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ICSI Overview

Steps In the ICSI Process

1. Transvaginal follicular aspiration performed at Arnold Reproduction.
2. Recovered oocytes shipped to ICSI Lab
3. ICSI Lab matures oocytes
4. Fertilization of mature oocytes with semen utilizing Intracytoplasmic Sperm Injection (ICSI)
5. Culture/Growth of fertilized oocytes to a blastocyst (embryo)
6. Matured embryos shipped back to Arnold Reproduction for transfer into a recipient

Potential Risks and Complications

Although few medical problems have been associated with transvaginal aspiration, there is risk in the procedure. Reported problems include: hemorrhage, peritonitis, colic, rectal bleeding/tear, and ovarian abscesses. These problems could be life threatening. It is important to understand that a needle is puncturing into the abdominal cavity and into the ovary multiple times. The affects on long term fertility are still inconclusive. A decline in fertility in young mares has not been observed, but some changes in ovarian structure have been seen.

What to expect:

Results are variable and dependent on each individual mare's fertility. The averages below, however, are based on a collection of published statistics from the past few years of commercial ICSI programs.

Dominant Follicles: Aspiration of one large follicle (>35mm) that has been stimulated by a medication to cause maturation. An oocyte will be collected from approximately 70% of the aspiration sessions. Approximately 38% of the collected oocytes will develop into an embryo and then about 1/2 of those embryos will produce a live foal. Therefore, it may take 2-3 ICSI sessions to produce a live foal.

Immature Follicles: All follicles greater than 5-10mm are aspirated from each ovary. 50% of the follicles aspirated will result in a recovered oocyte. Approx 1/4 of the recovered oocytes will develop into a transferrable embryo and, again, 50% of those embryos will produce a live foal. Therefore, the mare needs to have 10 or more small follicles to provide enough oocytes to develop into at least 1 transferable embryo.

Some mares are unable to develop the amount of small follicles to warrant aspiration of immature follicles (less than 10 follicles) and, therefore, require aspiration of 1 dominant follicle if they have a normal follicular cycle. Also, oocyte quality tends to decline with the donor's mare age, resulting in lower success rate.

Total Estimated Costs: (includes aspiration, shipments, ICSI, transfer, 40 day pregnant recipient, excludes stud fees/charges)

Pregnancy established after 1st Aspiration/ICSI/Transfer - \$6500-\$7000

Pregnancy established after 2 Aspirations/ICSI/Transfers - \$10,000 - \$11,000

Some statistical numbers published by Rader K, Choi YH, Hinrichs K. Intracytoplasmic Sperm Injection, Embryo Culture, and Transfer of In Vitro-Produced Blastocysts. Veterinary Clinics of North America: Equine Practice. Dec 2016;32:400-413.