

CHAPTER 17

ARTIFICIAL BLASTOCYST CONCEPT TO IMPROVE ENDOMETRIUM RECEPTIVITY

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What is embryo spacing?

Despite the significant improvement in reproductive biology we do not have so many options for improving endometrial receptivity. Although the transfer of adequate quality and the number of embryo, successful implantation has not been achieved in great majority of IVF cycles. Well coordinated bidirectional communication between the embryo and implantation site is, therefore, essential for achievement of a successful pregnancy. In agreement, some specific signaling molecules and chemoattractants produced by both the embryo and the endometrium are described to participate in regulation of the spacing of embryo within the endometrium. Answering some questions is essential for solving the receptivity defects. What is main determinant of spacing of the blastocyst to the endometrium? Is it blastocyst, endometrium or both? As with other organs, it is reasonable to assume that, endometrial functions decline in advancing reproductive age. The oocytes only come from young and healthy donors may overcome age associated endometrial receptivity defect. Increased implantation rates in aged infertile patients after oocyte donation supports to our idea in which good quality oocyte has a critical role for spacing of the embryo (1).

What is artificial egg?

As with other reproductive tissues endometrium functions are altered with the advancing age. Age related decrease in reproductive functions leads to decline in the synthesis and secretions of endometrial receptivity genes and proteins. We, therefore, directed our attention towards the endometrium and its specific implantation district that we have named it “endometrial macula densa”. The differences in expression patterns of receptivity molecules in the endometrium of the women with implantation failure suggest that endometrium of this subjects may appear histologically normal but, in fact, be genetically abnormal. Defective expression of cell cycle regulators and receptivity genes may contribute to the failed endometrium receptivity in these women. On the occasion of lack of any agents having

References

1. This section is mainly a summary of the published article written by me and my colleagues in the following journal;
2. Celik O, Acet M, Celik S, Sahin L, Koc O, Celik N. Hypothesis: Co-transfer of genuine embryos and implantationpromoting compounds via artificial containers improve endometrium receptivity. *Medical Hypotheses* 103 (2017) 65–70.