

Investigating the Association Between Pre-existing Anxiety/Depression and Outcomes of First Fresh Embryo Transfer

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PURPOSE & OBJECTIVES

Compare outcomes of the first fresh embryo transfer cycle among patients with pre-existing anxiety and/or depression to those without this psychiatric diagnosis

MATERIAL & METHODS

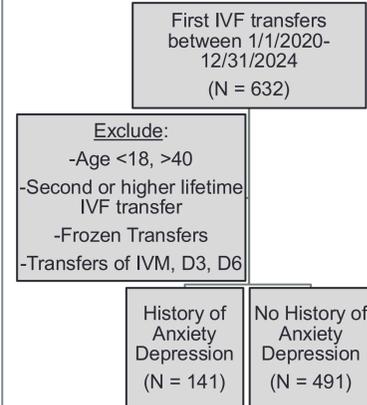
• **Retrospective cohort** study between 1/1/2020 and 12/31/2024 at Weill Cornell, a university-based academic clinic

• A pre-existing diagnosis of anxiety and/or depression was determined based on self-reported questionnaires completed at their initial visit

• Descriptive statistics were used to assess the demographic and baseline clinical characteristics

• Mann-Whitney, Chi squared, unpaired t-test, and Fisher's exact were used to compare continuous and categorical variables as appropriate

• Analyses were repeated to stratify by age groups: <35, 35-37, and 38-40 years old



RESULTS

• **632** patients met inclusion criteria, **22% (141/632)** carried a pre-existing diagnosis of anxiety/depression

• **Demographics were similar** between groups including **median age** and **gravidity**. **BMI** was higher among those with anxiety and depression and **AMH** was **lower**.

• Following a Day 5 transfer, there was a **similar positive pregnancy rate, clinical pregnancy rate, live birth rate** and **miscarriage rate**.

• Regarding **cycle outcomes**, there were **similar median number of oocytes** harvested, **mature oocytes**, **percent 2PN** and number of **D5 blastocysts** between those with anxiety/depression and those without (see Figure 1)

• **Gestational age** at delivery and **birth weight** were similar between those with anxiety/depression and those without (see Figure 1)

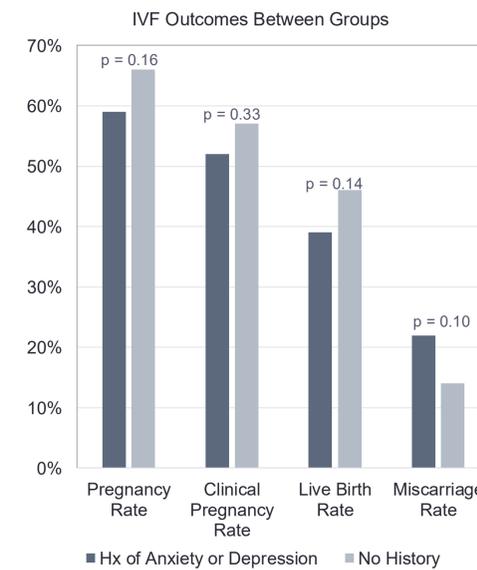
Outcomes of first fresh IVF cycle were comparable between those with anxiety or depression and those without

Patients with pre-existing anxiety or depression had significantly lower AMH and higher BMI, a result requiring further investigation

Figure 1: Patients with anxiety/depression had a **lower AMH** compared to those without. For **transfer outcomes**, there was a **similar positive pregnancy rate, clinical pregnancy rate, live birth rate and miscarriage rate**.

| | History of A/D (N = 80) | No History (N = 303) | P-value |
|-------------------------------|-------------------------|----------------------|--------------|
| Age [years] | 34 [32,36] | 34 [32,36] | 0.29 |
| Gravida | 0 [0,1] | 0 [0,1] | 0.42 |
| AMH [ng/mL] | 2.21 [1.36,3.46] | 2.81 [1.58,4.45] | 0.012 |
| BMI [kg/m ²] | 24.1 [21.8, 29.3] | 23.0 [20.9,26.7] | 0.007 |
| Harvested Oocytes | 16 [10.5, 22] | 16 [11, 22] | 0.91 |
| Mature Oocytes | 12 [9,17.5] | 12 [9,16] | 0.78 |
| %2PN [%] | 77 [70, 90] | 80 [71, 90] | 0.34 |
| # D5 blasts | 6 [3, 8.5] | 6 [4,8] | 0.79 |
| Total gonadotropins [u] | 3000 [2075,4188] | 2500 [1900,3600] | 0.004 |
| Gestational age [weeks, days] | 39w1d ± 1w4d | 39w2d ± 2w0d | 0.45 |
| Birth weight [g] | 3238g [2873, 3570] | 3240g [2977, 3525] | 0.73 |

A/D = anxiety/depression



CONCLUSIONS

- Overall, outcomes of the first IVF cycle with fresh D5 blastocyst transfer were comparable
- Individuals with pre-existing anxiety/depression have **significantly lower AMH** and **significantly higher BMI** than those without this psychiatric diagnosis
- Women 38-40 years old with anxiety/depression had a significantly higher miscarriage rate, a finding requiring further investigation.

