

ACUPUNCTURE PERFORMED BEFORE AND AFTER EMBRYO TRANSFER IMPROVES PREGNANCY RATES

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ABSTRACT

ACUPUNCTURE PERFORMED BEFORE AND AFTER EMBRYO TRANSFER IMPROVES PREGNANCY RATES. D.B. Youran, B.L. Bopp, R.M. Colver, L.M. Reuter, G.K. Adaniya. Organic Health Services, Carmel, IN; Midwest Fertility Specialists, Carmel, IN.

Objective: Conflicting evidence exists on whether acupuncture is beneficial for patients undergoing In Vitro Fertilization (IVF) cycles. Therefore, this study was undertaken to determine whether on-site acupuncture, performed both before and after embryo transfer, affects clinical outcomes.

Design: Retrospective data analysis.

Materials and Methods: The Acupuncture Group consisted of 49 patients who received acupuncture on-site before and after embryo transfer in 2007. The treatment did not follow the Paulus protocol. The Control Group were 212 patients with no acupuncture undergoing IVF cycles in the same time period. The data was subdivided by SART age classifications to determine if acupuncture differentially benefitted certain age groups. Clinical Pregnancy Rate (CPR) was defined as the presence of fetal cardiac activity. Data were analyzed using the unpaired t-test and Fisher's exact test, with significance defined as P < 0.05.

Results: Patients with a positive hCG were significantly higher in the Acupuncture Group for women less than 35 years old (63.3% vs.43.2%, p = 0.048). The Acupuncture Group also had a higher CPR in the under 35 category (60.0% vs. 34.6%, p = 0.01). There were no differences in the other age groups. Combining all the age groups, the cycle parameters between the two Groups were equivalent, while the CPR was higher and the Loss Rate lower for the Acupuncture group (Table 1).

Conclusions: Although other studies regarding acupuncture have been inconclusive, perhaps these positive results are related to two important factors. The treatments were performed on-site, eliminating the stress of traveling to another site before and after the embryo transfer. Also, the acupuncture treatment protocol did not follow the traditional Paulus protocol, thereby suggesting there is still more research to be done on how best to treat infertility issues with acupuncture.

Support: None

OBJECTIVE

Conflicting evidence exists on whether acupuncture is beneficial for patients undergoing In Vitro Fertilization (IVF) cycles. Therefore, this study was undertaken to determine whether on-site acupuncture, performed both before and after embryo transfer, affects clinical outcomes.

DESIGN

Retrospective data analysis.

MATERIALS AND METHODS

The Acupuncture Group consisted of 74 patients who received acupuncture on-site before and after fresh cycle non-donor embryo transfers from January 2007 – June 2008. (An additional 6 months of data from January to June 2008 has been added since the submission of this abstract.) The acupuncture treatments did not follow the Paulus protocol which has been used previously in several other acupuncture and IVF studies. The Control Group consisted of 320 patients with no acupuncture undergoing IVF cycles in the same time period.

Controlled ovarian hyperstimulation was achieved by use of a standard gonadotropin releasing hormone agonist and recombinant follicle stimulating hormone (rFSH) protocol. Following human chorionic gonadotropin administration and oocyte retrieval 36 hours later, oocytes were inseminated 2 to 4 hours later by either standard insemination or by intracytoplasmic sperm injection (ICSI). Embryos were scored using standard morphological criteria on the morning of the Day 3 embryo transfer (ET). Embryos were assigned a fragmentation score of 4 if there was no fragmentation, a 3 if less than 10% of the embryo exhibited fragmentation, a 2 if between 10% and 50% of the embryo was fragmented, and a 1 if the embryo had greater than 50% fragmentation.

The Beta Pregnancy Rate was the percentage of patients who had an initial hCG level, drawn 12 days after the embryo transfer, of 10 mIU/ml or greater. The Clinical Pregnancy Rate (CPR) was defined as the percentage of patients with fetal cardiac activity. The Loss Rate was the percentage of patients that had a positive hCG level but that failed to develop a fetal heart rate.

The data was subdivided by SART age classifications to determine if acupuncture differentially benefitted certain age groups. Data was analyzed using the unpaired t-test and Fisher's exact test, with significance defined as P < 0.05.

The results are expressed as mean ± standard deviation or percentages, as appropriate.

RESULTS

The cycle parameters for the combined age groups were equivalent, but the Clinical Pregnancy Rate for the patients receiving acupuncture was higher than the control group (Table 1) . In addition, the Loss Rate was significantly lower in the acupuncture group.

Examining the individual age groups, while patients with a positive hCG was significantly higher in the Acupuncture Group for women less than 35 years old (64.4% vs. 48.1%, p = 0.048) for the initial study period of January to December 2007, the addition of the January to June 2008 data changed the data to bordering on significance (63.3% vs. 43.2%, p = 0.051) as shown in Table 2. However, the Clinical Pregnancy Rate continued to be significantly higher for the acupuncture group, and the addition of the 2008 data led to the Loss Rate being significantly higher in the control group.

