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Ultrasound, IVM, IVF and fertility preservation in PCO and PCOS

n-vitro fertilization (IVF), an established treatment for infertility, may result in pregnancy and live birth rates higher than following I natural conception infertile couples. owever, IVF is associated with two major complications, namely, multiple pregnancies and ovarian hyperstimulation syndrome (OHSS). Women with polycystic ovaries (PCO), who are commonly seen in women presenting for infertility treatment are at an increased risk of developing OHSS as a result of ovulation induction for anovulatory compared with that of women with normal ovaries. PCO is diagnosed using Ultrasonography showing at least one ovary with 12 or more follicles of 2-9 mm and/or increased ovarian volume >10 ml, increased echogenic stroma, increased stromal blood flow velocity > 10 cm/s. US picture on one occasion suffices for diagnosis. PCOS refers to the presence of two of three criteria, namely, PCO on ultrasound, oligomenorrhea or irregular menstrual cycles and evidence of hyperandrogenism. Our previous studies have shown increased vascularity and stromal blood flow in women with PCO or PCOS compared with normal ovaries and this is due to higher levels of serum Vascular endothelial growth factor (VEGF) (p < 0.001) in women with PCO (3.4 + 0.7) or PCOS (3.2 + 0.66) than in normal ovaries (2.3 + ng/ml). Higher VEGF may account for increased risk of OHSS in women with PCO and PCOS when they undergo ovarian stimulation. However PCO/PCOS patient may need longer duration for pituitary suppression, they are more sensitive to gonadotropins with the greater risk of OHSS; therefore, use we use lower starting dose of gonadotropins with closer monitoring of ovarian stimulation. Another option is in-vitro maturation oocytes (IVM). This approach is, therefore, cheaper and safer than IVF. Patients exposed to gonadotoxic agents for the treatment of non-oncologic diseases such as systemic lupus erythematosus, who are undergoing surgery for endometriosis and who suffer from genetic disorders such as Turner syndrome and Fragile-X pre-mutation face similar risks. With an increased awareness of the options available, more women are being offered and are utilizing fertility preservation technologies. The methods can differ for women with medical conditions and for those who wish to defer childbearing for social reasons in the absence of a medical condition. IVM avoids treatment delay or exposure to increased estradiol levels associated with IVF and, combined with embryo or oocyte vitrification, provides previously unavailable options. Such as immature oocyte collection in the luteal phase for some patients and improves the services provided by a fertility preservation program. Primary-care physicians and oncologists should be made aware of the available fertility preservation options in order to allow referral of their patients, if desired, to an ART center that offers the full range of fertility preservation options. We have preserved fertility for over 300 women with various medical conditions. In a clinical trial of IVM and oocyte vitrification, we achieved a live-birth rate of 20% and the birth of the first four healthy babies.

Biography

Seang Lin Tan: Graduate of Singapore University (1977), Howard Eddey Gold Medalist by Royal Australasian College of Surgeons (1978); MRCOG Gold Medal by Royal College of Obstetricians and Gynecologists (UK)(1983); undertook REI fellowships with Prof. Howard Jacobs, Prof Stuart Campbell and Prof Robert Edwards (Nobel Laureate 2010). He founded London Women's Clinic, the UK with Prof. Edwards and served as James Edmund Dodds Professor and Chairman of the Department of Obstetrics and Gynecology at McGill University, the leading research University in Canada (1994 to 2010). He was founding President of International Society of *In Vitro* Maturation of Occytes, founding President of the Global Chinese Association of Reproductive Medicine and Vice-President of the International Society of *In Vitro* Fertilization. He has achieved numerous national and world firsts and his work have been published in Nature, New England Journal of Medicine and Lancet. He was assessed as the most prolific clinical researcher in IVF in Canada by an analysis for the Canadian Institute of Health Research. His team won the 2016 Basic Science Research Award by the European Society of Human Reproduction and Embryology. He was the Founding Director of the McGIll Reproductive Centre and is currently the Medical Director of OriginElle Fertility Clinic and Women's Health Centre in Montreal, Canada. He has published close to 300 peer-reviewed articles, 15 books and hundreds of presentations and book chapters.

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