these cell types can generally meet the in vitro and in vivo assay definitions of pluripotentiality.

There are other cells that are claimed to be pluripotent but debate exists about their true pluripotentiality. These include amniotic fluid stem cells (AFSCs) and epithelial cells of the amnion (EACs). The true potential of these cells in the human is difficult to evaluate because they do not produce teratomas when transplanted into immune incompetent recipients. Like-wise, it has been argued that multipotent adult progenitor cells (MAPCs) derived from bone marrow, cells derived from fat tissue, umbilical cord blood cells and others are pluripotent but there is very little consensus that these cell types are truly capable of production of all the lineages of the body. Studies on parabiotic pairing in mice (Wagers & Weissmann, Cell, 116: 639, 2004) have shown that there is no transdifferentiation in vivo of blood cells and rare events of cell fusion can explain transfer of cell markers from one lineage to another.

The ability to transform adult cells into iPSCs by viral transduction of one (Oct 4 is only required in neural stem cells) to four transcription factors, has raised many new and interesting possibilities for transforming cells in culture to lineages in which these cells never otherwise appear. Indeed this is the basis for developing new personalized medicine, identifying the within heterogeneity of human disease, development of new candidate drugs using “disease in the dish” concept and the possibility of the evolution of alpha stem cell therapeutics clinics not unlike ART clinics.

O-049 Genetic stability in human pluripotent stem cells

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Pluripotent stem cells (SC) possess the capacity of self-renewal and can differentiate into different cell types of the adult body. These unique characteristics have made SCs not only an attractive potential therapeutic tool for numerous human diseases, but also a research tool for studying early human development and an interesting cellular model for human disorders, particularly for those for which there is no animal model available.

Pluripotent SCs are immortal cell lines and are often kept in culture for long periods of time without this apparently affecting their pluripotent capacity. Nevertheless, it is by no well known these cells present different forms of genetic instability, most probably as part of their adaptation to the culture conditions.

The best characterized have been human embryonic SC (hESC), in which many different laboratories have found gross chromosomal abnormalities to appear in culture. Several studies have now revealed smaller chromosomal aberrations, the size depending on the resolution of the method of analysis used. These aberrations are predominantly chromosomal amplifications, often involving known stemness genes, and seem to be rather the norm than the exception. Furthermore, it has been shown that these aberrations clearly affect the expression of the genes involved in the abnormality.

The genetic instability of hESC is not limited to chromosomal aberrations, but extends to epigenetic changes and mitochondrial mutations. hESC undergo hypomethylation of oncogene promoters, and hypermethylation of tumour suppressor genes, although imprinted genes seem to maintain their normal expression patterns. Another epigenetic trait that has been found to change is the X inactivation status. While some lines do not present any X inactivation in their undifferentiated state, and undergo inactivation upon differentiation, other lines show X inactivation from early passages onwards.

Resequencing of the mitochondrial genome in several hESC lines has shown that the lines acquired mutations that stably took over the culture. This type of mutation is challenging to explain, as the mitochondrial genome is present in many copies in each mitochondrion, of which each cell contains hundreds.

All these abnormalities share the fact that the cells carrying them are better adapted to the culture, and are able to take over the entire culture by starting from one mutated cell. This opens interesting lines of research on how these mutations occur and how we can prevent this occurrence, and how they change the biology of the cell to enable it to thrive much better than the non mutated cells.

Considering all the published findings, it is quite likely that hESC present other forms of instability that have not yet been detected. This raises the question of what is normal for a hESC, and where to set the threshold to consider these cells safe for therapeutic use, or as valid models in research.

O-050 Assisted reproductive technology nursing: Positioning Australian research in the global context

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Introduction: Australian healthcare statistics indicate that 39,362 stimulated in-vitro fertilisation (IVF) cycles were initiated in Australia in 2009 and these cycles were co-ordinated by almost 300 ART nurses working across the country at 70 accredited primary, associate and satellite IVF units. There is currently no distinct model or theory that informs ART nursing practice in the Australian context. Additionally, there is limited published research that comprehensively examines the unique nature of the ART nursing practice domain internationally. The purpose of this study was to examine ART nursing practice in Australia from the nurses’ perspective. Outcomes of this research have the potential to translate into the global ART nursing community.

