Implantation after embryo transfer (ET) of equal quality embryos is impaired in endometriosis compared to male subfertility patients

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We always ask ourselves the question – Does endometriosis affect IVF outcome?

Study question:

Investigating the uterine receptivity in IVF/ICSI cycles following equal quality ET, compared between endometriosis patients and male factor subfertility.

What is known already:

Endometriosis is a benign, gynaecological disease affecting approximately 10% of the female population, with prevalence peaking during reproductive life.

Endometriosis is often accompanied by different degrees of adenomyosis, and can be visible in up to 79% of these women.

Both pathologies are frequently associated with subfertility. Most studies focused on ovarian dysfunction and impaired oocyte and embryo characteristics, while no major impact on uterine receptivity is considered.

Study design, size, duration:

First fresh IVF/ICSI cycles resulting in a single embryo transfer on day 5, performed in Ghent University hospital, were included.

In this subfertile population of 1053 subjects

- 121 women with endometriosis
- 361 patients undergoing IVF/ICSI because of male subfertility were eligible.

118 endometriosis cases were matched 1:1 to 118 male subfertile controls stratified by female age (±1 year), parity (±1 delivery) and embryo quality (identical ALPHA grading categories).

Participants/materials, setting, methods:

A retrospective matched case-control study was executed between 01/07/2015 and 31/08/2017 at the Department for Reproductive Medicine in Ghent University Hospital.

Endometriosis was diagnosed by laparoscopy, transvaginal ultrasound or magnetic resonance imaging and was classified according the revised American Society for Reproductive Medicine (rASRM) score into grade I/II (34.7%) vs. grade III/IV (65.3%).

Male subfertility was defined by the World Health Organization (WHO) criteria (5th edition).

Main results and the role of chance:

A multiple logistic regression (MLR) model to correct for possible confounding.

A significant difference between the endometriosis and male subfertility population was found for:

- Positive HCG test on day 16 (p=0.047; OR=2.077;CI=[1.009;4.276])
- Clinical pregnancy rate (p=0.038;OR=2.265;CI=[1.048; 4.893])
- Ongoing clinical pregnancy rate (p=0.046;OR=2.292;CI=[1.016;5.173])
- Live birth rate (p=0.043; OR=2.502;CI=[1.029;6.087]).

Conclusion and Clinical Relevance

This study confirmed that an altered uterine receptivity is present in women with endometriosis, complementary to the existing knowledge on ovarian disease.

However it did not clearly define if the results were related to uterine receptivity itself or an influence of endometriosis on euploid embryos.

Questions to still be answered :

1. Does surgical correction improve pregnancy rates.
2. If so should laparoscopy be a routine procedure before an IVF cycle.
3. Can we reverse the uterine receptivity problem.
4. Are uterine receptivity problems related to anatomical or immunological problems or both.