
Since January 2020 Elsevier has created a COVID-19 resource centre with free information in English and Mandarin on the novel coronavirus COVID-19. The COVID-19 resource centre is hosted on Elsevier Connect, the company's public news and information website.

between miRNA expression and clinical parameters were done using Spearman's non-parametric test.

RESULTS: In vitro fertilization cycle (IVF) characteristics, number of oocytes and blastocytes were not statistically different between the PCOS and control groups. FF-EVs were similarly in numbers and total amount of mRNA cargo. Out of 828 human miRNAs screened in the FF, expression of 19 miRNAs were above the detection limit. 7 miRNAs (miR-502-5p, miR-603, miR-548aa, miR-548t-3p, miR-1246, miR-548n, miR-627-5p and miR-4531) were exclusively found in PCOS samples and 2 miRNAs (miR-21-5p and miR-411-5p) were detectable in the non- PCOS group only. MiR-1253 and miR-302d-3p were present in both groups and were significantly lower in the PCOS group ($p<0.03$).

Using ingenuity pathway analysis (IPA) we identified 3930 potential miRNA-regulated target genes. One of the validated target genes of miR-302d-3p is FOXL-2, which is upregulated in the presence of miR-302d-3p. FOXL-2 is a transcription factor known to be involved in ovarian development. Knockout of FOXL-2 leads to formation of cystic follicles with an androgen predominant environment, which is a feature of PCOS.

To examine association between follicular fluid EV-miRNAs and oocyte maturity we compared FF samples that had metaphase II (MII) oocytes to those that had metaphase I (MI) or germinal vesicle. FF that contained MI oocytes had less miR-302d-3p compared to samples with MII oocytes ($p<0.01$).

CONCLUSIONS: MiR-302d-3p level in EVs of FF might become a potential biomarker used to predict oocyte maturity or fertilization rate in IVF subjects, including PCOS patients. Future studies focused on miR-302d-3p in oocyte development and further validation of this EV miRNA in FF could lead to a promising new biomarker to predict fertility rates or oocyte quality. This and other miRNAs can also reveal new pathways responsible for oocyte maturation arrest in PCOS patients.

**P-972** 3:30 PM Wednesday, October 21, 2020

**SARS-COV-2 HERD IMMUNITY, INFECTIVE AND NAÏVE INCIDENCE IN FERTILITY CLINICS AFTER PANDEMIC LOCKDOWN. A MULTICENTER STUDY.** Russell A. Foulk, MD,[1] Denny Sakkas, PhD,[2] Refik Kayali, PhD,[3] Diana Valbuena, MD, PhD,[4] Carlos Simon, MD, PhD,[5] Juliana Cuzzi, PhD[3] [1]Utah Fertility Center, Pleasant Grove, UT; [2]Boston IVF, Waltham, MA; [3]Igenomix US, Miami, FL; [4]Igenomix, Paterna (Valencia), Spain; [5]Igenomix Foundation, INCLIVA, Valencia, Spain; Department of Obstetrics and Gynecology, Valencia University, valencia, Spain; Department of Obstetrics and Gynecology, BIDMC, Harvard University, Boston, MA- USA Boston, U.S.A., Valencia, Spain.

OBJECTIVE: COVID19 was declared a global pandemic by the WHO in March, 2020 and lockdown was imposed to a third of the world's population. Now, determining the transmission potential and immune status among sheltering in place asymptomatic patients and clinical staff resuming their activity is crucial. Here, we report herd immunity, infective, and naïve incidence for SARS-CoV-2 after the lockdown period, among asymptomatic medical personnel and patients in two US ART centers located in states with different COVID19 incidences.

DESIGN: Prospective multicenter study (ClinicalTrials.gov NCT04466644).

MATERIALS AND METHODS: A total of 339 asymptomatic individuals (personnel and patients) were analyzed from June 18 to July 30, 2020 in two ART centers reopening after lockdown following CDC safety guidelines. In Clinic A (Utah Fertility Center), located in a low prevalence State (312 cases per 100,000 on 06/01/2020), 154 individuals were analyzed. In clinic B (Boston IVF), in a high prevalence scenario (Massachusetts, 1,462 cases per 100,000 on 06/01/2020), 185 individuals were tested. Asymptomatic individuals attending or working in the indicated clinics were tested by RT-PCR on nasopharyngeal swab for SARS-CoV-2 RNA detection (Thermofisher, Waltham, MA, USA), and for IgG quantification on blood samples (Abbott Inc, Scarborough, ME, USA), following FDA-Emergency Use Authorization protocols. IRB approval was obtained from WIRB Protocol #20201490.