Method: Grounded Theory (GT) methodology was used to explore Australian ART Nurses’ understanding regarding their specialised clinical practice. Purposive and later theoretical sampling facilitated recruitment of Registered Nurse (RN) participants who were best positioned to inform this research by exploring their perceptions in relation to their clinical practice and to acquire comprehensive data. Fifteen in-depth, semi-structured interviews were undertaken with RNs who were members of the Fertility Nurses of Australasia (FNA) professional group practicing in metropolitan and regional areas around the country. The data collected contributed to a deep understanding of clinical practice from the perspective of the data collected contributed to the nursing perspective. NVivo 8™ was used to manage the significant volume of data and to facilitate analysis based on the Grounded Theory constant comparative approach.

Results: The principal themes that emerged from this study were two-fold. Firstly it was identified that context specific elements such as personal and professional attributes, knowledge, and patient care activities impact on practice. In addition, a series of factors, both positive and negative, including elements such as communication, support, patient issues, and teamwork were identified by the participants as influencing how the ART nurse practices. The ART Nurse plays a pivotal role, balancing all aspects of the ART process to facilitate effective and efficient patient care and cycle management to optimise patient care and clinical and psychosocial outcomes. This research highlights the complexity of the role and how ART nurses balance these influences as they endeavour to maintain equilibrium for patients and for the ART practice.

Conclusion: The ART patient journey is often likened to a roller coaster ride. Outcomes of this research indicate that ART nurses accompany patients on this journey and they play a pivotal and balancing role as they co-ordinate treatment cycles. This research, firmly grounded in comprehensive data collected directly from ART registered nurse participants, identifies themes of particular importance to this journey from the nursing practice perspective. The identified substantive theory contributes to the emerging global body of knowledge with regard to ART nursing practice. Importantly findings will inform practice development, quality assurance, education and curriculum development for ART nurses and the outcomes of this translational research are considered relevant to the global ART nursing context.

O-051 The use of complementary and alternative medicine in Dutch fertility patients

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Introduction: In the Netherlands 7% of the adults is visiting a practitioner offering complementary and alternative medicine (CAM) and about 3% may get CAM from their own general practitioner. Compared to other western countries these percentages are the lowest known, although international comparison is difficult because of differences in definitions. Many doctors in the field of reproductive medicine have a feeling that many of their patients do visit alternative practitioners or are using methods or products based on alternative insights.

Only a few authors have researched this phenomenon in fertility patients (Stankiewicz et al. 2007, Beal 1998, Coulson et al. 2005, Schaffir et al. 2009) and they found percentages varying from 23 to 66%. Dutch figures of this prevalence are unknown. We were interested in the scale in which Dutch fertility patients were using CAM and if so which therapies were most popular. We wanted to know how frequently the patients discussed these matters with their doctor and if the prevalence of CAM use correlated with the patients conception of the cause of their infertility. We were also interested in the question if the duration of their childwish, their level of education and the ‘stage’ in which they were (i.e. respectively diagnostic work up, period of expectant management or undergoing assisted reproductive treatment) influenced the prevalence.

Material and Methods: Two hundred and fifty couples were included from a random sample fertility patients, recruited in the fertility clinics of one academic hospital and two general hospitals in the Netherlands. Nearly all patients were willing to take part in the survey. Subjects underwent a standardized interview by the first author of our study. They were questioned about the nature of their fertility problem, the treatment they were getting and whether they used CAM for their infertility. Also their demographic characteristics were collected. Couples using CAM were asked which therapies they used. All couples were asked whether they discussed the CAM with their doctor and if they would like to be informed by their doctor about the use of CAM.

Results: In total 36.6 % of the patients ever used CAM for their fertility problem. The most popular CAM were vitamins and food supplements (14.1%) and acupuncture (12.9%). Less frequently used were manual therapy (9.8%), herbs (6.7%), paranormal treatments (5.5%), homeopathy (3.1%) and treatment by natural remedies (1.2%). Forty-one percent of the CAM users underwent more than one type of CAM. Contrary to data on CAM use amongst the general Dutch population (i.e. higher CAM-use with higher level of education) we did not find this relation in infertility patients. The length of the period of childlessness did not correlate strongly with the use of CAM, although couples with an infertility period of five years and longer did use more CAM than couples with a shorter duration of their infertility (p < 0.05). The perceived cause of infertility in our patients did not influence the prevalence of CAM-use. From the couples who used CAM, 26.1% discussed this with their general practitioner or gynaecologist. Nearly half of the couples (47.2%) thinks the gynaecologist should give information about CAM.

Conclusions: In comparison with the general Dutch population, fertility patients frequently use CAM. Internationally these Dutch figures are somewhat lower than expected from the literature, although differences in definitions make comparison risky. The prevalence is anyhow quite substantial. Vitamins, food supplements and acupuncture are the most popular forms of CAM in our study.

