABC IVF, UK

Praful is the CEO of Create Fertility and ABC IVF. Educated at Oxford University, Praful has overseen the growth of Create from a small IVF clinic into the largest provider of natural and mild IVF in Europe. In particular Praful's area of expertise is in the development of value-based strategies to develop growth and change. He is passionate about making IVF more natural, safe and affordable and believes that the future of fertility is intertwined with a promise of equality.'

Fertility funding

The number of clinical commissioning groups (CCGs) in England offering the recommended 3 IVF cycles to eligible women under 40 has halved in the last 5 years: just 12 per cent now follow national guidance, down from 24 per cent in 2013. In contrast, the number of CCGs which have removed NHS IVF has almost doubled in the last year, according to latest figures released at the start of National Fertility Awareness Week in October 2017 by the campaign group Fertility Fairness.

Fertility Fairness' 2017 audit of England's 208 CCGs reveals the severity of cuts to services, with potential further cuts ahead. While the number of CCGs following national guidelines and providing 3 NHS-funded IVF cycles has dropped to 12 per cent, the number of CCGs offering just one NHS-funded IVF cycle has leapt to 61 per cent.

Sarah Norcross

Director, Progress Educational Trust, UK

Sarah Norcross is Director of the Progress Educational Trust - a charity that works to improve choices for people affected by genetic conditions and infertility, and promotes the responsible application of science. She is also Commissioning Editor of the charity's flagship publication BioNews - www.bionews.org.uk and Co-Chair of the campaigning organisation Fertility Fairness. She frequently represents PET in the print and broadcast media, both nationally (the Today programme, BBC News, Good Morning Britain, Sunday Morning Live) and internationally (BBC World News, Fala Brasil, Mittagsmagazin, Die Welt). Previously she worked as a Barrister.

Add-ons in IVF – hype or hope?

Many new technologies and adjuvant therapies are commonly used in IVF centres, in many cases without any scientific background. Inositol, dehydro-epi-androstenedione, calcium ionophores, growth hormones, Coenzyme Q 10, heparin, low-dose aspirin, methylprednisolone, immune therapy and vasodilators are commonly prescribed pharmacological adjuvants in order to improve IVF success rates although well organized prospective studies to support this statement are mostly lacking. New technologies commonly used to improve IVF outcomes include advanced sperm selection procedures, preimplantation genetic screening, assisted hatching, time-lapse embryo monitoring, endometrial injury or embryo-glycine.

In this presentation we describe the current scientific evidence to support or reject the use of these pharmacological adjuvants and so-called innovative technologies in an ART programme.

Willem Ombelet

Professor, Genk Institute for Fertility Technology, Belgium

Willem Ombelet started his career researching infertility and IVF in 1984 in Pretoria, South Africa. In 1998, he



PERSONALISED IVF STIMULATION

obtained his PhD degree at the University of Leuven on 'The value of sperm morphology and other semen parameters in diagnosis and treatment of human subfertility. He became the Head of the Department of Obstetrics and Gynaecology in Genk, in 1999. From 2001 until 2004 he was the President of the Belgian Society of Obstetrics and Gynaecology.

Willem Ombelet (co-) authored 125 international peer-reviewed articles and was a (co-) editor of 21 books. He received 2 international awards. Dr Ombelet is the founder of the Genk Institute for Fertility Technology and the Walking Egg non-profit organization. He is the coordinator of the ESHRE Special Task Force on "Global and socio-cultural aspects of infertility" and past-coordinator of the ESHRE Special Task Force on "Andrology". He is the editor-in-Chief of the international scientific journal "Facts, Views & Vision in ObGyn".

SESSION 3 - Personalised IVF stimulation

Natural IVF – across ages

Objective: What is the intrinsic fecundity rate of the human oocyte in relation to age? Ovarian hyperstimulation has been found to yield a live baby rate per oocyte of only about 4 to 6%. Thus on average more than 20 to 25 oocytes would be required to produce a single live baby. But this is in stimulated cycles. The live baby rate per egg in natural cycle single embryo transfer IVF would estimate better the intrinsic fertility of the human oocyte.

Design: 13,949 oocyte retrievals were performed in a natural cycle program with single embryo transfer in an attempt to determine what is the fertility potential of a single human oocyte that has not been submitted to ovarian hyperstimulation.

Materials and methods: Infertile women undergoing natural cycle with a single embryo transfer were studied retrospectively. The primary data of live baby per oocyte were approximated with a logistic curve $r/(1+\exp[b(t-c)])$ where r is live baby rate per oocyte and t is age in years. The coefficients were evaluated using gradient method as implemented in statistical package R (version 3.2.5). This allowed the construction of a robust logistic curve fit.

Results: The primary outcome of interest was live baby rate per oocyte. For women ≤ 42 years, the overall live baby rate per oocyte was 18%, which translated into only 5.5 oocytes needed to produce one baby. For women 42 years of age, every oocyte would have a 4% chance of becoming a baby, which means for a 42 year old woman it would require 22.7 rather than 5.5 eggs to produce a baby. The drop in intrinsic fertility per oocyte is summarized remarkably robustly in a logistic curve.

There is at first a steady (almost horizontal) maintenance of fertility per oocyte (26%), followed after age 34 with a sharp linear decline until age 42 (4%), with a 10% loss of fertility every year. This decline slows down after age 43, with only 3% of original fertility remaining at age 45. The logistic model explains virtually all observed variation in live baby per oocyte rate: adjusted R-square is 99%. For all transfers the basic integrity of the logistic curve was remarkably robust.

Conclusion: Live baby rate per single unstimulated oocyte is 26% until age 35, and then declines 10% per year until age 42, when it is only 4%. This is approximately a five times greater live baby rate per egg than has been reported with stimulated cycles.

Objective: To evaluate the cumulative age adjusted IVF live birth rate (CLBRs) with clomiphene only minimal ovarian stimulation (mini-IVF), and the age also adjusted live baby rate per oocyte.

Design: Retrospective cohort study of the cumulative live baby rate per patient and the live baby rate per oocyte with Clomid only min-IVF

Setting: Private research fertility clinic in Tokyo

Patients: 839 women (mean age: 38.430.1 y; 2,488 cycles) underwent Clomid only mini-ivf. Their first oocyte retrieval was between January 2009 and December 2009, with follow-up until December 2014.

Intervention(s): Multivariate logistic regression analysis was used to analyze the odds ratios of age adjusted live birth rates per embryo transfer cycle. Crude and expected live baby rates (CLBR) were evaluated according to age subgroups. Crude CLBR was calculated as the number of women who achieved a live birth (after up to 10 cycles) divided by the total number of women who underwent oocyte retrieval. Expected CLBR for a given number of cycles was calculated by taking into account patients who dropped out or became pregnant. Finally, the total live baby rate per mature oocyte was calculated and compared to what has been previously reported for ovarian hyperstimulation and for natural cycle.

Main outcome measures: Cumulative live baby rate per patient, and live baby rate per oocyte retrieved.