RESULTS

Figure 2: When stratified by age, there was a **similar positive pregnancy rate, clinical pregnancy rate, and live birth rate**. **Miscarriage rate** was higher among patients with anxiety/depression age 38-40.

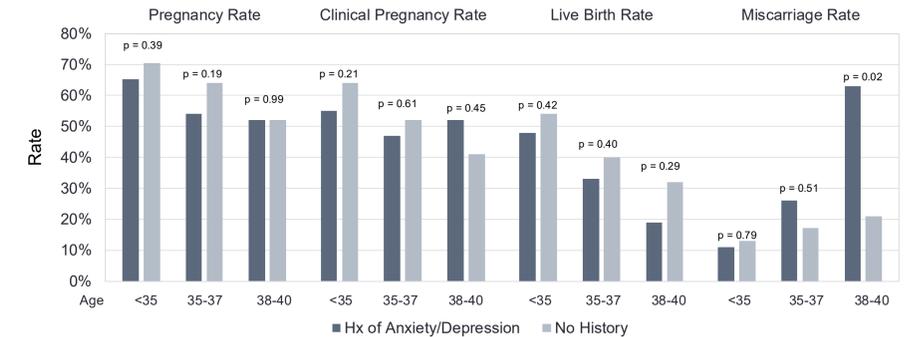


Figure 3: When stratified by age, outcomes were largely similar between groups. However, **women 35-37 with anxiety/depression had significantly lower AMH and significantly higher BMI**.

| | Age under 35 | | | Age 35-37 | | | Age 38-40 | | |
|--------------------------|----------------------|----------------------|---------|--------------------------|----------------------------|-------------|----------------------|----------------------|---------|
| | History A/D (N = 39) | No History (N = 167) | P-value | History A/D (N = 30) | No History (N = 95) | P-value | History A/D (N = 11) | No History (N = 41) | P-value |
| Gravida | 0 [0,1] | 0 [0,0] | 0.48 | 0 [0,1] | 0 [0,1] | 0.67 | 0 [0,0] | 0 [0,0] | 0.95 |
| AMH (ng/mL) | 2.54 [1.52, 4.72] | 3.17 [1.87, 5.09] | 0.25 | 1.85 [1.18, 3.2] | 2.62 [1.41, 4.21] | 0.06 | 1.9 [1.16, 2.50] | 2.1 [1.09, 3.70] | 0.32 |
| BMI (kg/m ²) | 23.7 [21.7, 27.9] | 22.7 [20.7, 26.7] | 0.08 | 25.1 [21.6, 30.8] | 23.18 [21.1, 26.18] | 0.05 | 26 [21.6, 33.6] | 23.8 [21.9, 26.7] | 0.30 |
| Harvested Oocytes | 17.5 [12,25] | 17 [12, 23] | 0.56 | 13.5 [8.25, 20] | 14 [10, 20] | 0.70 | 14 [8.5, 19.5] | 14 [9, 19] | 0.62 |
| Mature Oocytes | 13 [10, 19] | 13 [10, 18] | 0.49 | 11 [7, 16] | 11 [8, 15] | 0.73 | 11 [7, 16.5] | 11 [7, 15] | 0.85 |
| %2PN | 0.77 [0.70, 0.90] | 0.80 [0.66, 0.89] | 0.97 | 0.78 [0.65, 0.91] | 0.81 [0.71, 0.91] | 0.35 | 0.83 [0.72, 0.95] | 0.83 [0.71, 0.91] | 0.97 |
| # D5 blasts | 7 [4.25, 9.0] | 6 [4,9] | 0.35 | 4 [3,7] | 5 [4,8] | 0.07 | 5 [2.5, 8] | 5 [3, 7] | 0.93 |
| Total gonadotropins (u) | 2513 [1881, 3844] | 2200 [1763, 3088] | 0.07 | 3250 [2350, 4394] | 2700 [2000, 3725] | 0.07 | 4125 [2744, 4838] | 3375 [2500, 4150] | 0.08 |
| Gestational age | 39w1d [38w1d, 39w6d] | 39w2d [38w1d, 40w1d] | 0.38 | 39w1d [37w0d, 40w2d] | 39w0d [37w5d, 39w5d] | 0.53 | 37w1d [36w3d, 39w1d] | 39w3d [38w0d, 40w0d] | 0.22 |
| Birth weight (g) | 3303 ± 505 | 3245 ± 456 | 0.73 | 3067 ± 472 | 3242 ± 556 | 0.30 | 3217 ± 701 | 3112 ± 512 | 0.79 |

A/D = anxiety/depression

ACKNOWLEDGEMENTS

New York Presbyterian, Weill Cornell and Weill Cornell Center for Reproductive Medicine

CONTACT INFORMATION

