

comparing measured anxiety between sexes, there was no difference at any time point. When comparing those who completed both baseline and Cycle 1 GAD-7, a statistically significant increase in anxiety levels was observed in females ($p=0.02$), but not in males.

CONCLUSIONS: Although no significant change in depression was observed, we did note a statistically significant increase in mild anxiety in females upon initiating fertility treatment. The clinical significance of this finding, however, is unknown. The impact of anxiety and depression on infertility patients and treatment cannot be understated, requires acknowledgement, and merits further investigation. We do not know the impact of anxiety and depression on couples that choose not to begin fertility treatment. Future studies are necessary to further elucidate these relationships.

FINANCIAL DISCLOSURES: None.

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Poor Laboratory Air Quality and Its Impact on Early Embryo Development. E. M. Munch, A. E. Sparks, B. J. Van Voorhis, E. H. Duran. Division of Reproductive Endocrinology and Infertility, Department of Obstetrics and Gynecology, the University of Iowa, Iowa City, IA.

BACKGROUND: Laboratory air quality may affect outcomes of assisted reproductive technologies (ART) (1, 2). Much of the published data is anecdotal or limited to pregnancy outcomes (3, 4). Additionally, improvement of IVF outcomes with the introduction of an air filter may be coincident with other improvements in the laboratory over time.

OBJECTIVE: To examine parameters of embryo development before, during, and after a period when carbon filtration was unknowingly removed from our IVF laboratory air handler.

MATERIALS AND METHODS: In this retrospective study, we analyzed fresh ART cycles from three periods: 1) February – July 2010, when the IVF lab air handler contained carbon filtration (“Carbon 1”), 2) February – July 2011, when carbon filtration was absent (“Absent”), and 3) February – July 2012, after carbon filtration had been restored (“Carbon 2”). HEPA filtration was in place throughout the study period, and no auxiliary (in-line or free-standing) air purification systems were employed. All embryo cultures were performed in 5.5-6.0% CO₂ in air at 37°C in sequential culture media. The patient demographics and the rates of fertilization, cleavage, and blastocyst conversion per zygote following IVF or ICSI were compared. We also compared cleavage rates of PN stage embryos thawed during the three periods. Cleavage was defined as an embryo having ≥ 2 cells by 42 hours post insemination. One-way ANOVA was used to compare means with Games-Howell post-hoc analysis to confirm differences among groups. Chi-square tables were used to compare proportions. P values < 0.05 were considered statistically significant.

RESULTS: We reviewed 524 fresh ART cycles and 164 PN-stage thaw cycles. There were no statistically significant demographic differences between the Absent group and either of the Carbon groups (Table 1). More ICSI was performed during the Absent and Carbon 2 periods, in response to poor fertilization rates with conventional insemination during

TABLE 1. Demographics and outcomes from all fresh cycles

	Carbon 1	Absent	Carbon 2	p value
Age, y	33.8 (4.74)	33.5 (4.66)	34.0 (5.05)	NS
BMI, kg/m ²	27.5 (7.11)	27.1 (6.95)	28.4 (7.58)	NS
White non-Hispanic patients, %	78.8*	86.9	88.9*	0.0139
Number mature eggs retrieved	12.7 (7.14)*	14.7 (8.04)	15.0 (8.63)*	0.011
Cycles utilizing ICSI, %	52.5*	69.7*	64.0	* 0.0013 ^ 0.0303
Fertilization rate, %	64.9 (19.6)	61.0 (21.2)*	66.3 (20.2)*	0.041
Cleavage rate, %	95.9 (11.4)*	90.1 (16.4)*	95.6 (11.1)	* 0.001 ^ 0.001
Blastocyst conversion rate, %	62.3 (19.9)	58.5 (21.3)	59.7 (19.3)	NS
Transfers on Day 3, %	40.0	40.6	42.3	NS

Note: All values are means (standard deviation) unless otherwise specified.

Fertilization Rate - Fresh Cycles

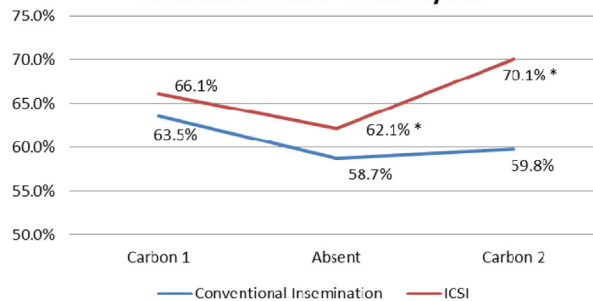


Figure 1. Fertilization Rate in Fresh Cycles.

Cleavage Rate - All Cycles

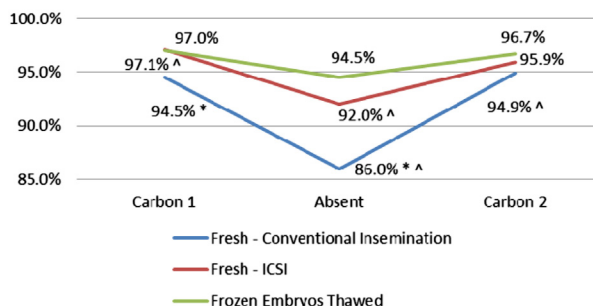


Figure 2. Cleavage Rate in All Cycles.

the Absent period, which helped maintain fertilization rates. Fertilization and fresh embryo cleavage rates were adversely affected when carbon filtration was absent (Absent group). However, the cleavage rate of frozen PN embryos in the three groups did not differ significantly (Figures 1 and 2).

CONCLUSIONS: The absence of carbon filtration negatively affected fertilization and cleavage rates in fresh IVF cycles. Cleavage rate was significantly affected in fresh but not frozen cycles, suggesting that volatile organic compounds may negatively affect oocytes and zygotes preferentially.

SUPPORT: None.

SUGGESTED TOPICS: QC and QA in an IVF Lab.

References

- Cohen J, Gilligan A, Esposito W, Schimmel T, Dale B. Ambient air and its potential effects on conception in vitro. *Human reproduction*. 1997 Aug;12(8):1742-9. PubMed PMID: 9308805.
- Hall J, Gilligan A, Schimmel T, Cecchi M, Cohen J. The origin, effects and control of air pollution in laboratories used for human embryo culture. *Human reproduction*. 1998 Dec;13 Suppl 4:146-55. PubMed PMID: 10091065.
- Legro RS, Sauer MV, Mottla GL, Richter KS, Li X, Dodson WC, et al. Effect of air quality on assisted human reproduction. *Human reproduction*. 2010 May;25(5):1317-24. PubMed PMID: 20228391.
- Boone WR, Johnson JE, Locke AJ, Crane MM, Price TM. Control of air quality in an assisted reproductive technology laboratory. *Fertility and sterility*. 1999 Jan;71(1):150-4. PubMed PMID: 9935133.

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Low BMI and Chlamydia Infection Are Additional Risk Factors for the Development of Intrauterine Adhesions. E. Polosina, M. Keltz, N. Kamal, P. McGovern. Dept. of Ob/Gyn, St. Luke's-Roosevelt Hospital Center, Mt. Sinai Health System, Currently Faculty Columbia College of Physicians and Surgeons, New York, NY, USA.

BACKGROUND: Intrauterine adhesions are found in up to 20% of patients with recurrent pregnancy loss, infertility and amenorrhea following a