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Individual dynamic endometrial maturation: a new fact that leads to reconsider strategies for timing of embryo transfers

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Abstract

Statement of the Problem: The knowledge about the endometrial receptive stage for embryo transfer in IVF treatment is very important but unknown as well. Measuring the endometrial thickness and trilaminar pattern by ultrasound provides only a hind of a sucessful start of the menstrual cycle at the end of the follicular phase. Aim of this study was to monitor the endometrial transformation process applying our Personal Endometrial Maturation Analysis (PEMA®). We wanted to get information about the transformation process and to exclude an arrest of that organ, which cannot be done by one biopsy. Methodology & Theoretical Orientation: Two biopsies were taken mainly at days +5 and +10 after ovulation (OV, n = 76)/hormone replacement therapy (HRT, n = 58) within one cycle. Endometrial dating is done with our new modified endometrial dating method, a combination of histomorphological analysis, based on the Noyes criteria, with a typical pattern of hormone receptors and the proliferation marker Ki-67 for each cycle day between OV/P +2 and +11. Findings: The results were correlated with the clinically expected day of the cycle and showed temporal delays or hypercompensations, diverging from the expected cycle days by 0.5–5 days. In comparison with the first biopsies, the transformation rate in the second biopsies showed constant transformation, compensation or augmented delay in 28.94, 48.69 and 22.37 % of cases for ovulation in natural cycles and 17.26, 56.89 and 25.85 % for HRT cycles respectively.

Conclusion & Significance: The study revealed an individually dynamic transformation process of the endometrium using PEMA®, with the ability to compensate or enlarge an initial "delay", which is now identified as a normal individual transformation process during the secretory phase. This information will lead to a new consideration of IVF procedures and will influence timing of embryo transfers.

Biography

Joachim Alfer graduated with a dissertation on marker molecules for human endometrial functions at the Institute of Anatomy and Reproductive Biology (Director: Prof. H.M. Beier) in the Medical Faculty of RWTH Aachen University in Germany. With colleagues, he is owner and CEO of the Institutes for Pathology Kaufbeuren-Ravensburg and the Molekularpathologie Südbayern in Munich. Since 2017 he is Visiting Professor at the Mongolian National University of Medical Sciences (MNUMS) of Ulan Bator, Mongolia and lecturer at Friedrich-Alexander University of Erlangen–Nürnberg, Germany as well.

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