Robert L. Barbieri, MD
Editor-in-Chief

Too many embryos for one woman

What counts as success or failure in ART?

On April 27, 2005, Teresa Anderson, a 25-year-old surrogate mother, delivered quintuplets by cesarean at 33 weeks' gestation. Her pregnancy followed an assisted reproductive technology (ART) cycle involving the transfer of 5 embryos derived from the oocytes of a young infertile woman. Was this cycle a "success" or "failure"?

Certainly, this miraculous birth represents the success of an infertility technology. Yet just as certainly, a treatment that causes a quintuplet pregnancy could be considered a "failure" for the newborns and their parents.

ART is technology at its most miraculous. In the United States, the success of IVF, as measured by live births per IVF cycle initiated using "fresh" nondonor oocytes, has increased from about 9% in 1986 to about 28% in 2002, and the number of ART cycles performed has increased from about 4,900 to about 115,000 cycles during the same period. Many obstetricians and policy experts believe, however, that fertility specialists are transferring too many embryos per treatment cycle, especially in young women undergoing their first cycle of IVF. In 1999, the American Society of Reproductive Medicine (ASRM) issued guidelines suggesting that clinicians avoid transferring more than 2 high-quality embryos to young women in their first cycle of IVF if sufficient embryos are available for cryopreservation. The notable drop in the rate of triplet gestation pregnancies (from 7% to 3.8% between 1996 and 2002) demonstrates that professional practice guidelines, which capture the advances in technology, can improve both practice and outcomes.

In 2004, new ASRM guidelines suggested that patients with the most favorable prognosis should consider having the transfer of only 1 embryo. The ASRM identified favorable prognosis patients as those undergoing their first cycle, who had morphologically good-quality embryos in sufficient number to warrant cryopreservation of the nontransferred embryos.

There is now an urgent need both to increase the number of women younger than 35 undergoing their first cycle of ART who receive a single embryo, and to strictly limit the transfer of large numbers of embryos to young women in the first cycle of ART.

FAST TRACK

Common sense suggests that transferring 5 embryos is overly enthusiastic

Common sense

Evidence is mounting that for young women in a first cycle of ART with many good embryos, the number of transferred embryos should be limited, preferably to 1 or 2. Common sense suggests that transferring 5 embryos derived from a young woman appears, especially in retrospect, to be an overly enthusiastic clinical plan with many potential adverse obstetrical and newborn complications.

Reports of multiple clinical trials support the practice of single-embryo transfer in patients with a good prognosis.[1] For example, a study of elective single-embryo transfer compared with double-embryo transfer demonstrated the potential of a clinical protocol involving single fresh embryo transfer followed by single cryopreserved embryo transfer to reduce the number of multiple gestations and maintain a good overall pregnancy rate.[2] Women younger than 36 who had undergone IVF and had 2 high-quality embryos were randomized to 2 groups. In 1 group, women had a transfer of a single fresh embryo, and if there was no birth, transfer of a single frozen and thawed

embryo in a follow-up cycle. In the second group, women had a single transfer of 2 fresh embryos. Pregnancy resulting in live birth occurred in 39% of the women in the single-embryo group (cumulative rate over 2 cycles) and 43% of the women in the double-embryo transfer group. The percentage of multiple births was 33% in the group with 2 embryos transferred and 1% in the group with 1 embryo transferred ($P<.001$).

Who is responsible?

Who is responsible for ensuring that ART programs balance the rates of both multiple gestation and overall pregnancy to ensure optimal outcomes?

Some national governments have taken over this medical responsibility and passed laws that strictly limit the number of embryos that can be transferred. Sweden's National Board of Health and Welfare decreed in 2003 that all IVF treatments use single-embryo transfer with the provision that 2 embryos could be transferred if the risk for twinning was considered minimal.

Government regulation of medical practice is a worrisome trend. Instead, it would be most advantageous if our professional medical organizations, through the promulgation of clinical guidelines, continue to pursue optimal balance of the rate of multiple gestation versus the overall pregnancy rate in ART programs.

Should the ASRM continue to be the main proponent of guidelines on fertility therapy and multiple gestation? Should other national obstetrics and neonatology professional organizations also actively promulgate guidelines? Professional guidelines generated in a collaborative and interdisciplinary fashion are probably the best approach to avoid government regulation of medical practice.

obg@dowdenhealth.com

1. Bergh C. Single embryo transfer: a mini-review. Hum Reprod. 2005;20:323–327.
2. Thurin A, Hausken J, Hillensjo T, et al. Elective single-embryo transfer versus double-embryo transfer in in vitro fertilization. N Engl J Med. 2004;351:2392–2402.