TABLE 1. Incidence of immune, infective, and naïve individuals for COVID19.

| | IMMUNE RT-PCR (-)/ IgG(+) | INFECTIVE RT-PCR (+) | NAÏVE RT-PCR (-)/IgG (-) |
|---|---|---|---|
| **CLINIC A** | **0.65%** (1/154) | **0.65%** (1/154) | **98.7%** (152/154) |
| **CLINIC B** | **2.2%** (4/183) | **0.5%** (1/183) | **97.3%** (178/183) |

RESULTS: From 339 asymptomatic individuals tested, the percentage of non-informativity was 0 for RT-PCR and 0.6% (2 out of 339) for the IgG test. Only those individuals with informative results for both tests (n= 337) are presented.

CONCLUSIONS: In the population investigated, our results suggest that the impact of the pandemic is far from reaching the level required to achieve herd immunity (i.e., 50% of a population). Therefore, transmission remains a risk since potential infectivity is present in 0.6% of the asymptomatic population tested. This figure was maintained despite their different geographical locations and the adherence to CDC guidelines of the IVF clinics involved. Interestingly, the two PCR+ individuals were IgG + suggesting virus persistence or reinfection that, if tested by serology alone, would be considered immune. These results together with the high incidence of naive individuals draws attention for the implementation of a consistent program of testing for COVID19 as a means of preventing reemerging outbreaks in our fertility centers.

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**IMPACT OF ENDOCRINE DISRUPTOR LEVELS FOUND IN URINE AND FOLLICULAR FLUID ON CLINICAL PARAMETERS OF IVF PATIENTS IN A EUPLOID SET/FET CYCLE.** Andrea Palomar, MSc,[1] Roberto Gonzalez-Martin, MSc,[1] Caroline Zuckerman, BS,[2] Christine V. Whitehead, BSN, RN,[2] Richard Thomas Scott, Jr., MD,[2] Francisco Dominguez, Ph.D.[1] [1]IVI Foundation - ISSLaFe Biomedical Research Institute, Valencia, Spain,; [2]IVI RMA New Jersey, Basking Ridge, NJ.

OBJECTIVE: Exposure to certain exogenous compounds associated with lifestyle habits has become a risk factor that could threaten reproductive success. This heterogeneous group of compounds known as endocrine disruptors (ED), which are present in the patient's daily intake, such as phytoestrogens (daidzein, genistein), parabens (beauty products) and phthalates (daily use plastics) play a major role in infertility-related problems. As there is a pressing need to investigate the effect EDs have on human reproduction, this research aimed to detect a set of non-persistent ED in urine and follicular fluid (FF) samples of women undergoing infertility treatment to establish its impact on IVF clinical parameters.

DESIGN: 60 patients attending IVI-RMA New Jersey undergoing an euploid single frozen embryo transfer (SET/FET) after PGT-A analysis were included in this study. All patients recruited were age 18 to 42 years old and had a BMI of 18.5 to 29.9 kg/m$^2$. Urine collected at oocyte retrieval and FET as well as FF from patients were analysed by liquid chromatography coupled to mass spectometry (HPLC-MS) for mono(2-ethylhexyl) phthalate (MEHP), methyl-paraben (m-Par), propyl-paraben (p-PAR), daidzein and genistein. These measurements were correlated with pre-implantation IVF clinical parameters.

MATERIALS AND METHODS: Patients included underwent PGT-SET/FET cycles following standard protocols. Measurements of ED levels in FF and urine collected at two different time-points were performed by HPLC-MS (Triple Quad 1290-6460, Agilent) with internal standards for each compound tested. Urine ED levels were normalized by creatinine and measured by Jaffe reaction (R&D Systems). Number of oocytes retrieved, oocyte maturation, fertilization, blastocyst development and aneuploid rates were correlated with ED levels using Poisson regression models.

RESULTS: Among all compounds and clinical outcomes analyzed, only MEHP levels show an outstanding relative effect on the number of oocytes recovered in patients. Specifically, MEHP found in FF showed the highest relative effect over number of oocytes recovered (-31.37; [95% CI: -53.57, -9.17]; $p=0.0056$). This effect is also observable in urine collected at the oocyte retrieval (-9.37 [-17.15, -1.59]; $p=0.0182$). The impact of MEHP levels is maintained in urine collected at the time of embryo transfer, although the relative effect is lower (-1.16; [-2.65, 0.32]; $p=0.1247$) possibly due to its non-persistent nature. No significant effect was found in fertilization, blastocyst development or aneuploid rates in these patients.

CONCLUSIONS: This study suggests that among all EDs found in urine and FF of the patients, high levels of MEHP correlates with fewer retrieved oocytes, thus threatening the chances of reproductive success. Urine and FF levels of MEHP at the time of oocyte retrieval may indicate the damaging effect of this compound on oocyte development. Therefore, it is essential to reduce the patient's exposure to this kind of compound during ovarian