PGDIS Newsletter, September, 2019

19TH INTERNATIONAL CONFERENCE ON PREIMPLANTATION GENETICS, Berlin, Germany, May 3-6, 2020

PROVISIONAL SCIENTIFIC PROGRAM

Dear Colleague,

The 18th International conference on Preimplantation Genetic Testing (PGT), held in Geneva, April 15-18, 2019 (see Materials of Conference published in RBMO, 2019, https://authors.elsevier.com/a/1ZZBM5Ersdyua7)

Vol. 39, Supplement 1), concentrated on scientific aspects of PGT and emerging new PGT technologies that improve accuracy of PGT and facilitate its application to a wider spectrum of conditions of health importance in ART and genetic practices. Due to the important clinical relevance of an appropriate interpretation of PGT-A results related to mosaicism, the updated recommendations were developed to assist clinics in determining cut off points for mosaic embryo transfers when such a clinical necessity arose (see Position paper on PGDIS website http://pgdis.org/docs/newsletter_052719.pdf .

The 19th International conference on Preimplantation Genetics will be held May 3-6, 2019, in a historical Medical Conference Venue, Langenbeck-Virchow-HAUS in the heart of Berlin. As you can see from the highlights of provisional scientific program on the website, one of the major items is devoted to the advanced PGT sequencing methodologies and new approaches toward universal PGT - a significant upgrade of the existing options.

With the extended application of NGS based PGT-A, an increasing body of data on sub-chromosomal copy number variations and mosaicism have become available and so a special session will be devoted to the identification and transfer of the embryos with abnormal copy number variation(s). To understand the clinical and biological significance of mosaicism and segmental variations in embryos this will be compared to the relevant experience(s) in prenatal diagnoses.

It also remains important to discuss the additional adjunct methods to identify developmentally competent euploid embryos, as it is evident that the chromosomal status of the embryo is not the only selection criterion to improve pregnancy outcome. While the utility of some of the previously described embryonic profiles, such as mitochondrial DNA, epigenetic and genetic expression, time-lapse imaging and endometrial receptivity, are still being explored for their clinical utility, the emerging methods of metabolomics and transcriptomics will be also addressed.

Among other emerging technologies to be explored for the first time will be the progress in automation required for improvement of IVF and PGT, including the first demonstration of automated blastocyst biopsy procedure, examples of robotic application to NGS-based PGT-A, and the first experiences of artificial intelligence application for pre-selection of embryos in PGT-A.

While the laws regarding PGT in neighboring countries are in progress, it still remains restricted in Germany, the venue of the Conference next year, so addressing ethical and legal challenges for modern PGT advances will be of special relevance for health policy development.

Since a potential detrimental effect of invasive PGT still cannot be totally excluded (at least in some situations), the development of non-invasive PGT (NIPGT) has recently been further promoted, the continuous progress of which will be further explored in a special session. This will be addressed in line with considerable progress of non-invasive prenatal testing (NIPT) for monogenic disorders, already reported in a series of a follow-up confirmatory testing of PGT-M pregnancies, which together with the use of isolated placental cells from cervical swabs, may potentially replace the Society recommended confirmatory follow up by invasive prenatal diagnosis.

Finally, the advances in CRISPR-based gene editing will be further addressed for its possible potential utility as an extension of PGT. The topics included will be CRISPR - based disease modification, genome engineering, germ-line gene therapies and experience with the edited stem cell treatment of congenital immunodeficiency.

As usual, a number of Pre-congress Workshops will be organized, devoted mainly to the significant trends in PGT technical developments. These and other developments in the organization of the Conference may be followed on the PGDIS website (http://www.pgdis.org/), with the registration and abstract submission to be opened in December, 2019.

We are looking forward to welcoming you in Berlin!

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