

“But I want Twins” *...but what are the risks?*

A large proportion of patients (>40%) undergoing IVF wish for a multiple pregnancy, not just as an acceptable outcome, but as the desired outcome for their pregnancy. However, there are considerable, well known risks to multiple pregnancy - even twin pregnancy - as a recent letter from one of our patients to her physician here at Shady Grove Fertility illustrates:

“Sorry we haven’t been in touch sooner, but the girls really threw us a curveball ...The girls were born at just over 25 weeks, weighing in at 900 grams and at 860 grams. Being so premature, there have been a lot of challenges, and one unfortunately developed necrotizing enterocolitis at 32 weeks which required surgery back in May. The other had a “scare” but did not wind up being treated...They’re absolutely lovely and beautiful and really interacting, smiling and cooing, which is a delight after such a difficult journey these past months. They are moving up from the very lowest percentiles on the growth charts for weight and length. We’ve been through more than I can tell you...Having spent the lion’s share of the past 7 months daily in hospital and seeing such an awfully different beginning than I would have chosen for the girls (or us)...I believe it would be beneficial to educate those considering multiple transfers about the risks of preterm labor/premature birth/prematurity (using all of its names and encouraging research)...Thanks so much to all of you at Shady Grove for the help and dedication and please thank our donor for her amazing gift that allowed us to realize our dream.”

With its well know risks to mothers and infants, the decision between seeking a twin pregnancy vs. avoiding one, places patients at a difficult personal crossroads.

Why, then, do patients desire or risk multiple pregnancy so often and what important information and education can we, as health care providers, give that might help patients make better, well-informed decisions?

Emotional & Financial Considerations

Infertility often means month after month of disappointment in one of biology’s most important endeavors. This is made more complicated by fluctuating hormones, doubts about self worth, and the often limited insight of family, friends, and society. In addition, few states in the United States have mandated coverage for IVF and fewer insurance companies cover IVF. Many patients therefore accept the risks of multiple pregnancy in IVF if they feel transferring additional embryos will help them get pregnant more quickly and “hedge the bet” against being unsuccessful, even if this feeling is statistically incorrect.

It has been shown that patients with IVF coverage transfer fewer embryos per cycle since their fears of being unsuccessful and having to pay for another cycle are lessened. Ironically, insurance companies pay more for the maternal, neonatal intensive, and long-term care complications of affected infants from multiple pregnancies than they would pay for the costs of infertility therapy.

In an environment of emotional and financially taxing IVF cycles, how can physicians’ expect patients to carefully analyze “risk/benefit ratios of maternal and fetal morbidity and mortality”?

Shared Risk and Insurance

When insurance is not available, Shared Risk refund guarantee programs minimize the psychological and economic pressures on patients. Going into their treatments, patients are comforted knowing that their costs are capped, and ultimately they will have a baby or have their payment refunded. Our Shared Risk program includes the cost for cryopreservation of embryos and their later transfer, and supports the use of elective single embryo transfer (eSET). This helps patients accept the idea of decreasing the number of embryos for transfer. The patient understands that if the physicians are comfortable recommending eSET while sharing the financial risks, that they must be comfortable that the success rates for delivery will remain high. Patients will transfer significantly fewer embryos if they participate in ethically rigorous refund guarantee programs or if they have insurance.

Obstetric and Neonatal Considerations

Pediatricians, neonatologists, and obstetricians are fully aware of the risks inherent in multiple pregnancy, but often patients are not. These risks are lower in twin pregnancies than triplets, but are still very much present.

The major risks are preterm birth and its associated complications including increased risks to the infant from cerebral palsy, pulmonary and ocular damage (blindness), among others. In addition, pregnancy induced hypertension, post partum hemorrhage, cesarean section, prolonged bed rest and diabetes are more common in the mother. For the infant, the complications can have life-long consequences and be associated with retardation, congenital malformation, and learning and developmental disabilities. In addition, there are significant social, financial, and emotional costs for families. But how well is this information transmitted to patients? A recent Oct 2009 New York Times series, *21st Century Babies: The Gift of Life and Its Price, Grievous Choice on the Risky Path to Parenthood*, and editorial blog, *The Trouble with Twin Births* (nytimes.com), discusses these issues and should be read by all patients undertaking these fertility therapies.

