THE INFLUENCE OF ENDOMETRIOSIS ON OOCYTE QUALITY AND EMBRYO DEVELOPMENTAL COMPETENCE

P- 281

Edson Borges Jr.[1,2], Daniela P. A. F. Braga[1,2,3], Amanda S. Setti[1,2,4], Rita Figueira[1], Fabio F. Pasqualotto[5], Assumpto Iaconelli Jr.[1,2]

[1] Fertility Medical Group, Sao Paulo, Brazil, [2] Instituto Sapientiae – Centro de Estudos e Pesquisa em Reprodução Assistida, Sao Paulo, Brazil, [3] Universidade Federal de São Paulo (UNIFESP), São Paulo, Brazil, [4] Faculdade de Ciencias Medicas da Santa Casa de Sao Paulo, Sao Paulo, Brazil, [5] Biotechnology institute, Universidade de Caxias do Sul, Caxias do Sul, Brazil

INTRODUCTION

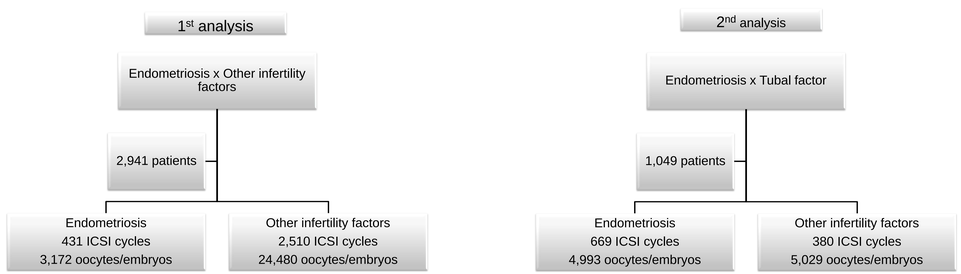
Endometriosis-associated infertility patients undergoing ART have a poor ovarian response, lower fertilization, decreased endometrial receptivity and poor implantation. It has also been suggested that the oocyte and embryo quality may be compromised in endometriosis-associated infertility. It was even reported that the incidence of aneuploidy is significantly higher in the presence of endometriosis. To our knowledge, the effect of endometriosis-associated infertility on oocyte quality, specifically intra- and extra-cytoplasmic defects, has still not been investigated.

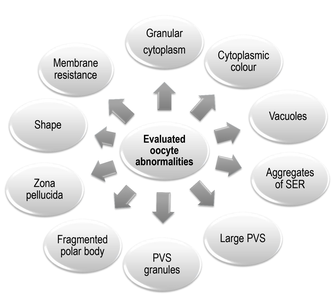
OBJECTIVE

The goal of the present study was to identify any association between the presence of endometriosis and oocytes defects, embryo developmental potential and cycle outcomes.

MATERIALS AND METHODS

- ICSI cycles performed between Jan/2005 and May/2014
- Patients with female age ≤ 36 years
- 2 independent analysis





Comparisons between the groups	• Oocyte quality • Clinical outcomes
Continuous variables	• Student t test • Mann-Whitney test
Percentages	• Chi-squared test • Fisher's exact test

RESULTS

1st analysis

Variables	Endometriosis (n=431)	Other (n=2510)	p-value
Female age (y-old)	33.0 ± 2.54	32.9 ± 3.22	0.165
FSH adminsitered (IU)	2327 ± 652	2159 ± 600	**< 0.001**
Aspirated follicles	15.7 ± 12.2	21.0 ± 13.7	**< 0.001**
Retrieved oocytes	10.6 ± 21.2	14.6 ± 21.1	**< 0.001**
Oocyte yield (%)	68.1 ± 20.0	70.6 ± 19.6	**0.015**
Mature oocyte rate (%)	74.4 ± 20.8	73.9 ± 19.5	0.661
Fertilization rate (%)	80.5 ± 21.2	79.1 ± 20.0	0.189
Obtained embryos	6.1 ± 4.43	7.8 ± 5.12	**< 0.001**
High-quality embryos rate on D3 (%)	45.36	47.29	**0.037**
Blastocyst formation rate (%)	51.97	52.49	0.780
Transferred embryos	2.2 ± 0.9	1.8 ± 0.9	**0.035**
Pregnancy rate (%)	36.9	38.5	0.529
Miscarriage rate (%)	16.5	13.6	0.352
Implantation rate (%)	28.1 ± 38.9	33.9 ± 42.7	**0.012**

Table 1. Comparison of ICSI cycles' outcomes between patients with endometriosis and other types of infertility

Oocyte abnormalities	Endometriosis (n=3172)	Other (n=24480)	p-value
Zona pellucida	22.13	18.27	**< 0.001**
PVS granules	47.91	45.70	**0.017**
Large PVS	28.80	24.28	**< 0.001**
Fragmented polar body	38.15	35.40	**0.002**
Shape	15.22	13.51	**0.007**
Resistant membrane	15.29	14.03	**0.053**
Non-resistant membrane	16.11	14.46	**0.013**

Table 2. Comparison of oocyte abnormalities'' incidence between patients with endometriosis and other types of infertility

2nd analysis

Variables	Endometriosis (n=669)	Tubal factor (n=380)	p-value
Female age (y-old)	35.5 ± 3.8	34.3 ± 4.1	**< 0.001**
FSH administered (IU)	2403 ± 670	2269 ± 618	**< 0.001**
Aspirated follicles	13.5 ± 11.0	18.5 ± 12.3	**< 0.001**
Retrieved oocytes	9.2 ± 7.5	12.9 ± 8.8	**< 0.001**
Oocyte yield (%)	69.1 ± 20.7	71.6 ± 19.4	**0.028**
Mature oocyte rate (%)	74.5 ± 22.4	73.6 ± 20.3	0.459
Fertilization rate (%)	80.6 ± 22.4	80.9 ± 19.8	0.799
Obtained embryos	5.46 ± 4.18	7.04 ± 4.66	**< 0.001**
High-quality embryos rate on D3 (%)	47.55	52.45	**0.045**
Blastocyst formation rate (%)	52.45	53.37	0.531
Transferred embryos	2.3 ± 0.9	1.5 ± 0.81	**< 0.001**
Pregnancy rate (%)	32.7	32.3	0.903
Miscarriage rate (%)	18.2	15.5	0.486
Implantation rate (%)	26.1 ± 38.6	31.4 ± 42.7	**0.039**

Table 3. Comparison of ICSI cycles' outcomes between patients with endometriosis and tubal infertility

Oocyte abnormalities	Endometriosis (n=4993)	Tubal factor (n=5029)	p-value
Zona pellucida	25.13	13.21	**< 0.001**
PVS granules	39.24	36.90	**0.015**
Large PVS	23.78	19.08	**< 0.001**
Fragmented polar body	29.57	26.66	**< 0.001**
Shape	15.04	13.38	**0.028**
Resistant membrane	16.23	14.34	**0.048**
Non-resistant membrane	16.11	14.46	**0.009**
Aggregates of SER	14.91	3.28	**0.020**
Refractile bodies	17.89	16.21	**0.025**

Table 4. Comparison of oocyte abnormalities'' incidence between patients with endometriosis and tubal infertility

CONCLUSION

Endometriosis patients have a reduced oocyte and embryo quality, what may explain the lower implantation rate and increased chance of cycle cancelation observed in this group of patients.