O-201 The every expanding sperm tool kit
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In the old days it was thought that the only thing the sperm did, that was useful, was to contribute haploid DNA. Every embryologist I have ever met had an aversion to sperm – we just need DNA they say. In fact, they volunteer - even if the DNA is of poor quality - the egg is so smart it can repair damage where necessary. Game over.

However, now we know the sperm contributes a myriad of essential material to kick start and aid development. Such goodies include the centrosome, mRNA, micro RNA’s, Phospholipase zeta (and probably others), critical imprinting potentially via histones as well as DNA imprints …..the list grows as we investigate more (and read the literature).

Additionally, we now understand that the sperm’s journey to the egg (except ICSI of course) is a very challenging and arduous one. The cell needs to be exceptionally well equipped, dynamic, sensitive and dare I say clever (out competes its colleagues and rivals) to reach and interact successfully with the egg. The plethora of complex interactions with the reproductive tract are only just been uncovered e.g. modification of gene expression in the female by the sperm cells. The sperm cell also has to find the egg and is equipped with the most sensitive of receptors to locate the egg - single molecular recognition – very impressive.

The sperm is not just a pretty cell – who can fail to be impressed by the dramatic swimming patterns the cell makes - it carries an essential tool bag to the egg which initiates fertilisation and enables the birth of a healthy child. The tool bag is increasing in complexity day by day.

INVITED SESSION
SESSION 53: EUROPEAN AND GLOBAL ART MONITORING
Wednesday 30 June 2010 08:30 - 09:30

O-202 Assisted reproductive technology in Europe, 2006. Results generated from European registers by ESHRE
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This is the eleventh report of the European IVF-monitoring (EIM), the ESHRE register on assisted reproductive techniques (ART) organization. This report deals with the results of treatments initiated during 2007.

Methods: Data were collected from existing national registries in 31 countries and directly entered by each national coordinator into the EIM database through software developed by ESHRE. Data were analysed at ESHRE headquarters.

Results: In total, 937 clinics participated (84.3% of registered clinics in the participating countries). They reported 454 802 treatment cycles: IVF (119 463), ICSI (221 529), frozen embryo replacement (FET, 91 055), egg donation (ED, 14 312), preimplantation genetic diagnosis/screening (PGD/PGS, 451), in vitro maturation (IVM, 660) and frozen oocytes replacements (FOR, 3272). Overall this represented a 7.8% increase in activity in the participating countries since 2006. Data on intrauterine insemination using husband/partner’s (IUI-H) and donor (IUI-D) semen were reported from 21 countries. A total of 140 514 IUI-H and 25 332 IUI-D cycles were included (4.7% and 4.1%). When interpreting the results it is important to note that delivery rates may be underestimated due to lack of follow-up and incomplete reporting.

For IVF, the clinical pregnancy rates (PR) per aspiration and per transfer were 31.1% (+2.1% compared to 2006) and 32.8% (+0.4%) respectively. The delivery rate (DR) per aspiration reached 23.4% (+1.9%). For ICSI, the corresponding rates were 29.1% (-0.8%), 32.0% (-1.0%), and 20.2% (+1.8%). For frozen embryos replacements, PR was 19.9% per thawing and 22.1% per transfer. The corresponding delivery rates were 13.6% and 15.1%. In oocyte donation, PR and DR were 46.3% and 30.7% per transfer, respectively. For PGD/PGS, PR was 23.1% per aspiration and 33.1% per transfer. For in vitro maturation, PR and DR were 11.8% and 6.7% per aspiration respectively. Finally, 3272 replacements after oocyte freezing were reported, mainly from Italy. They resulted in 14.6% PR and 9.7% DR per thawing, respectively.

After IUI-H the pregnancy rate and delivery rate was 11.5% and 8.2%, reaching 12.9% and 10.2% 9.2% in women below 40.

Women’s age strongly influenced treatment outcomes with delivery rates of 22.4%, 19.1% and 2.1% in age groups < 35, 35-39 and ≥ 40 years respectively.

The transfer of 1, 2, 3 and 4 or more embryos following IVF or ICSI occurred in 22.8%, 57.6%, 18.4% and 1.2%, cycles respectively. The corresponding figures for 2006 were 22.1%, 57.3%, 19.0% and 1.6%, thus with only marginal changes. There were significant national differences in practice were apparent. The proportion of single embryos transfers varied from 4.5% in Greece to 69.7% in Sweden, whereas the proportion of transfers with 4 or more embryos varied from 0% in 9 countries to 18.3%. The proportions of singleton, twin and triplet deliveries after IVF and ICSI combined were comparable to those in 2006, at 78.7%, 20.5%, and 0.8% respectively. The proportion of very preterm deliveries (<33 weeks) increased from 3.7% for singleton pregnancies to 14.4% for twin pregnancies and 45.7% for triplet pregnancies, justifying a transfer policy aimed at decreasing the risk of multiples.