Results: An average of 1.6 oocytes were retrieved per cycle, and the rates of clinical pregnancy and live birth per retrieval were 35.4%, and 27.1% respectively. These rates had a significant relationship with age ($P < 0.01$). The crude and expected cumulative live baby rate (CLBR) for all ages after 4 cycles was 44.0% and 54.3% respectively. For ≤ 31 years, CLBR was 84.2% and 92.7%; for ≥ 42 years it was 15.6% and 20.0%. The live baby rate per oocyte for all ages was 12.4%. For women ≤ 31 years, the live baby rate per oocyte was 41.6%. For women 32-36 years live baby rate per oocyte was 22.4%. For women 37-40 years live baby rate per oocyte was 12.7%. For ≥ 42 years the live baby rate per oocyte was 4.5%.

PERSONALISED IVF STIMULATION

Conclusions: Acceptable age related cumulative live baby rates are achievable in women who undergo mini-IVF using only Clomid for stimulation. The live baby rate per egg was over five times that for gonadotropin stimulated cycles and similar to that of natural cycles.

Sherman Silber

Managing Director, Infertility Center of St. Louis, USA

Dr. Sherman Silber has been a pioneer in microsurgery and IVF. He pioneered the earliest microsurgical vasectomy reversal, testicle transplants and the first ovary transplants. He was the developer of the TESE and MESA techniques with ICSI for retrieving testicular and epididymal sperm in azoospermic men. His center in St. Louis was the first to perform the ICSI technique in the United States. He was also the first in the U.S. to popularize the vitrification of eggs, embryos, and ovarian tissue. He headed the clinical portion of the MIT team that first mapped and sequenced the Y chromosome in infertile men and discovered the DAZ gene for male fertility. He has authored 10 books on infertility since 1977 and more than 300 scientific papers on human infertility and reproduction textbooks for clinicians and patients, and more than 240 scientific papers on human infertility and reproduction. He has more recently pioneered minimal stimulation and retrieval cycle protocols to retrieve improved cohorts of better quality oocytes. He has also discovered (via ovary transplant and stem cell research) the mechanisms for arrest and control of primordial follicle recruitment, and activation of dormant follicles in menopausal women.

Individualised IVF stimulation

Gonadotrophins have been used for ovarian stimulation in assisted conception for over 30 years. There have been many technological advances in ovarian pharmacology during that time and the stimulation regimes and doses used today are significantly different from those used in the past. Individualised medicine is one of the mantras of a XXI century approach to medical therapy. Several high-quality studies have used markers of ovarian reserve such as anti-Mullerian hormone or antral follicle count to individualise starting doses of gonadotrophins with the aim of improving the response of projected poor responders to stimulation and, at the same time, reducing the incidence of clinically significant ovarian hyperstimulation for those projected to have an overly florid response to gonadotrophin therapy. The results of these approaches to date have been interesting but not entirely convincing in their efficacy, and more work is required before a truly individualised approach can be undertaken.

The two major risks to health of mother and offspring after ART remain multiple pregnancy and ovarian hyperstimulation. Minimisation of risk of encountering these two problems should remain at the forefront of design of every ART cycle, accepting that these problems will still be seen occasionally due to factors out of the control of the ART specialist.

William Ledger

Senior Vice Dean of Medicine, Head of Obstetrics and Gynaecology UNSW, Sydney, Australia

Professor William Ledger is Senior Vice Dean of the Faculty of Medicine and Head of Obstetrics & Gynaecology at the University of New South Wales, Head of Reproductive Medicine at the Royal Hospital for Women, Chair of the Research and Development Committee and a fertility specialist at IVFAustralia.

His research interests focus on in vitro fertilisation and assisted reproduction, impacts of reproductive ageing and disorders such as endometriosis, premature ovarian failure and polycystic ovary syndrome on fertility and quality of life, reproductive effects of cancer treatment and health economic and demographic aspects of infertility. He has published over 250 research papers and edited 11 books on aspects of reproductive medicine.

The experience with Tamoxifen

Mild IVF using Tamoxifen.

In this presentation we analysis the consequences of using a modified Mild IVF stimulation comprising tamoxifen 40 mg daily from day 2 in the cycle in combination with 150 iu FSH ever alternative day until one follicle has reached 17 mm in diameter. Then 250 iu Ovitrelle was used to induce ovulation and 34 hour later oocyte retrieval was performed using a 20 G single lumen needle and only local analgesia in the vaginal wall at the point of puncture.

By this method we demonstrate equal or a trend of better implantation rate per oocyte retrieved compared to conventional IVF using short antagonist and FSH treatment.

Svend Lindenberg

Professor, Copenhagen Fertility Center, Denmark

Professor Svend Lindenberg has been involved in ART since 1981 and was member of the team making the first IVF baby in 1983 in Denmark. His professional carrier has been both as a Professor at Copenhagen University and involved in clinical work now at Copenhagen Fertility Center. His research is devoted to ART specifically mild approaches. Published more than 150 papers.



DEBATE AND FREE COMMUNICATIONS

SESSION 4 – Debate: We can achieve better outcomes with mild stimulation IVF

Debate - for the motion

Not every woman undergoing IVF requires ovarian stimulation. However, controlled ovarian stimulation to achieve multiple follicle development is an integral part of IVF treatment for many women. There is an on-going debate about optimising health outcomes for women and babies in IVF. There is an urgent need to eliminate severe Ovarian Hyperstimulation Syndrome (OHSS) and to reduce the cost and side effects of IVF treatment. The conventional IVF protocols can be complex, aggressive, unphysiological, unfriendly and unnecessary for women. The treatment can last up to 4 to 5 weeks and involves pituitary downregulation followed by higher doses of daily stimulation. As a result, women experience considerable discomfort. Milder stimulation approaches fit within women's natural cycles and are associated with less physical and emotional burden and drop-outs from treatment.

The primary aim of mild stimulation is a more physiological approach to stimulation with the collection of fewer but higher quality and mature oocytes. Studies have shown that this method may be beneficial for oocyte/embryo quality and endometrial receptivity. The effect of high stimulation on intrafollicular physiology and potential epigenetic errors in oocytes and embryos will be discussed. The adverse effects of high stimulation on peri-natal outcomes will be mentioned.

Knowing the lower biological efficiency of oocytes with conventional stimulation protocols and in the context of improved laboratory performance, the need for collecting a large number of oocytes per cycle will be questioned. With the availability of "OHSS free" antagonist protocols, the use of long downregulation protocols will be challenged. The studies performed during the last decade to develop the concept of mild stimulation will be presented. I will also challenge the definition of "success" of fertility treatment in the context of long-term health outcomes for women and babies. There has been a societal field change in the need for and availability of IVF to an increasing spectrum of women including same sex couples, single women, as well as for women requesting egg freezing and those who wish to donate eggs. These women are not infertile yet frequently exposed to high stimulation and the risk of OHSS, as also are nearly 50% of women where infertility is due to a male factor problem. In these circumstances the word "success" should not be applied to cycles where the woman's health has been put at risk by overstimulation no matter how many eggs are collected or livebirths achieved. Inequality of provision is also affected by prolonged treatment and high drug costs making in many countries IVF available only to the very affluent.