Figure 1: Infant Complications from Multiple Pregnancy

	Singleton	Twin	Triplet
Avg. Month @ Birth	9 mo	8 mo	7 mo
% <u>Very</u> Premature (< 7mo)	1.7%	14%	41%
Avg. Birth Weight	7.4 lbs	5.2 lbs	3.8 lbs
% <u>Severe</u> Handicap	1.9%	3.4%	5.7%
% Infant Mortality	1.1%	6.6%	19%

Ethical Considerations

Patient autonomy is important in medicine, especially the final decision regarding the number of embryos to transfer. But fertility specialists are ethically bound to respect not only autonomy, but also the ethical principle of beneficence -“doing good”. This “doing good” includes the best interests not only of the patient but also her prospective children. “Doing good” is accomplished by limiting the risks to these children by avoiding multiple pregnancy.

Physicians at Shady Grove Fertility do not have a strict, specific cut-off to the number of embryos for transfer. But patient autonomy must have limits. This is well illustrated by the recent aberration involving the recent birth of the Suleman octuplets. In most cases, of course, patient risk taking is far less extreme and patient autonomy can be respected up to some limits on the number of embryos for transfer. Short of this limit, physician’s can provide the information and statistics about the risks of multiple pregnancy and the benefits of the alternative, like single embryo transfer, and hope that the goal of safety and reason prevail in patient decision making.

Figure 2: SART/ASRM 2009 Blastocyst Stage Embryo Transfer Guidelines

We at Shady Grove Fertility support and follow the latest 2009 SART/ASRM guidelines for recommendation for the number of embryos for transfer. However, based on our own higher pregnancy success rates and experience with single embryo transfer, we actually recommend 1 embryo for transfer in two of the age categories* (Figure 3).

	IVF Using Own Eggs		IVF Using Donor Eggs	
	1 Blast	2 Blasts	1 Blast	2 Blasts
# Transfers	829	4344	263	1006
% Pregnant	62%	60%	60%	70%
% Twins	1.4% *	43%	3%	52%
% Triplets	0	2.2% *	0	2% *

Statistics

In the 1980’s and 1990’s, IVF was far less successful than it is today, so it was far more routine for more than one or two embryos to be transferred with the hope of one implanting. However, considerable clinical and laboratory developments have resulted in distinct improvements in implantation and pregnancy rates this decade. Implantation rates can be upwards of 60% in selected groups of patients (such as those ≤37 years of age) even using a *single* embryo for transfer (eSET). Some of the most recent medical literature, including data from Shady Grove Fertility, support that the transfer of even 2 embryos can yield a twin pregnancy rate of 60%. Twin gestation is now questioned by fertility experts as an acceptable medical goal. And yet, despite these dramatic improvements, patients still feel the emotional and financial push to transfer more.

Figure 3: Success of elective Single Embryo Transfer (eSET) vs 2 Blastocyst ET @ SGFC 2002-2008

Age	Favorable Prognosis**	Less Favorable Prognosis
< 35	1	2 (1-2*)
35-37	2 (1*)	2
38-40	2	3
> 40	3	3
DO	1	2

* Some embryos split to be identical twins, creating twins from 1 embryo transferred, triplets from 2.

Fortunately, there is increasingly clear evidence that patients do respond to education about the risks and make more conservative decisions about taking these risks.

Thus, given all of the factors discussed above, what have the physician’s at Shady Grove Fertility done to help patients make sound medical decisions, and what shall we continue to do?

1. We will continue the dramatic technologic advances that further increase the successful pregnancy rates in IVF from just a single embryo. In this way patients can avoid the dilemma of accepting risk in order to avoid an unsuccessful cycle.

2. We will continue to advocate to legislators and insurance companies the benefits of reducing multiple pregnancies and provide insurance coverage for IVF. And, if insurance is not available, we will continue to offer our ethically rigorous Shared Risk option.

3. We will continue, through this article and others, to educate patients to the risk of multiple pregnancy and success of eSET.