IUI-H in women below 40 years of age resulted in 11.7% twin and 0.5% triplet pregnancies, thus not higher than in IVF-ICSI.

Conclusions: In comparison with previous years, the number of reported ART cycles in Europe is still increasing, pregnancy rates have increased, with almost the same distribution of the number of transferred embryos and no significant change in the multiple delivery rates.

O-203 Preliminary global ART data for 2006
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O-204 The International Committee for Monitoring Assisted Reproductive Technology (ICMART) and the World Health Organization (WHO) glossary on ART terminology
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Introduction: Many terminologies used in medically assisted reproduction (MAR) vary within different countries making it difficult to standardize and compare outcomes reported by clinics, as well as national and regional registers. In December 2008 the WHO together with ICMART and other international organizations met in Geneva with the objective of developing a glossary containing an internationally accepted set of definitions that would help standardize and harmonize international data collection of assisted reproductive technology (ART). The purpose of this presentation is to describe the methodology used to reach a consensus among professionals from a variety of countries, ethnics and academic background. It is also an objective to discuss the impact of certain terminologies on the assessment of reproductive outcomes, and how infertility treatment is perceived and dealt with in different countries.

Material and Method: Three working groups were responsible for proposing new, as well as already existing terminologies representing clinical, laboratory and outcome measures. These were discussed by a group of 72 clinicians, basic scientists, epidemiologists and social scientists gathered together in the WHO. The Glossary containing the terminologies that were agreed upon, were simultaneously published in Human Reproduction and Fertility and Sterility in 2009.

Results: A consensus was reached on 87 terms, which included definitions for clinical and laboratory procedures and outcome measures. Special emphasis was placed in definitions, which have direct impact in data gathering and those used to define clinical outcomes. While MAR was broadly defined to include ART as well as ovulation induction, controlled ovarian stimulation, intrauterine insemination, etc, ART in itself was restricted to procedures which include the “in vitro handling of both human oocytes and sperm or embryos, for the purpose of establishing a pregnancy”.

In a different context, the word “conception”, is frequently used in medical and legal terminology. Sometimes it is used as synonymous of fertilization, in other cases as the initiation of pregnancy (implantation). The use of these two interpretations is not standardized and can carry many legal implications. Therefore this terminology was replaced by technical terms such as fertilization or implantation respectively.
After considerable discussion on how to define infertility, two agreements were reached. The first was to define this condition as a “disease of the reproductive system”; the second was to use a clinical definition and include a clinical pregnancy instead of delivery or live birth as end point. Indeed, from a demographic perspective, only births matter, however, from a clinical perspective, clinical pregnancies were agreed to represent a better outcome.

Conclusions: This glossary will contribute to a more standardized communication among professionals responsible for ART practice, as well as those responsible for national, regional and international registries. Although the content of this glossary has been recently disseminated in two prestigious journals and in the WHO website, it has been decided to strengthen its diffusion in this symposium and discuss the impact of certain definitions. The new definition of infertility as a disease, merits special consideration as it should help health professionals, consumer organizations and advocacy groups in their effort to include infertility diagnosis and treatment within health priorities. The ICMART/WHO Glossary is also being translated into Spanish, Portuguese, Russian and French, which will facilitate its utilization and the understanding among different countries.

O-205 World Health Organization emphasis on international ART monitoring

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In 2005, the World Health Assembly adopted the resolution “to accelerate national actions towards universal access and coverage with maternal, newborn and child health interventions, through reproductive health (RH) care” and “to establish monitoring mechanisms for measuring progress towards the achievement of agreed goals, particularly the target of universal access to reproductive health (RH) by 2015.” In 2006, the United Nations General Assembly adopted the Secretary General’s World Summit report to include universal access to RH under MDG5, which addresses the improvement of maternal health. Infertility is a disease of the reproductive system resulting in an inability for a couple or an individual to become pregnant. From a reproductive and maternal health care perspective, infertility has been recognized as a potential co-morbidity from maternal delivery complications, a potential result from unsafe abortion or from complications associated with sexually transmitted diseases or female genital mutilation. Regardless of a genetic or non-genetic cause, due to the high stigma attached to lack of parenthood, and more significantly motherhood, infertility further contributes to the psychosocial disease burden of couples and individuals. There is a double burden experienced by HIV + couples or individuals experiencing a long time survival due to access to HIV care services, who as a result carry a desire to have a HIV- child or children; Access to infertility treatment is one component of universal access to RH and has the potential to provide individual, couple and community stability. Thus, if grounded in the concept of universal access to RH, infertility should not be selectively eliminated as a disease of the reproductive system requiring services by public health care systems.

