Exciting insights in how artificial intelligence will set new quality benchmarks in human fertility treatment

SINGAPORE: Since the first IVF baby was born in 1978, more than eight million babies have been delivered as a result of the assisted reproductive technique.

In that time, there have been amazing advances in technology and treatment protocols to help the one in six couples living with infertility to fulfil their dreams of parenthood. One child in every 20 born today is an IVF baby, and another five per cent of babies around the world are conceived with the help of fertility drugs.

The 10th Congress of the Asia Pacific Initiative on Reproduction (ASPIRE) has provided exciting insights into likely developments and future possibilities in assisted reproductive technology.

The Congress itself, which has just concluded, represented a quantum leap in information technology. Because of on-going concerns about the COVID-19 pandemic, the Congress was presented in virtual format – https://aspire2021.cme-congresses.com – to 3,285 fertility specialists in over 100 countries to share information on addressing the growing demand for assisted conception.

Artificial intelligence (AI) was highlighted at the Congress as one of the emerging revolutions with the increasing likelihood of advanced machines playing vital roles in fertility treatment.

Dr Haroon Latif Khan, a sexual health specialist from Pakistan, provided fascinating details on how AI is being adopted in fertility clinics for more stringent quality control measures aimed at increasing pregnancy and live birth success rates.

Based at the Lahore Institute of Fertility and Endocrinology, Dr Haroon is also a founder member of the Pakistan Society of Andrology and Sexual Medicine, General Secretary of the IVF Society of Pakistan and as Board member of ASPIRE.

“As we are living through a technological revolution, AI is being integrated into all aspects of our lives,” he said.

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“The live birth rate is the ultimate key performance indicator in assisted reproductive technology, and we are seeing AI being embraced for management of performance, quality and risk,” he said.

“The main targets of this total quality management are in the areas of ovarian stimulation, oocyte retrieval, sperm preparation, embryo development and grading, cryopreservation of gametes and embryos, and pre-implantation genetic testing (PGT) of embryos.

“Computers as an adjunct in assisted reproduction have been in use for many years for techniques including quick and accurate sperm analysis and electronic monitoring of quality control procedures and protocols.

“PGT has become the norm in ART clinics for testing embryos for any genetic abnormalities before they are implanted, and this is now fully automated for high accuracy. Vitrification also now relies on AI to enhance survival of gametes, embryos and reproductive tissue.

“In the future, I believe we will see AI increasingly applied to predict the viability of embryos for implantation and in the next generation of reproductive genetics.

“Eventually, every step of an assisted reproductive cycle will be automated resulting in reduced costs, greater work efficiency, and minimised human subjectivity and variability.

“This will result in assisted reproduction being more accessible and the number of IVF cycles will consequently skyrocket.”

However, Dr Haroon insists that “robots” will not take over fertility clinics. “We will still need the human touch to run our laboratories, and the future looks very exciting as we all strive to ensure patient safety remains at the forefront of accessibility and treatment.”

The Asia Pacific Initiative on Reproduction (ASPIRE) is a unique task force of clinicians and scientists involved in the management of fertility and assisted reproductive technology throughout the region.

Interview: To arrange an interview with Dr Haroon Latif Khan please contact Trevor Gill, ASPIRE Media Relations on lighthousepr@adelaide.on.net