I will demonstrate that "mild stimulation" for IVF is the way forward not only to achieve "gender equality" in the IVF process but also for achieving our goals of social equality and wider economic benefits.

Geeta Nargund

President, International Society for Mild Approaches in Assisted, Reproduction (ISMAAR)

Geeta Nargund is the Founder and Medical Director of CREATE Fertility, UK and the Lead Consultant for Reproductive Medicine at St George's Hospital NHS Trust in London.

She is the President of the International Society for Mild Approaches in Assisted Reproduction (ISMAAR). She is the Founder and Chief Executive of Create Health Foundation, a UK charity devoted to promoting women's reproductive health. She has pioneered the fertility education initiative in secondary schools in 2016.

She is an elected Trustee on the Board of British Red Cross and also served as its London Vice President. She is a Trustee on the Board of London Emergencies Trust (LET), which distributes charitable donations to people affected by terror attacks and disasters in London. She has served as a senior governor of primary and secondary state schools in London. She is a member of the Guild of Health Writers UK.

She is also a Director of the Walking Egg Foundation, a Belgian Charity making fertility care accessible globally.

Debate - against the motion

To date, there aren't well defined criteria to describe "mild stimulation". ISMAAR refers to mild stimulation taking into account the doses and duration of ovarian stimulation, with the aim to collect fewer oocytes; nevertheless some studies consider an exact number of retrieved oocytes defined as fewer than eight, while others include even a number of oocytes greater than eight. All these discrepancies lead to bias in the final results. To evaluate the mild stimulation approach, it's essential to analyze cumulative results. Literature demonstrated that a reduced oocytes retrieval is linked with lowered success rates. This evidence also affects the cost-effectiveness of the procedure: the cumulative costs of "mild stimulation" may be high, owing to the greater number of cycles required to achieve a pregnancy, accordingly related to a longer time to pregnancy. Several studies have also addressed potential benefit of "mild stimulation" in the light of lower incidence of ovarian hyper-stimulation. However, the tendency towards the policy of freeze all, allows to overcome the negative effects of conventional stimulation OHSS. Furthermore the method might be able to improve embryo quality also in term of aneuploidy rate. To date there is not reliable evidence to suggest that aneuploidy rate in embryos may increase, to significant degrees, with growing gonadotropin dosages.

OPTIMISING IVF OUTCOMES

Andrea Borini

Clinical Director, 9.baby- Tecnobios Procreazione, Italy

Dr. Borini is Clinical Director at Tecnobios Procreazione, Centre for Reproductive Health, Bologna, Italy and Network Director of 9.Baby Fertility Network, Italy. He obtained his MD degree in 1986 and his specialisation degree in Obstetrics and Gynaecology in 1991 at the University of Bologna. He was a Research Fellow at the University of California Irvine, California (1989-1991). In 2007 he attained a Master's degree- In Andrology at the University of Padova, Italy. He is Chairman of the Italian Society of Fertility, Sterility and Reproductive Medicine (SIFES e MR). He has been a past-Chairman of the CECOS, Italy (2002 - 2008) and Profert, the Italian Society for Fertility Preservation (2008- 2013). He is a member of the editorial board of Fertility and Sterility and the associate editor for Reproductive BioMedicine Online and JARG.

SESSION 5 – Optimising IVF outcomes

Oocyte quality and limitations of IVF

Four decades of IVF have allowed births of millions of children worldwide. However, despite what appears superficially to be continual improvement in IVF results, there is an ultimate limit to the reproductive potential, tightly linked to the quality of the oocytes. The great majority of oocytes (about 90%) harvested after standard protocols do not result in live births. In contrast, recent experience with oocytes retrieved from natural cycles and single embryo transfer, demonstrated about 25% of the oocytes up to age 37 produced a live birth. Why so many oocytes do not result in a live birth? Not every IVF cycle (like not every natural menstrual cycle) yields a competent oocyte for live birth and harvesting large number of eggs (>12) does not increase live birth rates. Solutions are in sight to lower the inefficiency of IVF by improving oocyte selection methods but they need validation. For example, SPSB2 and TP53I3 are significantly downregulated in CCs from aneuploid oocytes ($P < 0.05$) and SPSB2 trended higher in CCs of oocytes that produced live births ($P = 0.054$). Oocyte quality deterioration with aging is triggered by hypoxia "sensed" by CC's. With aging, oocytes should be harvested from follicles at smaller diameter sizes.

Pasquale Patrizio

Professor, Obstetrics and Gynaecology and Reproductive Sciences, Yale University School of Medicine, USA

Dr. Pasquale Patrizio is a board-certified specialist in Obstetrics & Gynecology, Reproductive Endocrinology and Infertility, Andrology and has Master in Bioethics. He is Professor and Director, Yale University Fertility Center. He is an associate editor for JARG, section editor of AJOG and RBM On Line, and founding member of the International Society for Fertility Preservation (ISFP).

He has authored 6 books, 497 scientific papers (74 book chapters, 168 peer-reviewed publications and 249 abstracts) and holds 2 issued US patents (diagnostics and therapeutics). He is Honorary member of the Italian Society of Fertility and Sterility, and an honorary member Ob/Gyn of Mexico and Chile and has received prize paper awards from ASRM and ESHRE. He is the past president of ISFP and has been recently elected as vice-chair of Fertility Preservation for ASRM. Among his many contributions to the field: a) discovered CFTR mutation responsible for congenital absence of the vas deferens; b) reported microdeletions on the Yq chromosome responsible for severe oligospermia; c) described mechanisms of cumulus cells hypoxia leading to oocyte aging and aneuploidy. His main research interests include: Improving the efficiency of ART, reducing multiple pregnancy, fertility preservation strategies, ovarian aging, simplifying IVF laboratory and methods to oophylize gametes and stem cells.

Improving implantation

Several studies have demonstrated that endometrial function is impaired in gonadotropin stimulated IVF therapies, probably due to the supra-physiologically high estradiol concentrations. Endometrial dysregulation can be due to functional disturbances, possibly based on endometrial immune cell activity on a delay of endometrial development and transformation resulting in embryo-maternal desynchronization.

Based on these concepts pharmacological modulation (corticosteroids), mechanical modulation (scratching) and biochemical modulation (seminal plasma) strategies as well as improvement of embryo-maternal synchronization (ERA test) have been developed.

Corticosteroids do not have any positive effects (meta-analysis), scratching is an invasive, moderate expensive procedure with positive effects in recurrent implantation failures (meta-analysis), seminal plasma in non-invasive, cheap procedure with positive effects in any women (meta-analysis) and ERA test is an invasive, expensive and time consuming procedure with only preliminary results (according to an interim analysis 2016 of one RCT) with yet questionable effects.

