

## 29: DOES THE ENDOMETRIOTIC EMBRYO REALLY EXIST?

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### Objective

The pathology and mechanisms how endometriosis impairs female fertility and influences embryo development are still under debate. The aim of this study was to elucidate the possible existence of an endometriotic embryo by investigating the influence of endometriosis on a) morphokinetic parameters of embryonic development using time-lapse imaging, b) assisted reproductive technology (ART)-relevant serum parameters, c) ART-outcome such as positive heart action and live birth rate and d) the relationship between the day of embryo transfer and ART-outcome.

### Design

Retrospective study

### Material and Methods

1148 embryos (control: n=596, endometriosis: n=552) were included in the study. Embryos from patients with endometriosis were divided into the 4 ASRM stages (I-IV). The patients were stimulated with GnRH antagonist protocol. After fertilization, the embryos were incubated in a time-lapse system (EmbryoScope®). Differences between endometriosis and control groups regarding developmental stages tPNf, t2 - t9, and tMor, serum parameters (AMH, CRP, prolactin, testosterone, vitamin D), positive heart action, live birth rate, and the influence of the day of embryo transfer were evaluated.

### Results

Embryos of stage IV endometriosis patients reached t6-t9 faster compared to the control group and showed the fastest development between t5-t9 within the different endometriosis stages. However, developmental times for all stages equalized at tMor. Neither serum parameters nor positive heart action and live birth rate showed differences between stages. In the endometriosis group, the least positive heart action was measured for day 4 of embryo transfer.

### Conclusions

The study showed that endometriosis did not adversely affect serum parameter values nor ART-outcome, however, stage IV endometriosis could induce changes in embryonic morphokinetics which could possibly negatively impact the risk of miscarriage in stage IV endometriosis patients. Hence it is tempting to speculate that the endometriotic embryo exists, at least visible in the severe stage of the disease.

### Support

None