(These include the important Oct 11-12, 2009 New York Times articles you should read and the references below.)

Reference #1 is from the Dec 2009 journal *Fertility Sterility* 92:1895-1906. This article of Shade Grove Fertility data is the largest published experience with eSET and with IVF in the world.)

4. We shall continue to work through our leadership position within SART to revise the Guidelines for the number of transferred embryos as part of the patient education process.

We realize that even patients who “want twins” are really only seeking to fulfill their dreams of having a healthy family. We are dedicated to helping you fulfill those dreams.

Through the efforts such as those above we can, as health care professionals at Shady Grove Fertility, strive to make the balance of patient autonomy versus limiting the risk of multiple pregnancy more informed and easier.

This may be illustrated in another patient letter recently received:

“I just wanted to thank you again for encouraging my husband and me to transfer one embryo. After several unsuccessful cycles with my own eggs, we were convinced that transferring two embryos was the right thing to do. We didn’t really want to have twins, but we didn’t want to risk disappointment again. ...You took the time to explain what the statistics really meant and helped us to understand that transferring one embryo did not decrease our chances for success...I asked what advice you would give your daughter if she were in my position. Your response was,” I’d tell her to transfer one, but she wouldn’t listen and transfer two.” The honesty of your reply made it clear what the right decision was for us. We transferred one embryo that day, and as I write this letter, I can hear him giggling, while his daddy gives him a bath. I am so thankful we had one healthy baby...My sister-in-law had twins about two months ago. She had a very difficult pregnancy (contractions starting at 24 weeks, bed-rest after that). The babies were born 6 weeks early, and luckily only spent one week in the NICU. Since the twins have been home, their parents have had a rough time adjusting to caring for two premature babies...While I love my niece and nephew, I am grateful, everyday, that I had just one baby at a time. “

*Figure 4: At SGFC, our primary recommendation is for eSET in the following patients with the most favorable** prognosis in their IVF cycle*

- ≤ 37 y/o or Donor Oocyte Recipient
- 1st IVF Cycle or Prior IVF Pregnancy
- 1 or 2 Day 5 Blastocysts available for transfer
- Normal uterine cavity

"21st Century Babies: The Gift of Life, and Its Price"

by Stacey Saul

The New York Times, October 2009

We invite you to please read "21st Century Babies", a two-day series in The New York Times discussing the high risks of carrying and caring for twins. Experts discuss the medical risks as well as the high costs associated with premature babies; while, two families share the emotional turmoil of treatment, pregnancy, and caring for twins.

The following are quotes from the article:

"This is our Hail Mary pass. We thought, let's just do it. At the time, it was like, twins, they can be fun, but holy cow." – *Ms. Kerry Mastera on transplanting 2 embryos instead of the recommended single embryo transfer*

"You can't convince a couple that having twins is a bad thing. That's a major communication problem,"
- *Dr. Maurizio Macaluso, who runs the Center of Disease Control and Prevention women's health and fertility branch.*

"Erin and Scott Hare of Houston lost their twin daughter, conceived through IVF. Her surviving brother was born at just over 24 weeks, is doing well but needs therapy for lingering problems....He's really a little miracle baby... despite initial heart and eye problems, he did not require surgery. "

"The hospitalization and doctor's care for Ms. Hare and her son exceeded \$1 million. Most of that, about \$750,000 to \$800,000 was for Carter." - *Ms. Erin Hare went through IVF, and delivered Carter at 24 weeks and 4 days. 24 weeks is the considered the point of viability for premature deliveries.*

"According to one federal study, about 30 percent of all twins end up in a neonatal intensive care unit. Twins are eight times as likely as single babies to be born at very low birth weight — defined as under 3 pounds, 4 ounces. These are the babies who often need the longest care and face the biggest problems." - *Dr. Maurizio Macaluso*

"Exploration of the fertility industry reveals that the success comes with a price. While IVF creates thousands of new families a year, an increasing number of the newborns are twins, and they carry special risks often overlooked in the desire to produce babies." - *Stacey Saul, author of "21st Century Babies"*

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