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INTRODUCTION

- More than forty years after the first In vitro fertilization pregnancy, the pregnancy rates remain around 60%-70% in young women with euploid embryos.
- The role of oxidative stress in female infertility has been evaluated over the last decade.
- Oocytes obtained for assisted reproduction technology usually originate from an environment experiencing oxidative stress as incubation of oocytes in different culture media results in increased production of reactive oxygen species, and a high percentage of these oocytes may have damaged DNA[1].
- Recent studies suggested an increase in clinical pregnancy rates after supplementation of the culture media with antioxidants [2].
- This pilot study was designed to investigate the potential of oral antioxidants to improve the pregnancy rates in assisted reproductive technology (ART) [3].

Content of the FH Pro for Women supplement(per serving)	
Vitamin A (1500 mcg)	Zinc (30 mg)
Vitamin C (240 mg)	Selenium (70 mcg)
Vitamin D (2800 IU)	Copper (1 mg)
Vitamin E (67 mg)	Manganese (2 mg)
Vitamin K (80 mg)	Chromium (240 mcg)
Vitamin B1 (3 mg)	Molybdenum (75 mcg)
Vitamin B2 (3.4 mg)	Myo- Inositol (2000 mg)
Vitamin B3 (40 mg)	CoQ10 (300 mg)
Vitamin B6 (4 mg)	Alpha Lipoic acid (100 mg)
Vitamin B12 (12 mcg)	D-Chiro-Inositol (50 mg)
Vitamin B7 (600 mcg)	Grape seed extract (50 mg)
Vitamin B5 (20 mg)	Trans - Resveratrol (50 mg)
Folate (1360 mcg)	N- Acetyl- L- Cysteine (50 mg)
Choline (50 mg)	Melatonin (2mg)
Iron (18 mg)	Benfotiamine (1 mg)
Iodine (150 mcg)	

STUDY DESIGN

- This was a prospective study of ART patients supplemented with oral Antioxidants, FH PRO for ninety days prior to ART, compared with a historical control of patients who completed their cycles during the prior 18 months. 48 subjects enrolled for the study were compared with 56 subjects in the control group.
- The inclusion criteria were 21-40 years old undergoing ART, NO previous or current cancer, and no major surgery in the 3 months prior to the study. They were excluded from the study if they received other antioxidants or had any accidents or major trauma.



RESULTS

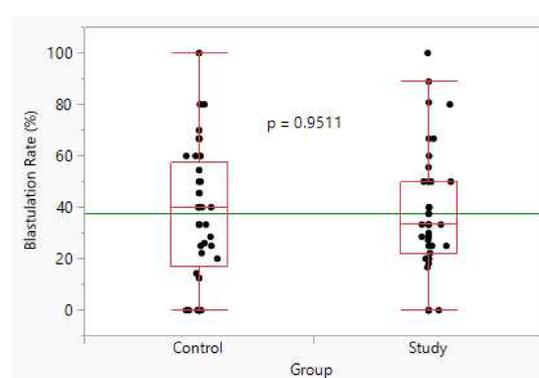
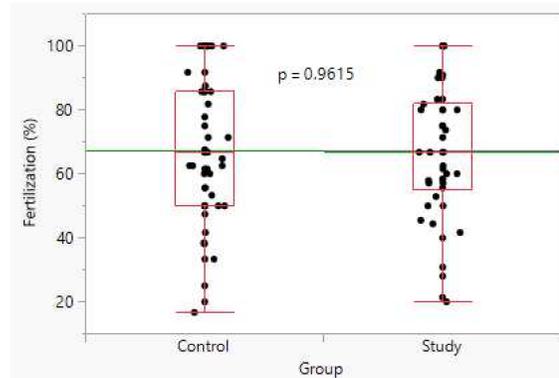


Figure 1: Comparison of Fertilization Rates (%) in Control and Study Groups.

Figure 2: Comparison of Blastulation rates (%) in Control and Study Groups.

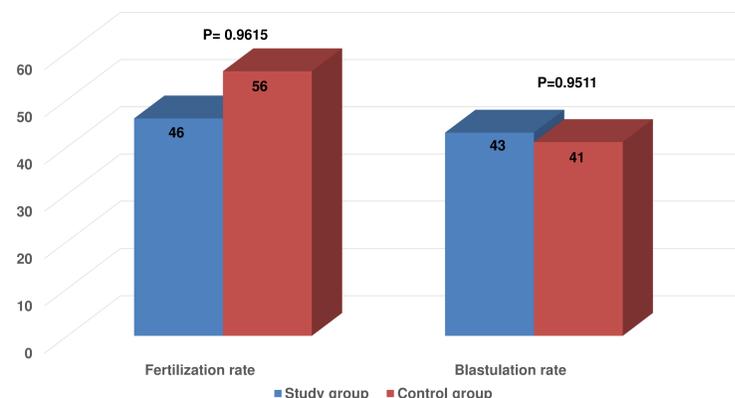


Figure 3: Clinical outcomes of patients in Control and Study groups. No significant difference was found between two groups.