Infertility management and treatments do not always require access to Assisted Reproductive Technologies (ART). The WHO official definition of ART does not include assisted insemination however some nations or professional societies may differ in their definition. However, monitoring universal access to care will require the development and use of indicators which capture all aspects of infertility management and treatment, including perinatal outcome measures. Monitoring the extent of access to infertility services, equity of access, availability of information and counseling, as well as the cost and quality of infertility services will also need to be addressed and captured. Maternal/ perinatal and family planning contraceptive services are beginning to address many of these aspects of universal access, and “infertility care services” must follow suit.

Until a framework of indicators to monitor access to infertility care is established, global recommendations are difficult to institute for infertility service implementation within country programmes. If such a framework would exist, comprehensive programmes would have the capability to link access to fertility intentions and care needs with family planning and maternal/perinatal health services as well as HIV/STI prevention, care and treatment services.

WHO appreciates the current level of emphasis on ART monitoring done by some nations and international and regional professional societies and encourages all countries to adopt a standardized monitoring and reporting procedure.

To benefit infertile couples and individuals, a monitoring system’s success is measured by its data analysis which results in change in policy, with the modification or institution of programmes which continually recognize and adjust to risk reduction. Data collected should be able to be used to not only identify where specific procedures are successful, but also to set priorities and identify areas for quality improvement, cost-effectiveness and implementation research. Although it has been recognized that there is a lack of infertility care within public health services, there is also a paucity of affordable private health care infertility services. This negatively impacts the ability of countries to achieve universal access with regard to reproductive medicine within RH.

INVITED SESSION

SESSION 54: CONGENITAL MALFORMATIONS OF THE FEMALE GENITAL TRACT

Wednesday 30 June 2010 08:30 - 09:30

O-206 Updated classification of malformations

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From the clinical point of view, many classifications have been proposed according to:

A) Functional aspects based principally on the potential capacity of the uterine cavity and its musculature; B) Degree of failure in the fusion and müllerian development; C) Defects in the lateral and vertical fusion: obstructive or non-obstructive, symmetrical or asymmetrical anomalies; or D) Punctual aspects, as the matter of communicating uteri. The most frequent and easy classifications have been those based on the müllerian development, as the ones exposed in Jarcho (1946) and Netter’s atlas:

1. Anomalies by total or partial agenesis in one or both Müller ducts: unicortuate uterus, Rokitansky syndrome.
2. Anomalies by total or partial absence of fusion: didelphys uterus, bicornuate (bicollis and unicollis) uterus.
3. Anomalies by total or partial absence of reabsorption of the septum between both Müller ducts: septate and subseptate uterus.
5. Segmentary defects and combination of the different anomalies.

Buttram et al (1979, 1980) introduced a classification of the müllerian (uterine) anomalies, which with few modifications, was adopted and recommended for its general use by The American Fertility Society (currently, ASRM). The AFS considered seven basic groups, also analyzed basically from the point of view of the müllerian development and their relationship to fertility: I. Agenesis and hypoplasias; II. Unicortuate uterus; III. Didelphys uterus; IV. Bicornuate uterus; V. Septate uterus; VI. Arcuate uterus; and VII. Anomalies related to DES Syndrome. The additional findings referred to the vagina, cervix, Fallopian tubes, ovaries and urinary system must be pointed out apart. However, it would seem preferable, because of its simplicity, to speak about anomalies by agenesis (Types I and II), lack of fusion (Types III and IV), absence of reabsorption (Type V) and lack of posterior development (Type VII), though taking into account that many cases are transitional (fusion and reabsorption partial failure). Besides, we agree with Musset’s bidirectional theory on the reabsorption of the uterine septum, but there can exist a discrepancy in the fusion and resorption processes between both uterine segments (superior and inferior) corresponding to the converging and diverging portions of the Müllerian ducts can exist.

Recently, Oppelt et al (2007) have proposed the VCUAM (Vagina, Cervix, Uterus, Adnex and Associated Malformations) classification but it is complex.

Magee et al (1979) suggested an embryological classification of the genito-urinary malformations based on the observations that syndromes of the mesonephric duct induced müllerian anomalies. In this same sense, we believe that the theory suggested by Acién (1986,1992) on the embryology of the vagina and all genito-urinary system should be the correct one and, consequently, a clinical-embryological classification considering all the elements of the genito-urinary tract and their embryological basis should be appropriated. Therefore,