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VETERINARY CONTINUING EDUCATION



ST. PAUL, MINNESOTA
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Fluid Therapy for Calves

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Fluid therapy for the diarrhetic calf can be successful if an intravenous line can be maintained while the calf establishes fluid balance. Even calves which are severely dehydrated can potentially be saved with adequate IV fluids. In the field, most problems occur when the calf begins to feel better and dislodges the IV tap. Most calves which come into our clinic are severely dehydrated and very shocky. For these calves, our usual procedure is to catheterize them and drip in one gallon of isotonic fluids. Calves which are not in hypovolemic shock can be successfully rehydrated with one liter of lactated ringers solution, spiked with 180cc of 7% saline IV and simultaneous administration of oral electrolytes.

For catheterization, the calf is laid on its side and the neck clipped and disinfected. The jugular vein is distended as much as possible and the needle placed in the vein. The catheter is passed aseptically through the needle. The stylet is then pulled from the catheter and the needle withdrawn from the vein. Finally, the catheter is secured to the calfs neck with tape, the IV drip set is connected and fluids are started. The catheter should be left in no longer than necessary. If it is left in the calf to monitor fluid balance, the catheter should be flushed with heparinized saline several times daily. Flushing will help prevent plugging of the catheter and minimize the amount of thrombi formation within the vein. On occasion if the catheter is left in too long, a clot will form around the tubing. Ultimately, when the catheter is pulled from the calf, the clot will be freed, becoming an embolus which may cause acute death.

During catheterization, a blood sample is routinely drawn from the calf to evaluate the success of passive transfer from its mother. The zinc sulfate turbidity test is used for this evaluation. In addition, calves that are six days old or older are checked for cryptosporidia using the Carbol Fuchsin staining procedure. Calves which are positive for crypto are maintained on a slow drip of IV fluids until they pass a large volume of diarrhetic material. After this event occurs, they seem to begin feeling better. Warmth and milk are then offered to these calves until they are ready to return to their mothers, usually 24-48 hours later.

Antibiotics and banamine are usually given after kidney function has begun to return to normal. Calves that are in the 6-14 day age range usually require limited antibiotic therapy. Use of oral antibiotics in calves usually will not improve or stop the diarrhea. Milk, warmth and good passive transfer seem to be the most important factor in the calf's recovery. Fluid therapy is maintained until the eyes return to a more normal position, the PCV is near normal and the calf can begin absorbing oral fluids. Calves are then given milk replacer AM and PM and oral electrolytes during the day as needed. Milk should be given to the calf to prevent hypoglycemia and loss of body fat. If only oral electrolytes are given for a day to a day and a half, hypoglycemia and excessive body fat mobilization will occur.

The calves are sent home when they can rise on their own, their sucking reflex returns and they can maintain fluid balance. Although intravenous fluid therapy in calves can be frustrating at times, it can also be very rewarding for both you and your client. It is satisfying to have a calf come in near death and be able to return it to the client a day or

two later feeling good. The following equipment has aided our clinic with successful fluid therapy.

****Below is a list of equipment used in our clinic for fluid therapy in calves:**

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| 1. Venocath 16 by Venisystems
20/box \$4.75 each
Nelson Labs 1-800-843-3322 | 4. Gallon jug |
| 2. Venoset 72 by Abbott
48/box \$1.70 each
Ivesco 1-800-247-5077 | 5. Heat lamp |
| 3. Electrolytes
*Isotonic Rehydration Fluid--one gallon
21.0 grams salt
18.5 grams baking soda
3.0 grams potassium chloride
*Potassium Chloride granular by Mallinckrodt U.S.P
2.5K jar \$91.06
*Hypertonic saline (7%) by Equi-Phar
\$4.05 per 1000ml
Nelson Labs 1-800-843-3322 | 6. Tape |