Michael von Wolff

Professor, Head Physician, University Women's Hospital, Division of Gynaecological Endocrinology and Reproductive Medicine, Switzerland

He was born in Germany and has been trained in Aachen, Munich and Heidelberg as well as in London, New York and Switzerland. In 2009 he was nominated to become the head of the Division of Gynaecology and Reproductive Medicine at the Women's University Hospital, Berne, Switzerland.

His main scientific and clinical interests are Fertility preservation and Natural Cycle IVF. He performs basic research about the physiology of naturally matured follicles as well as clinical research covering several



OPTIMISING IVF OUTCOMES

topics such as psychological, economical and technical aspects in Natural cycle IVF. He has founded the network IVF-Naturelle (www.IVF-Naturelle.com) a network of Swiss, German and Austrian centers specialising in Natural Cycle IVF.

The role of advanced ultrasound

Ultrasound is an essential component of the modern investigation of female infertility and management of assisted conception. The basic 2D scan will can assess ovarian reserve through measurement of the AFC, track follicular development, and determine the timing of the ovulation trigger and embryo transfer through measurement of endometrial morphology and thickness. It will guide the needle at egg collection, the catheter at embryo transfer and the patency of the fallopian tubes through HyCoSy. It will reveal uterine problems that may inhibit implantation such as fibroids, adenomyosis and polyps.

Technological advances such as Doppler and 3D ultrasound are increasingly being used with a view to further enhancing the role of the basic scan. This lecture will explore whether this new technology has a major role in optimising outcomes.

Stuart Campbell

Consultant and Director of Ultrasound, CREATE Fertility, UK

Stuart Campbell pioneered many of the techniques used routinely in prenatal ultrasound today. He introduced precision fetal biometry such as measurement of the biparietal diameter and abdominal circumference and published the first fetal growth charts. He was the first to systematically examine the fetal anatomy in the early second trimester to diagnose fetal anomalies such as spina bifida. He introduced ovarian cancer screening by ultrasound and is a co-investigator of UKCTOCS, the national screening programme for ovarian cancer. He was the first to introduce 3D ultrasound in obstetrics in the UK and has used it extensively in fertility studies. He was the founding President of the International Society in Obstetrics and Gynecology and the first Editor of the international journal "Ultrasound in Obstetrics and Gynecology". Professor Campbell was formerly Chairman of the Department of Obstetrics and Gynaecology at King's College School of Medicine and latterly at St George's Hospital Medical School, University of London. He is presently Director of Ultrasound at Create Fertility, London. He holds numerous international honours and is an honorary fellow of the American College of Obstetricians and Gynecologists and the American Institute of Ultrasound in Medicine.

The role of hysteroscopy

Rudi Campo

Medical Director and President of the European Society for Gynaecological Endoscopy (ESGE), Belgium

Rudi Campo obtained his medical qualification (MD) in 1983 at the Catholic University of Leuven, Belgium and gained his board certification in Obstetrics and Gynaecology at the University of Düsseldorf, Germany. He was the initiator and person in charge of the University ART program and has been working in the department of microsurgery until 1990. Since 1990 he joined the Leuven Institute for Fertility and Embryology (LIFE) group in Belgium as a clinical director where he took the responsibility for the IVF lab and the ambulatory reproductive surgical unit. Recently he has started to serve additionally for the IVF lab at the ZOL hospital in Genk, Belgium. He speaks fluently several European languages, such as Dutch, English, German, French and Spanish. Rudi Campo is one of the international recognised hysteroscopic surgeons with major experience in hysteroscopic uterine, reconstructive surgery and hysteroscopic trans endometrial myometrial exploration. His current research interests are in the field of reproductive assisted technologies, endoscopic surgery and training and education. Among other activities in different European societies he is a committee member of the standing committee for training and assessment of the EBCOG, European Board & College of Obstetrics and Gynaecology, President elected of the ESGE European Society for Gynaecological Endoscopy and member of the special task force ART in developing countries and SIG reproductive surgery of the ESHRE European Society for Human Reproduction and Embryology. Furthermore he is one of the founders of The European Academy of Gynaecological Surgery to encourage the exchange of clinical experience, scientific thoughts and investigation among gynaecological endoscopists and practitioners, to establish an apolitical body for scientific research and standardisation.

DEBATE, IVM, FERTILITY PRESERVATION AND PERI-NATAL OUTCOMES

SESSION 6 – Debate, IVM, fertility preservation and peri-natal outcomes

Debate: Is there a role for pre-implantation embryo screening in context of mild stimulation?

For PGS

Dagan Wells

Associate Professor, Nuffield Department of Women's and Reproductive Health, UK

Dagan Wells has been actively involved in preimplantation genetic diagnosis (PGD) and the study of human gametes and embryos for 25 years. He spent several years at University College London, where he accomplished the first comprehensive chromosome analysis of cells from human embryos. He spent several years in the USA, joining the faculty of Yale University and serving as a Director for Reprogenetics, one of the world's largest providers of PGD services. He is now an Associate Professor at the University of Oxford, based at the Nuffield Department of Women's and Reproductive Health and will be heading-up research at IVI-RMA's new state-of-the-art research facility in Oxford. Dagan's work has led to the publication of over 150 peer-review publications and in the last decade has been shortlisted for eighteen major conference prizes, winning ten (ASRM and ESHRE).

Against PGS

Pasquale Patrizio

Professor, Obstetrics and Gynaecology and Reproductive Sciences, Yale University School of Medicine, USA

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Innovative and safe protocols for fertility preservation for cancer

Michaël Grynberg

Obstetrician Gynaecologist, Reproductive Medicine, Head of Department of Reproductive Medicine & Fertility Preservation, University Hôpital Antoine Bécclère, France

Michaël Grynberg is an Obstetrician Gynaecologist specialising in reproductive medicine. After 6 months as a visiting fellow in the Department of Reproductive Medicine at Cornell University, he returned to work in France as an attending physician in the Division

of Reproductive Medicine at the University Hôpital Antoine Bécclère, Clamart, France. In 2011, he completed his Ph.D. on the topic of the regulation of the follicular growth and AMH production. In 2014, he became Professor of Reproductive Medicine and the Head of the Department of Reproductive Medicine & Fertility Preservation at the University Hôpital Jean Verdier, Bondy, France. Since mid-2017, he has been the head of Department of Reproductive Medicine & Fertility Preservation at the University Hôpital Antoine Bécclère, Clamart, France. In addition, he is an active member of the basic research unit INSERM U 1133, Université Paris Diderot-CNRS UMR 8251. His research interests initially include the assessment of ovarian follicular status and the regulation of anti-Müllerian hormone a key peptide in the ovarian function. Over the past 5 years, he has expanded his field of research with oncofertility. Indeed, female fertility preservation has recently emerged in the field of reproductive medicine. Michaël Grynberg is a pioneer on this topic in France and has recently become the President of the French Society of Onco-Fertility. He is also the Head of the Fertility Department within the French College of Obstetrician Gynecologists. Prof M. Grynberg, along with his colleagues, has published over 150 peer-reviewed articles in international journals and books.