RESULTS

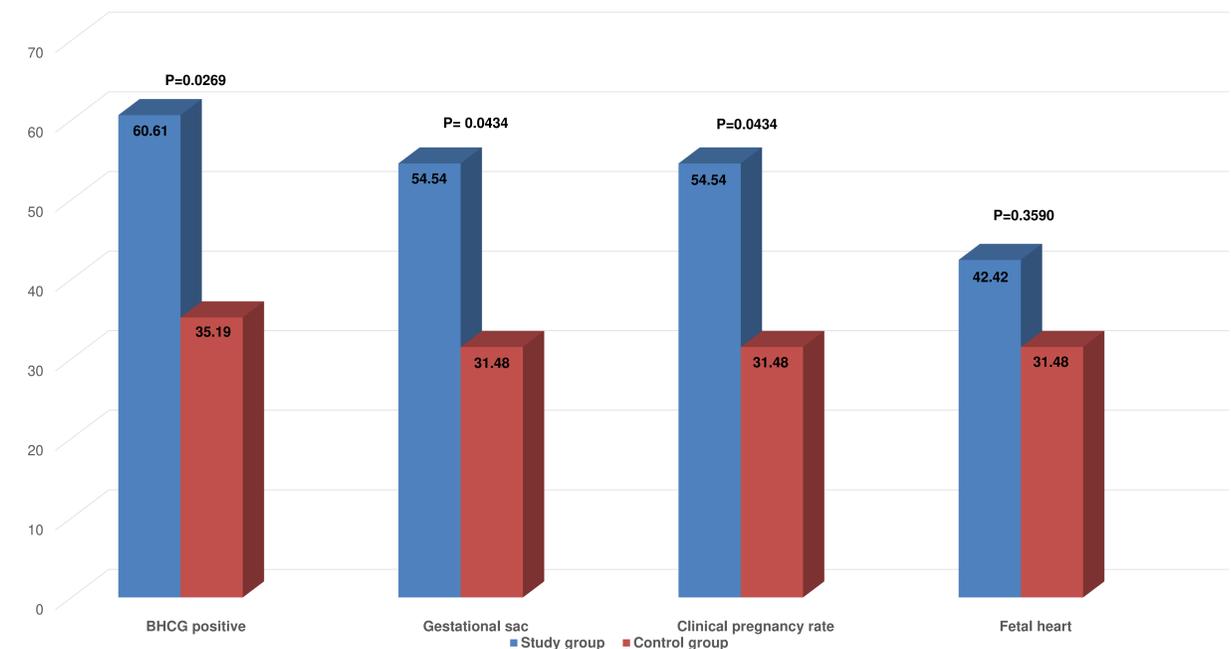


Figure 4: Clinical outcomes of patients in two groups. Significant difference was observed in BHCG, Gestational sac and Clinical pregnancy rate between two groups. No significant difference was found in Fetal heart between two groups.

- Fertilization rate, Blastulation rate and Clinical pregnancy rates were compared in the prospective group that were supplemented with the antioxidants and the historic control group.
- The fertilization rate was 46 percent in study group versus 56 percent in control group.
- There was a trend towards improvement of blastocyst formation rate 43 percent in study group versus 41 percent in control group. Antioxidant supplementation potentially improved Blastocyst grading.
- No significant differences were observed in the mean MII Oocytes retrieved, fertilization rate, and Blastulation rate between the two groups.
- BHCG was positive in 60.61% of subjects in the study group as compared to 35.19% in the control and significant association was observed.
- Gestational sac was seen in 54.54% of subjects in the study group as compared to 31.48% in the control group.
- Fetal heart was seen in 42.42% of subjects in the study group as compared to 31.48% in the control group.
- Significant association was observed in the clinical pregnancy rate and Gestational sac between the two groups.

CONCLUSION

- This pilot study suggests a significant increase in Clinical pregnancy rate in ART patients supplemented with antioxidants compared to non-supplementation.
- Antioxidant supplementation potentially improved Blastocyst grading.
- There was no statistical difference in the MII oocyte number, fertilization rates, the Blastulation rate.
- Further Prospective randomized control studies are recommended to demonstrate the potential for such an important improvement in ART pregnancies.

REFERENCES

1. Lord T, Aitken RJ. Oxidative stress and ageing of the post-ovulatory oocyte. *Reproduction* (Cambridge, England). 2013;146(6):R217-227.
2. Gardner D et al. Prospective randomized multicentre comparison on sibling oocytes comparing G-Series media system with antioxidants versus standard G-Series media system. *RBM* 2020, 637-644.
3. Agarwal et al. Antioxidant strategies to overcome oxidative stress in IVF embryo transfer. *Studies on Women's Health*. Editors: Agarwal A, Aziz N, Rizk B. Springer Science + Business Media, p. 237-262.

ACKNOWLEDGEMENTS

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