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Experience of a decade with endoscopic embryo transfer/implantation (HEED and SEED), improving results while reducing risks and side effects from IVF

Introduction: Embryo transfer is known to be a bottleneck for success of IVF procedures since the occurrence of ectopic pregnancy from the first human IVF pregnancy in 1976. However, there has been little progress and no standardization in embryo transfer technique since then in order to improve results and decrease risks and side effects in the past 38 years.

With better understanding of the normal physiological and pathological conditions of the reproductive system, along with recent modern technical advances in miniaturization and nanotechnology, we are now able to direct placement of embryo(s) at select zones on the endometrium (Hysteroscopic Endometrial Embryo Delivery, HEED) or in the endometrium (SubEndometrial Embryo Delivery, SEED) with greater accuracy with the aim of improving results while decreasing risks and side effects.

Materials and methods: Here is a summary of our experience of the past decade using HEED/SEED for embryo transfer. In the first group of patients HEED was done on day 2/3, and in the second group SEED was done on day 5/6 after oocyte retrieval. The hysteroscope was a 3mm flexible scope with an articulating tip made by Storz®, El Segundo, CA, USA and the KAM's catheter is made by IVF Scientific, Beverly Hills, CA, USA.

Results: There were a total of 59 patient starts with a total of 32(54%) pregnancies. There were 14(24%) live births, 5 biochemicals, and 10 spontaneous miscarriages. The 2 ectopic pregnancies were confined to our initial experience with HEED and after corrections in embryo loading and refinements in placement of embryos none have been encountered since.

Discussion: By precise visually confirmed positional placement of embryo(s) along with lower volume of transfer fluid, these procedures have the potential for increasing success from IVF procedures while decreasing risks of ectopic pregnancies, lost embryos, placenta previas. Furthermore, uterine contractions can be visually identified and embryo transfer deferred. It may also reduce percentage of multiple pregnancies by reducing the number of embryos transferred because of the less uncertainty of the placement of embryo(s) with the "Blind" technique. Both of these procedures are objective in contrast with the traditional "Blind" embryo transfer. Besides, patients can see the procedure on a video monitor and feel more confident regarding their treatments. The only side effect from the procedure is possible scratching of the endometrium that can actually be observed on the monitor in contrast with the "Blind" technique which goes unnoticed, and consequently the embryo(s) can be placed at another zone of transfer or implantation under direct visualization, or the transfer be postponed to another cycle.

HEED is especially advantageous in situations where the numbers of embryos are limited, or embryo quality is of concern. It is particularly useful in patients of advanced reproductive age, or when egg production is low, or in patients with poor sperm parameters. SEED is specially indicated in patients with history of tubal disease, prior ectopic pregnancies, prior failed IVF or short uterine length in whom the embryos have reached the blastocyst stage. There is no conflict of interest with neither Storz® nor IVF Scientific.

Biography

Michael Kamrava graduated Cum laude from University of Illinois in 1972 and completed his MD at the age of 25 years from Case Medical School. He completed OB/GYN residency from Mt Sinai Hospital in 1980 and a fellowship in REI in 1982. He is the Director of Reproductive Institute in Beverly Hills CA. He has published numerous papers in reputed journals and has edited books and written several book chapters, and is serving as an editorial board member of reputed journals. He was also awarded the prestigious "Golden Telescope" for his contribution of endoscopic embryo implantation technique.

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