

Aqupharm 11 Hartmann's Solution for infusion

Introduction



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Presentation

Aqupharm No. 11 is a sterile, preservative free solution for infusion presented in a flexible pouch containing:

Sodium chloride 0.6% w/v

Potassium chloride 0.04% w/v

Calcium chloride dihydrate 0.027% w/v

Sodium lactate 0.32% w/v

(containing equal proportions of D and L lactate isomers)

That is 131 millimoles of sodium, 5 millimoles of potassium, 2 millimoles of calcium, 111 millimoles of chloride and 29 millimoles of bicarbonate (as lactate) per litre.

Uses

To expand the extracellular fluid or to restore extracellular electrolytes:

Dogs and Cats

For the treatment of persistent diarrhoea and in pyometra when a profuse vaginal discharge is present. It will combat metabolic acidosis.

Cattle and Horses

For the treatment of hypovolaemia, and dehydration caused by diarrhoea in calves and gastro-intestinal disease in horses. To treat metabolic acidosis in horses and to aid in the treatment of metabolic acidosis in cattle.

Dosage and administration

Before use, the bag should be inspected and rejected if the solution is not clear or if the inner container is damaged.

Aqupharm No.11 should be prewarmed to body temperature to prevent hypothermia. Remove outer bag and protective giving set inlet tab. Push cannula fully into giving set. Prime giving set. Perform venepuncture and immediately attach giving set. Adjust infusion rate as required. Delivery is from a closed circuit, it does not need an air inlet. Giving sets should be changed every 24 hours.

The quantity of fluid and electrolyte for administration will consider existing deficits, maintenance needs and continuing losses. The existing deficit is that which has been lost prior to examination. This must be estimated by evaluating the patient's history, making a physical examination and using laboratory aids. Maintenance therapy is to replace normal losses occurring via urine, faeces, respiratory tract and skin. As a general rule, maintenance therapy requires 50ml/Kg bodyweight/day. Continuing losses during a disease period should be estimated whenever possible, i.e., quantity of vomit, diarrhoea or blood loss. The clinical response of the animal rather than formulae or equations should be used to guide fluid therapy. Indwelling intravenous catheters offer significant advantages in intravenous fluid therapy.

The rate of administration should be considered with each individual patient. The aim should be to correct about half of the calculated deficit in the first 1-2 hours in dogs and cats. In larger animals, correcting this may require therapy over 4-8 hours to avoid exceeding maximum infusion rates.

As a general rule the following formula is the maximum satisfactory rate (less where cardiovascular or pulmonary disease exists).

Maximum rate=Body wt(kg)x90=ml fluid per hour

This rate should be slowed after the first hour and considerably slowed if no urine flow is established. Signs of over rapid administration include restlessness, moist lung sounds, tachycardia, tachypnoea, nasal discharge, coughing, vomiting and diarrhoea.

The above maximum rate of 90ml/ kg/hr was determined in dogs. Fluid rates in calves should not exceed 80ml/kg/hr. Maximum rates have not been established in cattle and horses although rates of 40ml/kg/hr have been found to be well tolerated.

Contra-indications, warnings, etc

Contra-indications

Sodium overload may occur in cases with myocardial and renal damage. It should also be appreciated that in the period following surgical interference or severe trauma there may be an inability to excrete excessive sodium. Lactate solutions are to be avoided in liver dysfunction cases.

Undesirable effects

Hypernatraemia (sodium overload) or an inability to excrete excessive sodium.

Thrombosis of a chosen vein is always a possibility with intravenous infusion. If infusion is protracted then another vein should be selected after 12-24 hours.

Precautions

For animal treatment only.

Although Aqupharm No. 11 provides potassium chloride, this is only enough to maintain the potassium content of extracellular fluid and would be quite inadequate in those cases with severe potassium loss. Under these circumstances oral potassium supplements must be given. Lactate overdose in cases with heart disease may provoke arrhythmias and heart failure.

It should be noted that cattle have very low amounts of D-Lactate dehydrogenase resulting in a slower metabolism of the D-isomer of sodium lactate compared to the L-isomer. Since this product contains equal amounts of both isomers, this may result in a slower correction of acidosis in this species.

Overdose

Fluid volume overload may result in restlessness, coughing, moist respiratory sounds, tachycardia, nasal discharge, pulmonary oedema and compromised cardio-respiratory function. The signs may be of more sudden onset in neonates and care should be taken to avoid over infusion in this group as is the case with all crystalloid solutions.

Overdose of sodium containing solutions can potentially induce a hypernatraemia particularly in animals with renal disease. Associated signs of hypernatraemia include pronounced thirst, dry mucous membranes, constipation, hyperpyrexia, CNS disturbances, and ultimately convulsions. A hypernatraemic state is confirmed by plasma sodium levels above the reference range for the species.

Treatment of overdose

Injection of a diuretic

Use during pregnancy and lactation

Whilst there is no information available to suggest that this solution would not be safe for use in pregnancy or lactation, no specific safety studies have been performed and hence close veterinary supervision is recommended when using this product in these animals.

Withdrawal periods:

Cattle and horses: meat zero days

Cattle and horses: milk zero hours

Pharmaceutical precautions

Store below 25°C. Do not freeze. Keep out of the reach of children.

This product does not contain an antimicrobial preservative. For single use only; any remaining solution should be discarded.

Interactions with other medicines

Drugs should not be mixed in infusion containers or giving sets unless the components are of known compatibility. The user should refer to the manufacturer's literature for any drug substances which he or she proposes to co-administer, and also to the Appendix of Drug Incompatibilities in the current edition of the Veterinary Formulary.

Dispose of any unused product and empty containers in accordance with guidance from your local waste regulation authority.

Legal category

POM-V

Packaging Quantities

250ml, 500ml, 1000ml, 3000ml and 5000ml.

Not all pack sizes may be marketed.

Further information

In evaluating an animal for possible fluid therapy the state of hydration, electrolyte balance, acid base balance, renal function and caloric balance should be considered. Evaluation will be based on history, physical examination and laboratory testing.

Marketing authorisation number

Vm 10347/4009.