The role of IVM in current IVF practice

Recovery of immature oocytes followed by IVM of these oocytes is a potentially useful treatment for infertile women. This method seems particularly effective for women with polycystic ovaries (PCO) or polycystic ovarian syndrome (PCOS)-related infertility, because there are numerous antral follicles within the ovaries of this group of patients. To date, IVM treatment has been mainly applied to women with PCOS and is not regarded as applicable to all types of infertility with acceptable outcomes. It is clear that IVM treatment is impossible to replace current stream of IVF treatment procedure.

As we accumulate more experience and outcome data, natural cycle IVF, mild stimulation IVF and IVM treatment may prove to be not just alternatives to standard stimulation treatments, but potentially first-line treatment choices. As the development of IVM treatment, one very attractive possibility for enhancing the successful outcome is to combine natural cycle IVF treatment with immature egg retrieval followed by IVM of those immature oocytes. It has been proven that the use of IVM technology can thus be broadened to treat women suffering from all types of infertility with acceptable pregnancy and live birth rates. The aim of this presentation is to share our views of the strategy of infertility treatment mainly with immature oocytes.



DEBATE, IVM, FERTILITY PRESERVATION AND PERI-NATAL OUTCOMES

Ri-Cheng Chian

Professor and Director, Shanghai 10th People's Hospital of Tongji University, Shanghai, P. R. of China ADD (Canada and China)

Professor Ri-Cheng Chian is Director at Center for Reproductive Medicine, Shanghai 10th People's Hospital of Tongji University, P. R. of China. Before joining the current position, Dr. Chian was an Associate Professor with Tenure at McGill University's Division of Reproductive Biology in the Department of Obstetrics and Gynecology located in Montreal, Canada. Dr. Chian is the key person in the development of in vitro maturation (IVM) of human oocytes for clinical application and for cryopreservation of human oocytes which resulted in pregnancies and live births at McGill University Health Center (MUHC) in Canada. Dr. Chian published more than 200 research papers in journals and gave presentations at many international/regional conferences. Dr. Chian edited three books and contributed to various book chapters. Dr. Chian speaks English, Chinese, Korean, Japanese and has some knowledge of French.

Peri-natal outcomes and ART

More than six million children have been born after assisted reproductive technologies (ART) and ART children comprise 2-6% of the European birth cohorts. In the beginning of the ART era multiple pregnancy rates of 30% was the norm with severe adverse perinatal outcomes. After the implementation of single embryo transfer, perinatal risks for ART children has diminished markedly. Time trends show decreasing perinatal risks of ART children, however, singletons born after embryo transfer in the stimulated cycle still carry a two-fold increased risk of preterm birth and of being small-for-gestational age and also perinatal death is increased. On the contrary singletons born after frozen embryo transfer (FET) have a higher risk of being large-for-gestational age and macrosomic. Further culture media and length of culture affect the birth weight of the offspring. Hence it seems that ART including ovarian stimulation may be predictive for the phenotype of the offspring although parental characteristics may also play a role. Is it the hen or the egg that determines the future health of the ART offspring? Will these perinatal risks add a long-term health risk for the ART offspring?

Anja Pinborg

Professor of Reproductive Medicine, Rigshospitalet, University of Copenhagen, Denmark

Anja Pinborg is medical doctor and professor in reproductive medicine at Rigshospitalet, University of Copenhagen. Since her specialisation in obs/gyne in 2010, she has worked clinically in reproductive medicine. Anja Pinborg has published 124 peer-reviewed papers and authored seven book-chapters and her h-index is 34. Anja Pinborg is EXCO member of ESHRE and member of Committee of Nordic ART and Safety (CoNARTaS). She is past president for Nordic Fertility Society and past associate editor for Human Reproduction Update and Acta Obs/Gyn Scand. She is current editor in chief for Danish Medical Journal (DMJ) and section editor for RBMOnline.

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FREE COMMUNICATIONS

Transfer of embryos accumulated over 3 natural/natural modified IVF (ICSI) cycles: A better approach for women with critically low ovarian reserve?

Datta Adrija Kumar; Deval Bhanu; Campbell Stuart; Nargund Geeta

CREATE Fertility, UK

There is no single effective strategy for IVF (ICSI) in women with advanced age or poor ovarian reserve. Our study investigated whether accumulation of oocytes/embryos over 3 natural/ natural modified (N/NM)-IVF (ICSI) cycles followed by a single or multiple frozen embryo transfer(s) (FET) can improve livebirth rates (LBRs) in poor responders.

All poor prognosis women (according to Bologna Criteria) who had IVF (ICSI) with N/NM protocol over 2-year study period were included. The study population (Group-A) were women who had 3 successive oocyte retrievals as described above with freezing of all embryos followed by a single FET (“the package”) or multiple FETs. Matched control groups constituted patients who had had 3 standalone N/NM cycles (group-B) or 1 standalone cycle (Group-C) with fresh ET. The analysis was on per patient basis; the best treatment outcome was counted in the case of multiple ET/FETs. Women’s mean age (A=41.3, B=41.4 and C=41.6 years), median Antimüllerian hormone levels (A=2.1, B=1.9 and C=3.0 pmol/l) and antral follicle count (A=4.0, B=4.5 and c=5.0) were similar between the groups.

Mean number of oocyte and embryos were significantly higher in Group-A, resulting in only 7.4% women with no embryo for transfer, compared to 27.3% and 23.8% in Group-B & C respectively. Two thirds of women in Group-A had 2-3 embryos transferred, while 21.8% and 26.2% women had so in Group-B & C, respectively. Clinical pregnancy and LBR in group-A (32.8% and 23.8%) was significantly higher than those in Group-B (10.9% and 5.5%) or Group-C (18.9% and 9.7%), with no difference in miscarriage and twin rates. The highest LBR (28.3%) was in group A with a single transfer (“the package” sub-group).

Accumulation of embryos over 3 N/NM cycles improves IVF (ICSI) outcomes of poor responder women, with significantly higher LBRs in 35-44 years age-group. Greater probability of euploid embryo transfer from larger cohort of embryos (28.3%) and less likelihood of ending with no embryo for transfer may explain better outcome

In-vitro maturation of oocytes in a woman with gonadotropin-resistant ovary syndrome associated with a novel combination of FSH receptor gene variants

Miron Pierre¹; Flageole Christine¹; Toufayli Chirine²; Bernard Daniel J.²; Ates Senem¹; Blais Véronique¹; Chénier Sébastien³; Benkhalifa Moncef¹

¹Centre d’aide médicale à la procréation FERTILYS; ²McGill University; ³Université de Sherbrooke

Aims/objectives: First described almost 50 years ago, Gonadotropin-Resistant Ovary Syndrome (GROS) is a rare type of hypergonadotropic hypogonadism that remains over time a diagnostic and therapeutic challenge in the context of infertility^{1,2}. Here we report an original case of GROS, associated with compound heterozygous follicle-stimulating hormone receptor (FSHR) variants, in a woman who achieved a live birth by in-vitro maturation (IVM) of her oocytes³.

