TRANSVAGINAL OOCYTE ASPIRATION INFORMATION SHEET

Oocyte Services

ESMS on the Brazos is now offering oocyte collection services for your mare to allow for ICSI fertilization. Our staff has undergone extensive training with veterinary reproductive specialist Dr. Carly Turner who trained with Texas A&M University's Equine Embryo Lab, one of the premier ICSI laboratories in the world.

What is TVA/ICSI?

ICSI stands for IntraCytoplasmic Sperm Injection (the injection of an oocyte with one sperm) which is currently the only successful way to produce an equine embryo in a laboratory environment. The first step in obtaining an ICSI embryo is to recover oocytes from your mare. The oocytes are collected by transvaginal follicular aspiration, commonly called TVA. For this procedure an ultrasound guided needle is used to aspirate either small (immature) follicles or one large preovulatory follicle on the mare's ovaries. This procedure is done with the mare standing in stocks under sedation and may take 20-60 minutes depending on different variables. After collection the oocytes are carefully processed, packaged, and sent to one of the laboratories capable of performing the ICSI procedure for fertilization.

The ICSI lab then places the shipped oocytes in a special media that allows them to mature to the stage where they can be fertilized (not all oocytes collected will mature, some will deteriorate). The ICSI lab will need a small amount of fresh, cooled, or frozen semen to complete the fertilization process. Our staff has exceptional experience with the leading ICSI laboratories and many stallion owners and will aid with scheduling semen shipment so that it arrives when needed.

After ICSI, the lab will culture the fertilized oocytes for 7-10 days to promote embryo growth, and successful embryo's can be transferred to recipient mares at the facility of your choosing or vitrified (frozen) for future transfer.

Is My Mare A Good Candidate?

Each mare's results can be very different and the success of the procedure is highly dependent on the overall reproductive health and fertility of the mare. ICSI is appropriate for mares that are unable to become pregnant or carry a foal to term (e.g., chronic uterine disease, damage to the reprodctive tract, lameness issues). ICSI is also appropriate for stallions that have limited semen stores in order to maximize the number of foals that may be produced. TVA and ICSI should only be used on mares that are not suitable candidates for routine embryo transfer or, if done to obtain foals from a given stallion, for sperm that cannot be utilized effectively with standard insemination techniques. ICSI may also be used to obtain foals from mares that suffer an untimely death. Because of the expense of the technology involved and the amount of labor involved, foals produced from this program should be valuable enough to justify the increased effort and expense to produce offspring.

Before participating in TVA/ICSI, it is important for each owner to know the regulations of their breed registry regarding the possibility of registering any resulting foals. It is also imperative for the mare owner to discuss with the stallion owner the stud fee and charges associated with multiple ICSI-produced foals.

How To Prepare Your Mare

The most important part is planning with the veterinarian performing the aspiration. Certain ICSI labs require that oocytes be shipped only on a few days of the week. Semen from the stallion of your choice will only be collected and shipped on certain days. Your mare will also need to have a good number of follicles of certain sizes present to maximize the likelihood of embryo production. Our veterinarians are happy to manage your mare at our facilities or work with your personal veterinarian to schedule the best day to perform TVA on your mare.

Expected Results

Preovulatory (mature) Aspiration:

- One large dominat follicle is aspirated before natural ovulation
- Allows oocyte to mature in the mare's normal environment
- Only once oocyte possibly recovered, but has a higher likelihood of becoming a transferable embryo (40% chance).
- Procedure requires hormonal manipulation of the cycle and can only be done each time the mare cycles.

Immature Aspiration:

- All follicles present on the mare's ovary are aspirated, a 40-70% recovery rate of oocytes is considered average (e.g. if 20 follicles are aspirated, usually 8 to 15 oocytes are obtained)
- Immature oocytes require further maturation in the lab, on average about 65% of oocytes collected mature and then undergo ICSI
- Approximately 20% of the ICSI'd oocytes will develop into embryos that can be transferred.

Combination Aspiration: If your mare has a large number of immature follicles present at the same time as a preovulatory follicle, both types of aspiration can be performed during the procedure. However, if successful, this will require two separate ICSI sessions and increased costs).

Pregnancy Rates:

- Approximately 60-75% of ICSI-produced embryos result in pregnancy, however, a significant number of these may be lost prior to foaling.
- Rates are dependent on donor mare age and fertility, stallion fertility, and number of stallions used per session (we recommend starting with one stallion, and no more than 2 total).

POTENTIAL RISKS OF THE TVA PROCEDURE

Overall the rate of complications with the TVA procedure at ESMS on the Brazos is very low since our staff has been expertly trained and is meticulous in our execution of the procedure. However, risks are still present and potential complications do include, but are not limited to rectal tear, severe internal bleeding, ovarian infection/abscess, and peritonitis. Although uncommon, these could be potentially life threatening.

Since this technology is relatively new, information is still being gathered about the effect of repeated TVAs on the future fertility of mares. Presently, all studies published confirm that repeated TVAs do not have any negative impact on future fertility.

Anticipated Costs

Each case is different, but on average you can expect to pay $3,000-5,000 to produce a viable embryo to transfer to a recipient which includes TVA (possibly more than one), packaging and shipping of oocytes, culture of oocytes at the ICSI lab, ICSI, embryo culture, and shipment back to ESMS on the Brazos. This does not include recipient mare price, which is dependent on the transfer facility. For ESMS on the Brazos' specific pricing, please refer to the included fee schedule.

If you have any further questions, please feel free to call us.