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Title

SELECTIVE SEROTONIN REUPTAKE INHIBITORS EXPOSURE PRIOR TO ART TREATMENT DOES NOT AFFECT BLASTULATION RATE

Authors

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Objective

Selective serotonin reuptake inhibitors (SSRIs) induce the signaling activation in 5-HT receptors, 5-HT transporters and other molecules and have been found to delay in vitro murine embryonic development (Kim et al.2012). Patients are commonly exposed to SSRIs prior to undergoing assisted reproduction technology (ART) treatment(s); yet limited data has evaluated the relationship between exposure and cycle outcome(s). This study sought to understand if maternal SSRI exposure prior to IVF decreases the rate of embryo blastulation.

Design

Retrospective cohort analysis

Materials and Methods

IVF patients who underwent a fresh blastocyst transfers (ET) from January 2010 to February 2017 were included. Patients were segregated into either SSRI exposed or non-exposed groups. SSRIs included sertraline, fluoxetine, paroxetine, escitalopram, or fluvoxamine. Male factor infertility diagnosis, genetic translocations, ovum donation cycles, and cycles with incomplete EMR data were excluded. Student's t-test was used for continuous variables, X^2 test for categorical variables, and significance was confirmed a $p<0.05$. A sample size of 170 for each group was calculated and had an 80% power to detect 15% difference in blastulation rate (alpha=0.05).

Results

Of the 7722 cycles analyzed, 2.7% (n=207) were exposed to a SSRI while the remaining 97.3% (n=7515) were not. Patient demographics and embryo development characteristics are shown in Table 1. The blastulation rate (39.7% vs 39.4%) was similar between groups. No differences were observed in the total number of eggs retrieved (13.9(±9.5) vs 14.1(±8.8)), maturity rate (92.1% vs 92.1%), fertilization rates (63.4% vs 63.5%), number of cleavage stage embryos (7.4(±6.3) vs 7.6(±5.6)), and total number of embryos cryopreserved (3.6(±2.9) vs 3.5(±2.7)) between cohorts.

Conclusions

This is the first study of its kind to analyze the relationship between maternal SSRI exposure and blastocyst development. Prescribers can confidently administer SSRIs to patients undergoing ART treatments. Prospective clinical trials may better understand any downstream effects of SSRIs on embryonic development.

Support

None.

Table 1

		NO SSRI Exposure (n=7515)	SSRI Exposure (n=207)	p-value
Age		36.3 (±4.8)	37.0 (±4.4)	NS
BMI		24.6 (±5.6)	25.3 (±5.4)	NS
AMH		1.9 (±3.2)	1.58 (±2.9)	NS
BAFC		9.2 (±6.6)	9.3 (±6.2)	NS
FSH		8.5 (±4.9)	9.0 (±6.0)	NS
Peak E2		1879.6 (±1169)	1777.2 (±1060)	NS
Eggs retrieved		13.6 (±9.5)	14.1 (±8.8)	NS
Maturity %		92.17	92.1	NS
Fertilization %		63.44	63.59	NS
Total Cleavage stage embryos		7.4 (±6.3)	7.6 (±5.6)	NS
Blastulation %		39.74	39.44	NS
Total blastocyst		3.17 (±3.2)	3.2 (±3.1)	NS
	D5 blastocyst	1.2 (±1.28)	1.2 (±1.25)	NS
	D6 blastocyst	1.3 (±2.4)	1.4 (±2.3)	NS
Cryopreserved blastocyst		3.6 (±2.9)	3.5 (±2.7)	NS