New Embryo Scoring System Helps Reduce Multiple Pregnancy Rates

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Last October at the ASRM meeting in Seattle, we presented a study involving a retrospective review of embryo transfers performed between January 2000 and April 2002. The objective of the study was to determine if a novel zygote scoring system that we implemented in our lab, is predictive of IVF outcome (zygotes are fertilized eggs at the 2-pronuclei stage). The study received considerable attention, and it was featured in the *"The Embryologist Newsletter"*.

In patients 36 years or younger, zygotes were scored 16 to 19 hours post-insemination and were categorized as follows:

Pattern 1: The nucleolar precursor bodies (NPB) were aligned in each pronucleus. The number of NPB in each pronucleus was at least 3 and there was not a difference of more than 3 NPB between the 2 pronuclei.

Pattern 2: Identical to pattern 1 except the NPB are scattered not aligned.

Pattern 3: Embryos that do not meet the above criteria.

On culture day 3, pairs of embryos were chosen for transfer according to zygote scoring as well as day 3 morphology. In particular pattern 3 embryos were utilized only if pattern I and or II embryos were either unavailable or their development was arrested.

The conclusion of the study was that zygote scoring is predictive of the implantation potential of day 3 embryos. Utilization of zygote scoring in conjunction with day 3 morphology allows for the selection of those embryos with the greatest implantation potential. The ability to identify those embryos has given us the opportunity to transfer fewer embryos and at the same time maintaining high pregnancy rates while reducing the incidence of multiple births.

Last year, we analyzed our cumulative experience from the 2000 + 2001 data, comparing outcomes when 3 embryos were transferred in patients under 35, with a more conservative approach limiting the number of embryos transferred to a maximum of 2. By using strict embryo selection criteria, we were able to demonstrate a significant reduction in the high order multiple pregnancy rate, with minimal difference in the pregnancy rates.

Results of transferring embryos that are at least a 6, 7 or 8-cell in patients under 35 (2000 + 2001 data):

2 Embryos Transferred	
214 Patients	
135 Clinical pregnancies	63%
128 Ongoing pregnancies	60%
75/128 Singletons	59%
49/128 Twins	38%
4/128 Triplets	3%
3 Embryos Transferred	
115 Patients	
70 Clinical pregnancies	61%
65 Ongoing pregnancies	57%
39/65 Singletons	60%
17/65 Twins	26%
8/65 Triplets	12%
1/65 Quadruplet	2%

In summary, the introduction of this zygote scoring system into our IVF program has resulted in a significant reduction in our high order multiple pregnancy rates. In the year 2002, by utilizing a strict embryo selection criteria and limiting even more the number of embryos transferred (mean number = 2.2 embryos), we were able to reduce the triplet rate to 2% in patients <35 years old (2/129 pregnancies), with 0% quads.