



12 posters and 3 oral presentations focused on AI, dual stimulation, endometriosis, and different IVF protocols

GeneraLife Group presents its research on new frontiers in IVF at ESHRE

Milan, July 3-6, 2022 – GeneraLife, the leading infertility network in Italy, with 14 clinics in the Country, and one of the three largest groups in Europe focused and specialized in reproductive medicine, will be present at the **European Society for Human Reproduction and Embryology (Eshre)** congress taking place in Milan from July 3rd to 6th. During the congress, the Group will present a series of studies in the form of **15 abstracts** (12 posters and 3 oral presentations) dedicated to the new frontiers in IVF: the use of **artificial intelligence** in the evaluation of embryos, the importance of complementing any Medically Assisted Procreation journey with a proper **nutritional regimen**, the **different IVF protocols**. This and much more is explored in the research led by GeneraLife.

ARTIFICIAL INTELLIGENCE FOR IN VITRO EMBRYOS STUDY

The first study that will be presented at the Congress is focused on the use of **artificial intelligence (AI) to analyse embryos created in vitro** and optimize the results of the procedures. The work focuses specifically on the analysis of time-lapse incubator videos of embryos cultured up to day 7, in the blastocyst stage, combined with an AI software. Even the slowest developing embryos, which reaches the blastocyst stage on day seven of in vitro culture, preserve, if frozen, good chances of resulting in a term pregnancy. This discovery has an important value especially in regulatory contexts as the Italian one (where the law obliges to use all the evolving embryos) and in patients with an advanced maternal age, who need to optimize their chances of getting pregnant. But it is also relevant in countries, such as Spain or the United States, where a stricter selection of embryos is adopted, because it gives value to those that would normally be discarded. In this context, artificial intelligence has helped standardize and objectify the analysis and untie it from an operator-dependent assessment.

BMI IMPACT ON IVF CYCLES

Previous studies signed by the Group revealed an increased risk of miscarriage for overweight women, even in the case of euploid blastocyst transfer. This new study which will be presented at Eshre congress confirms that also in egg donation it is important to design guidelines and protocols for nutritional support both before stimulation and transfer, since a high BMI negatively affects both the oocyte and the endometrium.

ENDOMETRIOSIS DOES NOT IMPAIR EMBRYONIC DEVELOPMENT NOR LIVE BIRTH RATE

A retrospective analysis of 716 IVF cycles confirms the absence of the disease's impact in these important indicators.

PRE-IMPLANTATION GENETIC TESTING

New methods have been analysed to increase the amount and quality of information on embryos that can be obtained through this study.

"DUAL STIMULATION", A STRATEGY FOR COUPLES CARRYING GENETIC DISEASES

The use of '**DuoStim**' was proposed to 90 monogenic disease carrier couples in a 5-year period: 61 accepted (70%). At the end of the treatment, 40% of these couples had at least 1 child not affected by the disease and still had residual cryopreserved embryos available for a second child. Three of these couples already had 2 children. In patients who preferred a conventional stimulation protocol, pregnancy was achieved in 21% of cases (3 times less), none had surplus embryos, and none achieved 2 pregnancies. Hence, **dual stimulation can be extremely helpful even in patients with genetic diseases.**

THE 15 GENERALIFE ABSTRACTS PRESENTED AT ESHRE 2022

- 1) Elucidation of blastocyst collapse and its consequences: a comprehensive artificial intelligence-powered analysis of 1943 embryos from 643 couples** (Cimadomo et al.)
- 2) Uncovering the value of day 7 blastocysts using artificial intelligence on time lapse videos** (Innocenti et al.)
- 3) Association between iDAScore v1.0, senior embryologists' grading and euploidy in 546 blastocysts obtained during 189 PGT-A cycles** (Casciani et al.)
- 4) Different gonadotrophins adopted for controlled ovarian stimulation do not affect metaphase-II oocyte competence. A matched case-control study on 351 patients and 2258 oocytes** (Scarafia et al.)
- 5) Elevated BMI in oocyte donors or recipients is associated with a higher risk of miscarriage after blastocyst transfer: a multicenter analysis of 1544 procedures.** (Fabozzi et al.)
- 6) Assessment of the putative impact of culture strategies, oocyte/embryo manipulations, and operators: a retrospective analysis of 3705 blastocyst culture cycles and 2604 single blastocyst transfers** (Maggiulli et al.)
- 7) Embryo culture under high humidity conditions in time lapse system does not improve ongoing pregnancy rates: a retrospective propensity score model study 299 ICSI cycles.** (Lagalla et al.)

8) Can preimplantation genetic testing for monogenic conditions represent an indication for DuoStim? A multicenter case series (Trabucco et al.)

9) Fine-tuning IVF laboratory key performance indicators of the Vienna consensus according to female age (Zacà et al.)

10) Endometriosis does not compromise early embryonic development as well as live birth: a retrospective analysis of 716 standard in vitro fertilization cycles (Borini et al.)

11) The first morphokinetic map of human abnormal fertilisation (Takahashi et al.)

12) 3D micro-Computed Tomography imaging and reconstruction of the mouse ovary before and after gonadotropins treatment (Fiorentino et al.)

13) A new option to thaw slow-frozen human ovarian tissue in cancer patients: efficacy and safety of the combination of different cryopreservation kits (Canosa et al.)

14) Improved clinical validity of Preimplantation Genetic Testing for Aneuploidy (PGT-A) using a next-generation sequencing workflow for simultaneous detection of aneuploidy, ploidy and common pathogenic microdeletions (Caroselli et al.)

15) Fresh oocyte donation, the use of donor sperm, and the number of usable blastocysts are associated with higher clinical pregnancy rates: results from 1655 cycles (Gallardo Molina et al.)

ABOUT GENERALIFE

Generalife is a European group of 38 clinics specialized in reproductive medicine, present in 5 countries (Italy, Spain, Czech Republic, Sweden, Portugal). It performs 25,000 treatments a year, thanks to the work of 650 employees, 85% of whom are women. Generalife promotes Research and Development in this sector, using a rigorous scientific method. Several members of the group hold important roles in national and international scientific societies such as the Italian Society of Embryology, Research and Reproduction (SIERR), or the Italian and the Spanish Society of Fertility and Sterility (SEF e SIFES) or the European Society of Human Reproduction and Embryology (ESHRE). They also play editorial roles in various journals in the field of reproductive medicine (Human Reproduction Update, Journal of Assisted Reproduction and Genetics, Human Reproduction, Fertility and Sterility, Reproductive BioMedicine Online, Frontiers in Endocrinology).

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