Content of presentation and outcomes: This 31-year-old woman consulted our assisted reproduction centre for a second opinion after having been advised, because of pervasive high serum follicle-stimulating hormone (FSH) levels, to pursue in-vitro fertilization (IVF) with donor oocytes. She presented with primary infertility and progressively prolonged menstrual cycles. Her serum FSH levels were indeed found to be high, but in discordance with a normal anti-Müllerian hormone (AMH) level and antral follicle count. Genetic investigation found the patient to be compound heterozygous for two FSHR variants: I160T, a known pathologic variant, and N558H, which has never been previously reported. As there was no ovarian response to high daily doses of exogenous gonadotropins, IVM was proposed to the patient with success and she finally delivered at term a healthy boy. Effects of the receptor variants were analysed in heterologous cells^{4,5}. Whereas the I160T mutation blocked FSHR membrane trafficking and FSH-stimulated cAMP-dependent signalling in transfected CHO cells, the novel variant, N558H, functioned equivalently to wild-type FSHR in the assays employed.

Relevance/impact: We suggest WHO classification for chronic ovulation to be revisited by the ESHRE Capri Workshop Group in order to take into consideration, among others, AMH and AFC in its diagnostic algorithm, particularly for WHO class 3, as well as IVM as a therapeutic option for GROS.

Discussion: IVM should always be offered as a first-line therapy to infertile women presenting with GROS.

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Gonadotropin-free modified natural cycle in the context of near-empty ovarian reserve

Au Luan; Pham Duc; Do My

University of Medicine and Pharmacy at Ho Chi Minh city, Vietnam

In women with almost total depletion of ovarian reserve, very low AMH concentrations may impact on the gonadotropin-independent phase of the ovarian cycle causing inappropriate follicular development and progression to atresia. AMH, seems more reliable at predicting ovarian responsiveness than AFC but a "dynamic" profile including AMH and measurement of antral follicles, gonadotropins and ovarian steroids may be more reliable for cycle management.

We have examined the use of gonadotropin-free modified natural cycles for IVF in patients with almost total depletion of ovarian reserve. The primary outcome was live birth using patient's own oocytes. By using small doses (5 mg daily) of mifepristone we avoided use of a GnRH-antagonist with efficient suppression of premature LH surges without impact on pituitary FSH release. This allowed an exogenous gonadotropin-free strategy. Fresh embryo transfer was not performed following use of mifepristone. Rather, we performed cryopreservation of oocytes with later fertilisation of oocytes collected from multiple egg collections.

We have treated 100 women who were advised by other centres to consider oocyte donation or who had extremely diminished ovarian reserve with very poor response to previous conventional superovulation. Many had previous surgery for severe endometriosis.

Mean AMH was 0.6230.8 ng/mL. With repeated cycles, 85 patients achieved at least 6 cryopreserved oocytes. Of those who achieved this goal, all of them had fertilisation of one or more oocytes and embryo transfer. Live birth rate per patient was 16.5% with an NNT of 7.4 for live birth and avoidance of oocyte donation.

Discussion: This protocol achieved pregnancies for women who would otherwise have resorted to oocyte donation. This reduced cost and enhanced the opportunity for obtaining fertilisation and embryos for later transfer.

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Endometriosis pathogenesis: Role played by the oxidative stress due to mthfr mutations

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Objective: To study the role played by the oxidative stress due to methylenetetrahydrofolate reductase (MTHFR) mutations in the pathogenesis of endometriosis.

Content of presentation: From January 2016 to January 2018, we followed 30 infertile patients suffering from endometriosis (according to the ESHRE 2013 guidelines) and having had at least 1 ART (Assisted Reproductive Technologies) cycle failure.

The presence of MTHFR C677T was determined from a venous blood sample, using real time PCR with the RealFast™ assay (ViennaLab Diagnostic GMBH, Austria).

The infertile patients with recurrent ART failures (2 to 7) and carrying MTHFR mutations were afterwards treated with 5MTHF (5 Methylene Tetrahydrofolate), a treatment by-passing the problems linked to MTHFR impaired activity. We compared the pregnancy rates obtained before and after treatment.

Relevance/impact: Recent studies mention the role of oxidative stress in the pathophysiology of endometriosis (Augoulea, 2009). Oxidative stress can be induced by polymorphisms of MTHFR (Guo, 2016). To our knowledge, no study in the literature analyzed the role played by MTHFR in the endometriosis genesis of infertile patients.

Outcomes: Among the endometriosis population, 60% of the patients are carrying the MTHFR mutation (46.7% in a heterozygous state, 13.3% in a homozygous state).

This proportion is significantly more important ($p < 0.05$) than the proportion of patients carrying the MTHFR mutation in the general population : 50.5% (Zappacosta, 2009).

Furthermore, after we treated infertile couples with endometriosis and recurrent ART failures (2-7) carrying MTHFR mutations, we significantly improved their ART outcomes (average ongoing pregnancy rate per cycle : 23.4 before treatment; 29.6 after treatment, $p < 0.005$).

Discussion: Endometriosis can be explained by MTHFR mutations. The resulting oxidative stress impairs the fertility of the female patients.

Therefore, by improving the methylation and decreasing the oxidative stress, treating MTHFR mutation carriers improves the quality of the gametes and the ART outcomes.

The role of the oxidative-stress in the endometriosis-related infertility (Augoulea et al., 2009).

Relationship of MTHFR gene polymorphisms with infertility (Guo et al., 2016).



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Impact of non steroidal anti-inflammatory drugs (NSAID) such as ibuprofen on follicular fluid, ovulation and oocyte competence

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Objectives: NSAIDs are not recommended around ovulation in women trying to conceive spontaneously. In contrast, in Natural Cycle IVF (NC-IVF) NSAIDs are used in daily routine. Therefore: what is the impact of NSAIDs, specifically ibuprofen, on follicular physiology and oocyte competence?

Content of presentation/outcomes: Follicular fluid was collected from 19 NC-IVF women, taking 3x400mg/day ibuprofen before follicle aspiration. The concentrations of follicular cytokines (IL-1, IL-6, IL-8, IL-12, GM-CSF, TNF, VEGF), prostaglandin E2, matrix metalloproteases 2 and 9 and hormones (LH, FSH, estradiol, testosterone, AMH) were determined by single or multiplexed immunoassays and compared to matched controls not taking ibuprofen. Oocytes were collected from 111 NC-IVF women. If LH surge (>10IU/l) was diagnosed (n=63), 3x400mg/day ibuprofen was given and follicle aspiration was performed 2 days, around 48 hours later. If no LH surge was diagnosed (n=48) ibuprofen was not given and follicle aspiration took place 36 hours after HCG injection. IVF-outcome parameters were analysed.

In follicular fluid of ibuprofen treated women, IL-8 was significantly ($P<0.05$) decreased and IL-6 and PGE2 showed a trend towards reduced concentrations compared to controls. Estradiol concentration was also lower in patients with Ibuprofen ($P<0.05$).

