In-vitro fertilization improved with 3-D/4-D-guided embryo transfer and new placement target

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The pregnancy rate for patients undergoing in-vitro fertilization (IVF) is improved when doctors use advanced 3D/4D imaging to guide the placement of embryos to the point where the endometrium is most receptive to implantation, according to a study presented at the 63rd Annual Meeting of the American Society for Reproductive Medicine (ASRM).

Placing embryos in the optimal location within the uterus is a key factor determining the success of in-vitro fertilization. The study's lead author, Robert Gergely, M.D., has identified a new embryo placement target as the point where the fallopian tubes would intersect if they were extended beyond their natural length.

This imaginary intersection, which has been dubbed the Maximal Implantation Potential (MIP) Point, is where embryos typically implant and develop in natural pregnancies. Precision in embryo placement has become especially critical in recent years given the trend to limit the number of embryos transferred during in-vitro fertilization to just a single embryo in order to reduce the likelihood of multiple births.

The study, titled "Maximal Implantation Potential (MIP) Point - Suggested Target for Optimal Embryo Placement Within the Uterine Cavity During Embryo Transfer" (ASRM: P-665), was led by Dr. Gergely, who serves as medical director of the 3D Sonography Center of

Beverly Hills (Beverly Hills, Calif.), and was formerly acting director of obstetrics at Cedars Sinai Medical Center in Los Angeles.

The six-year retrospective, observational study evaluated 5,073 patients with a mean age of 38.3 years who received in-vitro fertilization using 3D/4D-guided embryo transfer at the Southern California Reproductive Center (Beverly Hills, Calif.). In each case, embryo placement was targeted to the new Maximal Implantation Potential (MIP) Point.

The patients achieved an overall pregnancy rate of 40.34 percent, which is 10.04 percent higher than the rate achieved at the Center prior to Dr. Gergely's introduction of the 3D/4D-guided MIP Point technique in 2001. Earlier study results based on 1,222 patients were published in the August 2005 issue of the journal Fertility and Sterility (Vol. 84, No. 2).

The study included in-vitro fertilization patients from UCLA Medical Center, Cedars Sinai Medical Center and independent fertility specialists in the Los Angeles area. A total of 21 physicians employed Dr. Gergely's technique. Once introduced, the MIP Point was accepted over time as the optimal target for embryo placement by all of the physicians, and the 3D/4D-guided embryo transfer technique was adopted as the standard operating procedure for all embryo transfers.

"The old technique for placing embryos using 2D ultrasound alone was essentially a guessing game," said Dr. Gergely. "While 3D imaging allows doctors to visualize the entire uterine cavity and identify the MIP Point, it's only with the addition of 4D imaging that we can target and guide embryos to the optimal, most natural location for each patient."

The MIP Point varies from patient to patient depending on the shape of the uterus. Using 3D/4D imaging to target the MIP Point enables doctors to more effectively individualize embryo transfer and improve the pregnancy rate.

With the new technique, Dr. Gergely uses 3D ultrasound to locate the patient's MIP Point. He then uses 4D ultrasound to help the specialist performing the embryo transfer guide the catheter tip in real time to the target location. Once the tip of the catheter is over the MIP Point, the embryo is released. When this occurs, a distinct flash on the 4D image indicates the moment the embryo is placed, as well as its precise location.

"Using 3D/4D-guided embryo transfer to target the MIP Point places embryos where nature intended, and where they have the best chance to implant and develop," added
Dr. Gergely.

Dr. Gergely cautions that even with the new technique, there remains significant room to improve the IVF pregnancy rate, which can be affected by several factors including the quality of embryos and receptivity of the endmetrium.

Source: ExcelPR Group