In the remaining two age groups all of the parameters examined were equivalent, with the exception of a significantly higher average cell number for embryos in the control group for patients between 38 and 40 years of age (Table 4).

Table 1. Cycle Data for All Age Groups

	Acupuncture	Control	P Value
N	74	320	
Patient Age	32.6 ± 4.0	32.2 ± 4.0	0.44
Oocytes Per Patient	13.5 ± 6.3	13.2 ± 6.8	0.73
Embryo Cell Number	7.1 ± 2.1	7.2 ± 2.0	0.56
Embryo Fragmentation Score	2.5 ± 0.6	2.5 ± 0.6	1.00
Embryos Frozen	2.9 ± 3.1	3.0 ± 3.7	0.83
Embryos Transferred	2.3 ± 0.6	2.2 ± 0.6	0.20
Beta Pregnancy Rate (%)	59.5 (44/74)	49.4 (158/320)	0.12
Clinical Pregnancy Rate (%)	55.4 (41/74)	34.4 (110/320)	0.001
Loss Rate (%)	6.8 (3/44)	30.4 (48/158)	0.001

Table 2. Cycle Data for Patients Under Age 35

	Acupuncture	Control	P Value
N	45	237	
Patient Age	30.1 ± 2.7	30.4 ± 2.7	0.52
Oocytes Per Patient	14.6 ± 5.5	13.9 ± 6.6	0.46
Embryo Cell Number	7.6 ± 2.1	7.2 ± 2.0	0.10
Embryo Fragmentation Score	2.5 ± 0.6	2.5 ± 0.6	0.54
Embryos Frozen	3.5 ± 3.3	3.2 ± 3.7	0.63
Embryos Transferred	2.1 ± 0.5	2.2 ± 0.6	0.91
Beta Pregnancy Rate (%)	64.4 (29/45)	48.1 (114/237)	0.05
Clinical Pregnancy Rate (%)	62.2 (28/45)	35.0 (83/237)	0.001
Loss Rate (%)	3.4 (1/29)	27.2 (31/114)	0.005

Table 3. Cycle Data for Patients Age 35-37

	Acupuncture	Control	P Value
N	21	51	
Patient Age	35.8 ± 0.9	36.0 ± 0.8	0.34
Oocytes Per Patient	12.4 ± 8.0	12.0 ± 7.9	0.85
Embryo Cell Number	6.6 ± 1.9	7.1 ± 2.0	0.14
Embryo Fragmentation Score	2.5 ± 0.6	2.4 ± 0.6	0.48
Embryos Frozen	2.3 ± 2.7	2.7 ± 3.7	0.63
Embryos Transferred	2.3 ± 0.6	2.2 ± 0.7	0.45
Beta Pregnancy Rate (%)	52.4 (11/21)	58.8 (30/51)	0.79
Clinical Pregnancy Rate (%)	42.9 (9/21)	39.2 (20/51)	0.80
Loss Rate (%)	18.2 (2/11)	33.3 (10/30)	0.46

Table 4. Cycle Data for Patients Age 38-40

	Acupuncture	Control	P Value
N	8	32	
Patient Age	38.8 ± 0.9	38.7 ± 0.7	0.92
Oocytes Per Patient	10.3 ± 4.6	10.8 ± 5.7	0.82
Embryo Cell Number	6.0 ± 1.8	7.1 ± 2.1	0.03
Embryo Fragmentation Score	2.5 ± 0.5	2.4 ± 0.5	0.69
Embryos Frozen	1.0 ± 1.9	1.8 ± 3.0	0.51
Embryos Transferred	2.8 ± 0.9	2.5 ± 0.8	0.43
Beta Pregnancy Rate(%)	50.0 (4/8)	43.8 (14/32)	1.0
Clinical Pregnancy Rate (%)	50.0 (4/8)	21.9 (7/32)	0.18
Loss Rate (%)	0 (0/4)	50.0 (7/14)	0.12

CONCLUSIONS

Although other studies regarding acupuncture have been inconclusive, perhaps these positive results are related to several important factors. Acupuncture attempts to stimulate the body's own reproductive potential which may explain why the under age 35 category showed the greatest benefit from acupuncture, as these women would naturally have greater reproductive potential than the older age categories. In addition, the treatments were performed on-site, eliminating the stress of traveling to another site before and after the embryo transfer. The higher Clinical Pregnancy Rate and lower Loss Rate in the acupuncture group may be due to increased blood flow to the uterus. Also, the acupuncture treatment protocol did not follow the traditional Paulus protocol. Instead the acupuncture points used before the embryo transfer were CV 6, CV4, SP6, KI3, LR4, ST36 and GB34. The acupuncture points used after the embryo transfer were SP9, LR3, KI3, ST 36, and GB34. This study suggests there is still more research to be done on how best to treat infertility issues with acupuncture.