IVF-outcome parameters were not significantly different such as preterm ovulation rate 21% in the ibuprofen group vs. 17% in the non-ibuprofen group, oocyte retrieval rate 82% vs. 90%, fertilization rate 68% vs. 63% and implantation rate 28% vs. 14%.

Relevance/impact: Our study revealed that NSAIDs, specifically ibuprofen, has some impact on follicular physiology. It also revealed that ibuprofen postpones ovulation for several hours.

However, as oocyte competence was not affected by ibuprofen, this impact does not seem to have functional implications.

Therefore ibuprofen seem to be safe around ovulation in women trying to conceive spontaneously as well as in IVF-treatments.

Discussion: The analysis was performed with ibuprofen. Data cannot be transferred to any other NSAIDs.

The risk for small for gestational age children tends to be higher in conventional gonadotropin-stimulated IVF compared to Natural Cycle IVF

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Objectives: To assess the risk for small for gestational age in children conceived after gonadotropin-stimulated IVF (cIVF) compared to Natural Cycle in vitro fertilization (NC-IVF).

Content of presentation/outcome: Data on reproductive treatment, obstetric and perinatal outcome of women were collected at a University-based infertility center between 2010-2016. Singleton pregnancies conceived after cIVF (n=86) were compared with children after NC-IVF (n=65). Small for gestational age (SGA) was defined as birthweight <5th percentile. Gestational age (NC-IVF: 39.2 weeks vs. cIVF: 38.9 weeks), prematurity (14.3% vs. 14.0%) and induction of delivery (35.5% vs. 35.4%) as well as mean birth weight (3.226g vs. 3.148g) did not differ between both groups. However, in cIVF the proportion of SGA children was higher (7.2% vs. 5.8%, $p=0.039$) and the risk to deliver an SGA child was increased (OR 4.91, 95% CI 1.0-23.2, $p=0.044$). After adjusting for maternal height, maternal age, maternal smoking status, and parity, the risk to deliver an SGA child was still increased, but the increase was not significant anymore (OR 4.2, 95%CI 0.8 - 21.0, $p=0.078$).

Relevance/impact: Obstetric and perinatal risks seem to be higher in cIVF compared to spontaneously conceived pregnancies (1). Several factors have been discussed such as parental age and health (2,3), laboratory procedures (4) and the stimulation with gonadotropins (5). Our study revealed that gonadotropin stimulation seems to contribute to the increased obstetric and perinatal risks in IVF pregnancies.

Discussion: The model of NC-IVF allows analyzing the impact of gonadotropin stimulation on the outcome of IVF children. The higher risk in gonadotropin-stimulated IVF might be due to dysfunctional endometrium caused by supraphysiological estradiol concentrations resulting in impaired placental function. Therefore, NC-IVF might be an option to achieve a better perinatal outcome.

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The Ninth World Congress on Mild Approaches in Assisted Reproduction

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Treating couples carrying methylenetetrahydrofolate reductase (mthfr) c677t mutations with 5-methylenetetrahydrofolate (5mthf) improves their fertility outcomes.

Menezo Yves¹; Cornet Dominique²; Clement Patrice¹; Neveux Paul¹; Clement Arthur¹

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Objective: To show if treating couples suffering from long lasting infertility with repeated ART (Assisted Reproductive Technologies) failures in which at least one partner is carrying a MTHFR mutation could improve their fertility outcomes.

Content of presentation: Every couples having repeated miscarriages (3 to 9) and multiple ART failures (2 to 7), in which at least one partner is carrying MTHFR C677T mutation were included in our study and treated with 5 MTHF 400 micrograms/day in association with group B vitamins during 4 months before starting a new ART attempt.

The presence of MTHFR C677T is determined from a venous blood sample, using real time polymerase chain reaction (PCR).

Relevance: The current consensus is in favor of a treatment by high doses of folic acid. However, this type of treatment induces the so-called UMFA (unmetabolized folic acid syndrom) (Sweeney et al., 2007; Plumptre et al., 2015)) and it does not significantly improve the pregnancy rate. On the opposite, 5MTHF by-passes the problems linked to MTHFR impaired activity and allows a correct efficacy of the one carbon cycle.

Outcomes: 30 couples from 3 different clinics with repeated miscarriages and multiple ART failures are enrolled in the study. Following the treatment, we obtained 18 pregnancies out of 30 cycles including 14 ongoing pregnancies (ongoing pregnancies rate per cycle: 47 %).

Discussion: Treating couples carrying MTHFR mutations improves their ART outcomes. In men, MTHFR C677T mutations induce alteration of sperm DNA structure, especially nucleus decondensation (Cornet et al, 2017). In women, this mutation decreases female fecundity and the chance of implantation (Laanpere et al. 2010). By improving the methylation and decreasing the oxidative stress, treating MTHFR mutation carriers (male and female) improves the quality of the gametes, and therefore the implantation potential of the embryos.

Folic acid fortification and public health : report on threshold doses above which unmetabolised folic acid appear in serum (Sweeney et al., 2007)

High concentrations of folate and unmetabolized folic acid in a cohort of pregnant Canadian women and umbilical cord blood (Plumptre et al., 2015)

Association between the MTHFR C677T isoform and structure of sperm DNA (Cornet et al., 2017)

Folate mediated one-carbon metabolism and its effect on female fertility and pregnancy viability (Laanpere et al., 2010)

Embryo utilisation rates after natural and mild cycles

Wilding Martin; Hall Vivienne; Terribile Mario; Bell-Smythe Silenys; Silver Niclas; Priyanka Sweta; Nargund Geeta

CREATE Fertility

Aims/Objectives: To examine the embryo utilisation rates after mild stimulation and natural/natural modified cycles in an IVF program.

Content: Mild stimulation and natural/natural modified cycles in IVF are designed to select fewer, high quality embryos for cryopreservation and embryo transfer. Mild stimulation cycles are designed to recruit secondary follicles whereas natural/natural modified cycles are designed to support the natural selection of the lead follicle in a menstrual cycle and produce a high quality egg. The application of these protocols is determined according to patient characteristics. Using standard criteria for the selection of embryos produced after natural and mild cycles, we examine whether the efficiency of utilisation of embryos produced after natural cycles is increased with respect to mild stimulation.

Relevance/Impact: The data test whether natural cycles select the highest quality oocytes in an IVF cycle by examining the utilisation rates of these eggs after IVF and ICSI with equivalent measurements of embryo quality and policies for embryo transfer and cryopreservation.

Outcomes: Data was retrospectively analysed between 2013 and 2017 in a program of mild and natural IVF in a tertiary IVF centre. Utilisation rates for embryos selected according to quality after natural and mild cycles did not decrease with advancing maternal age. The cumulative utilisation rate for natural cycles (80.2%) was significantly higher than that of mild cycles (64.5%).

Discussion: These data suggest that natural cycles recruit high quality follicles than mild cycles, leading to lower embryo wastage and a more efficient use of embryos in IVF cycles.