O-052 Developing a demographic picture of patients attending an assisted reproductive technologies practice: the results of a lifestyle survey

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Introduction: This paper reports on a study of the lifestyle choices of clients who are actively seeking successful assisted reproduction technologies (ART). A review of the relevant literature revealed only limited exploration of the lifestyle patterns of this patient group yet, in daily practice, these patients report a number of significant issues that potentially affect the types of support that could be provided to this patient group.

The Lifestyle Questionnaire (LQ) was developed to create a demographic picture linked to patient lifestyle choices, focusing on those aspects believed to have both positive and negative impacts on clients’ wellbeing. Participation was offered to all clients attending the clinic over a three month period.

Materials and Methods: Participants attend ART practice in a major Australian city (population 1.7 million). Based on the literature and observations drawn from clinical practice, a questionnaire comprising 23 open and closed questions was developed. After ethics approval was granted, 300 copies of the survey were issued using a response mechanism that assured patient anonymity.

Results: The principal results relate to tobacco and alcohol use, recreational drug usage, weight/height ratio based on the Body Mass Index (BMI), supplementary drugs, alternative therapies (e.g. acupuncture, naturopathy, vitamin supplements) and use and pursuit of counselling.

The response rate to the survey has been 37 per cent of the issued surveys, the gender balance being females: 75 per cent and males 25 per cent. Nearly 95 per cent of respondents undertook regular exercise with walking being reported most frequently. The length of time actively seeking pregnancy ranged from less than one month to 17 years (the average being 2.6 years). Responses showed that alcohol use by males was significantly higher than females. Tobacco use was reported by 4 per cent of respondents. One respondent reported occasional use of recreational drugs, yet anecdotal evidence available in practice, suggests otherwise.

Around 30% of respondents claimed they were overweight, however these perceptions were challenged by the BMI, details of which are provided in the complete paper. Significantly, folate/folic acid was taken by 96 per cent of female respondents (an anticipated result). Furthermore, the majority of reported drug supplementation was prescribed by a medical practitioner with the most commonly reported medication being for depression and hypothyroidism. The use of alternative or complementary therapies was reported by 41per cent of respondents. The principal therapies were acupuncture (65%), Naturopathy (63%), Nutritional advice (26%) and Chinese medicine (11%).

The incidence of counselling on a regular basis was undertaken by 6.25% of respondents. This is regarded as a highly significant response. It was supported by the fact that only 10 per cent of respondents expressed an interest in seeing a lifestyle counsellor (whose typical role is to advise on balancing diet, exercise, recreational and professional activities).

In summary, respondents reported that they had a moderately healthy diet (Average 67%), and were moderately happy with their lifestyle (Average 65%), yet were unhappy with their diet (Average 36%). A range of additional data was obtained by the Lifestyle Questionnaire which will enable the authors to track the results against national census data in relation to income, education, age, gender and occupation.

Conclusions: The most surprising conclusion related the limited use of counseling services by the respondent group and their lack of interest in seeing a lifestyle counsellor. Another significant outcome relates to the respondents’ positive perceptions of the healthiness of their diet yet overall negative perception of that diet. Overall, the perception of health and happiness, related to lifestyle, was positive. In terms of ART practice, the findings suggest the emphasis on counselling services may need to be significantly supported by nutritional/dietary support services.

O-053 Controlled ovarian stimulation for in vitro fertilization in a low resource setting: a pilot study in Kampala-Uganda

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Introduction: Reproductive technologies are very costly in developing countries and unaffordable to most of its infertile patients. About one third to half of the total cost is due to the expensive drugs for ovarian stimulation. Flying in experienced embryologists from abroad just adds to this cost. We therefore started a pilot study with 20 patients in an existing fertility center in Kampala, costing 200 euros per IVF cycle, using the local laboratory, a locally trained embryologist and an oral contraceptive/clomid ovarian stimulation protocol.

Material and Methods: For inclusion into the study, patients had to be less than 35 years old with a regular menstrual cycle, a BMI of less than 25, an antral follicle count of at least 10, normal uterus and ovaries on ultrasound and tubal or idiopathic infertility. The husband had to have a normal semen analysis.

Included patients had to take at least 14 days of an oral contraceptive pill, followed by clomiphene citrate tablets (100 mg daily) from day 3 onwards until the day of hCG; follicle aspiration under local anesthesia was performed 34 hours later only if there were at least 2 follicles of 16 mm. Routine IVF and all embryos were transferred on day 2.
Results: Up till now 15 patients were enrolled in the study; all of them had oocyte retrieval (1 to 4 oocytes); no patient had a premature ovulation; 1 patient did not have transfer as there was no normal fertilization; up to 4 embryos were transferred (0 to 4 embryos); 3 patients had at least 1 top quality embryo. All data (of the 20 patients) will be presented at the ESHRE conference.

