

Fluid Therapy

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Purpose of Procedure

Animals maintain a normal fluid balance in the body by drinking and taking in fluids in their foods to offset the fluids lost in urine and feces and from the respiratory tract (panting). When fluid balance is severely disrupted, dehydration and shock may occur.

Supplemental fluids may be needed if fluid intake decreases, losses increase, or both occur. Loss of appetite and less drinking lower the intake of fluids. Increased losses occur with vomiting, diarrhea, panting, kidney diseases, bleeding, or surface burns. Fluids may also be given for excessively high protein levels (hyperproteinemia, hyperviscosity) or for high numbers of red blood cells in the circulation (polycythemia). Fluid therapy involves administering fluids or supplementing body electrolytes, such as sodium and potassium, by injection.

Description of Technique

Fluids are most commonly given by the subcutaneous (under the skin, SQ or SC) or the intravenous (into a vein, IV) route. SC fluids are often given between or near the shoulder blades. (See the handout on **Subcutaneous Fluid Administration**.) Only limited amounts of fluids can be given SC, because it takes 6-24 hours for fluids to be absorbed into the body from this space. Fluids given SC must be compatible with the surrounding tissues; they cannot be too concentrated or contain extra electrolytes or glucose (sugar). SC fluids are given when small amounts of fluids are needed infrequently (every 1-7 days) and the need is not immediate (acute).

IV fluids are given through a needle (one-time administration) or through a catheter (repeated administrations) inserted into the vein. IV catheters are most commonly inserted in the veins of the front or rear legs, but the jugular vein in the neck may also be used. Large amounts of IV fluids can be administered quickly, making this an ideal route when the need for fluids is urgent. A variety of fluids and electrolyte mixtures, as well as many medications, can be given IV.

Some puppies and kittens are so small that IV catheters cannot be inserted in their veins. In these instances, fluids are sometimes given intraperitoneally (into the abdominal cavity, IP) or intraosseously (into the bone marrow cavity of the long bone in

the rear leg, IO). Special catheters and needles are available for administering fluids IO.

Numerous types of fluid solutions are available for use in animals. Crystalloid solutions have about the same consistency as the watery part of blood and can contain varying amounts of electrolytes. Glucose and other medications may be added to crystalloid fluids. Crystalloids can be administered via any of the routes described. Colloid solutions contain substances that attract water similar to normal blood proteins. Colloids are used primarily when blood proteins are low, to keep water from leaving the bloodstream. Colloid solutions can be irritating, so they are usually administered IV in a large vein.

Fluids may be administered continuously or intermittently, through open drip lines or through a syringe or IV pump that strictly controls the rate and amount to be given.

Preparation of Animal

For SC and IP fluid therapy, sterile needles are used, and the skin should be clean at the site of penetration. For IV and IO fluid therapy, fur is clipped from the skin at the site of catheter insertion, and the skin is cleaned with an antiseptic solution and alcohol until all dirt and debris are removed. After the catheter is inserted and a cap or plug is applied, it is bandaged to the skin. The leg or the neck is then wrapped in gauze, and a surface bandage is applied. An Elizabethan collar might be used if the animal licks or bothers the catheter or IV drip line.

Potential Complications

Complications are uncommon but can include infection (especially with SC or IP fluids) and temporary bleeding where the needle is inserted (SC fluids). Most infections arise from bacterial contamination of the fluid or entry site. Complications of IV administration include premature removal of the catheter, bleeding from the catheter port or insertion site, irritation to the vein (phlebitis), and loss of the catheter into the bloodstream (extremely rare). Overdosage of fluids can aggravate existing heart disease and lead to accumulation of fluid in the lungs and abdomen.

Follow-up Care

Notify your veterinarian if any redness or swelling develops at the site where a needle or catheter has been removed.