Fertility preservation discussions in young women with breast cancer

Brown Kathryn; Armstrong Natalie; Potdar Neelam

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Aims: i. To investigate the documentation rates of fertility preservation(FP) discussions undertaken for young women diagnosed with breast cancer; and



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ii. To explore the knowledge, attitudes and reported behaviours of healthcare professionals (HCPs) providing FP discussions.

Content: This study assessed documentation rates and demographics through review of medical notes of women diagnosed with breast cancer aged 19-45 years, from 2005 – 2016 at one hospital. Alongside this, qualitative interviews were completed to understand HCPs' perspective towards FP discussion. Data were analysed using SPSS and NVivo software respectively. Both quantitative and qualitative data will be presented.

Relevance: Breast cancer is the commonest cancer of women in the reproductive age group. NICE guidelines recommend all patients are informed of the treatment-related fertility effects at diagnosis and offered specialist referral for discussion of oocyte or embryo cryopreservation. Evidence has shown the knowledge and provision of FP discussions is variable and women have un-met needs.

Outcomes: 255 women met the inclusion criteria, of which 95 (37.25%) had a documented FP discussion. 70/95 (73.68%) were further referred to a fertility specialist. Nulliparity ($p < 0.0001$), younger age ($p < 0.0001$), having no partner ($p = 0.002$) and White British ethnicity ($p = 0.041$) were significantly associated with having documented FP discussion.

Qualitative interviews showed that HCPs (Oncologists, Breast surgeons, Specialist nurses) had awareness of, but were not confident in their knowledge of, FP and were unsure of their role in the discussion. Nulliparity and younger age were highlighted as factors influencing discussions. Specialist nurses placed higher importance on discussing FP with women.

Discussion: Patient characteristics may impact whether and how FP discussions take place, as well as HCPs' personal attitudes and knowledge. Raising awareness of the essential components of FP discussion by a checklist or algorithm may help in addressing ambiguity and promoting consistent FP discussion.

Should ICSI be used in women with advanced maternal age?

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The First Affiliated Hospital of Nanjing Medical University, People's Republic of China

Objective: To compare reproductive outcomes following conventional in vitro fertilization (IVF) and intracytoplasmic sperm injection (ICSI) when used for non-male factor infertility in women aged 38 years and over.

Design: A retrospective, single center study included women aged 38-46 years who underwent IVF treatments

without male factor from January 2012 to August 2015.

Materials and methods: A total of 1,602 women were included in the study. Of these, 181 women underwent ICSI and 1,421 women underwent conventional IVF. The male partner had to have normal sperm parameters according to World Health Organisation (WHO) fifth edition. Exclusion criteria included: more than four previous failed IVF cycles and a history of fertilization failure or low fertilization (<30%). The primary evaluation outcomes were the clinical pregnancy, miscarriage and live birth rates. Secondary evaluation outcomes included fertilization rate, fertilization failure and embryo quality. Statistical analyses were performed using SPSS, version 13.0 (SPSS, Inc), and the clinical outcomes between groups were compared using the X2 test. The differences in means of demographic data were calculated by t test, $P < 0.05$ was considered to be statistically significant.

Results: Baseline characteristics were similar between the conventional IVF and the ICSI groups, except for the number of oocytes retrieved, which was higher in the ICSI group (3.6 vs 2.9, $P < 0.05$). There were no differences in clinical pregnancy, miscarriage and live birth rates between the two groups. Also fertilization rate, fertilization failure and embryo quality were similar in two groups.

Conclusion: Our data indicates that the method of insemination should be made based on sperm parameters rather than women advanced age. The use of ICSI for the sole indication of advanced maternal age does not improve ART outcomes over conventional IVF.

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Only women's age and the duration of infertility are prognostic factors for the success rate of Natural Cycle IVF (NC-IVF)

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Objectives: It is controversial who should be recommended to undergo NC-IVF. Therefore objective prognostic criteria are needed to allow better counselling for or against this technique.

Content of presentation/outcomes: A retrospective observational study was performed with 201 couples (age 34.734.1) undergoing NC-IVF treatment. The first

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cycle resulting in a transfer of one embryo was analysed. Total clinical pregnancy and live birth rate were 27.9% and 23.4%, respectively. Groupwise comparison in relation to duration of infertility revealed the following clinical pregnancy/live birth rates: 1-2y: 34.3/25.7%, 3-4y: 21.8/14.9% and >4y: 9.1/4.5%. Numbers in relation to women's age were: <34y: 26.3/22.4%, 34-37y: 25.7/18.9% and 38-42y: 15.7/3.9%. Pregnancy (P=0.001) and live birth rate (P=0.002) correlated with the duration of infertility. Live birth rate (P=0.002) but not pregnancy rate correlated with age. AMH and infertility factors did not correlate with the success rate. Multivariate logistic regression analysis confirmed these results.

Relevance/impact: This is the first study analysing prognostic factors for live birth rate in NC-IVF. As it focused on factors which are already available at the time of IVF counselling and as the influence of technically-related confounders were reduced by analysing only transfer cycles, we provide data which will allow balanced counselling for or against NC-IVF.

Discussion: Our study might also explain the controversial attitudes of many clinicians regarding the success rates of NC-IVF. If NC-IVF is seen as a kind of last resort in infertility treatment and therefore if only couples with low prognostic criteria are recommend for NC-IVF, the success rate can be expected to be very low. This was confirmed in our study as live birth rate was only 0% in couples with infertility >4y and women's age 38-42y. In contrast, in couples with good prognostic criteria such as infertility 1-2y and women's age <34y, live birth was 36.7% per transfer.

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Certificates of attendance

Certificates will be emailed to delegates within ten days of the event taking place. The certificate will reflect days attended.

Congress dinner at the Houses of Commons

It takes place on Thursday 12 April starting with a reception at 7.00pm and Carriages at 10.30pm. Dress code is Black tie/lounge suits and cocktail dresses.

If you have booked for the dinner, further details have been sent to you by email and your ticket was included in your delegate envelope (which you received with your badge at registration).

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There is a cloakroom for general use in the main foyer of the RCOG.

Congress presentations

Presentations from the congress will be available to download on the Ismaar website within 4 weeks of the conference (subject to agreement by speakers) - www.ismaar.org.

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Should you require this service please let the event organisers know at the registration desk.

Hotel check-out

Delegates staying at the Danubius are advised that check out is by 12.00 and the hotel reception and breakfast room are likely to be very busy. We would recommend you leave plenty of time to have breakfast and check out, to reach your sessions at the RCOG on time.

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Refreshments and lunch will be served from the catering points in the exhibition, in the Reception Hall for all breaks on both days of the event.

Plenary Sessions

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Pre-Congress Workshops

If you are attending either the Pre-Congress Hysteroscopy or Ultrasound Workshops on the morning of Thursday 12 April, please refer to the separate programme pages - which are available at the dedicated congress registration desk.

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Thursday 12 April | 08.00 -13.00

Main Congress

Thursday 12 April | 13.00 - 17.00

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