Conclusions: A 200 Euros IVF cycle seems to be possible in a low resource setting, although this amount is still very high for the majority of our infertile patients. Unexpected problems during this pilot study (proved of the real age of the patients, reliable ultrasound for antral follicle count and transport problems for monitoring) related to local circumstances, should be taken into account when future similar studies are designed.

**SELECTED ORAL COMMUNICATION SESSION**

**SESSION 15: SAFETY IN ART**

**Monday 28 June 2010**

**15:15 - 16:30**

**O-054**  
Materno-fetal cardiovascular complications after oocyte donation in Turner syndrome: a very high-risk pregnancy


Abstract of the 26th Annual Meeting of ESHRE, Rome, Italy, 27 June – 30 June, 2010

**Introduction:** Use of recombinant growth hormone (hGH) and successful de

**Results:** Our current ongoing pregnancies. Mean weight was 2835 ± 660 gr for singletons and 2725 ± 708 gr for twins. Complications were frequent with prematurity in 25.9% and small for gestational age (≤ 10th centile) in 31%. We report also a bronchopulmonary dysplasia after severe hyaline membrane disease and an acute stroke.

**Conclusions:** Pregnancies in TS after OD are at very high risk since only 33% were in our cohort associated with an absolutely normal materno-fetal outcome. The most frequent maternal risk was represented by PAHD (38.5%) unrelated in our cohort with age, BMI or hGH treatment but likely linked to Turner arteropathy, small uterus and OD itself. PAHD is associated with fetal hypotrophy which represents the most frequent neonatal complication. The stress of pregnancy, especially in case of PAHD, increases the risk of aortic rupture that is already high in young women with TS as illustrated by the 2 fatal cases out of our 76 pregnancies. Our data clearly illustrate the need for tight recommendations including: 1) a systematic pregravid cardiovascular evaluation with at least echocardiogram and/or thoracic RMN with aortic measurement normalized to body surface area; 2) complete information to patients; 3) elective single embryo transfer; 4) pregravidic follow-up in a referent centre.

**O-055**  
Safety of corifollitropin alfa in controlled ovarian stimulation for assisted reproductive technology: pregnancy and infant follow-up data

M. Bonduelle, J. Obéry, D. Passier, B. Mannaerts

**Introduction:** Corifollitropin alfa is a new recombinant gonadotropin with sustained follicle stimulating activity that has been proven safe and efficacious in achieving ongoing pregnancies after controlled ovarian stimulation (COS) for assisted reproductive technology (ART). To further ensure that the treatment is safe in terms of perinatal complications and birth defects in infants conceived by protocols that include corifollitropin alfa, pregnancy and infant follow-up trials were conducted.

**Material and Methods:** Pregnancy and infant follow-up data (Care program) were collected from 2 large, controlled phase 3 trials, engage (women weighing >60 kg) and Ensure (women weighing ≤ 60 kg). Included patients with ongoing pregnancies were previously treated during the first week of stimulation with either a single dose of corifollitropin alfa (Elonva, N.V. Organon) or with daily recombinant follicle-stimulating hormone (rFSH) (follitropin beta, Puregon Pen, N.V. Organon). Information on pregnancy and delivery complications, mode of delivery and neonatal characteristics was prospectively collected through routine assessments. Safety in the offspring was assessed from medical examinations at birth and within 3 months thereafter. Any abnormalities were recorded as adverse events and adjudicated externally by an independent medical expert as either major or minor congenital malformations (a major malformation was defined as any that causes functional impairment or requires surgical correction).

**Results:** Follow-up data on 440 fetuses from 342 women who became pregnant after corifollitropin alfa treatment and 381 fetuses from 312 women who became pregnant after rFSH treatment were assessed. The corifollitropin alfa group and rFSH group included 247 and 243 singleton and 95 (27.8%) and 69 (22.1%) multiple pregnancies, respectively. There were 3 triplet pregnancies in the corifollitropin alfa group. In the corifollitropin alfa group, for 2 fetuses the outcome was unknown, 6 fetuses were lost before 20 weeks’ gestation and 8 afterward, resulting in a total of 424 live-born infants (96.4%). Correspondingly, in the rFSH group the outcome was unknown for 5 fetuses, 4 fetuses were lost prior to 20 weeks’ gestation and 2 afterward, resulting in a total of 370 live-born infants (97.1%). There were no relevant differences between the groups in type and incidence of pregnancy complications. The overall mean