Use of etamsylate as a hemostatic agent in surgery

The results of a study under real conditions confirm the clinical efficacy of etamsylate in the canine species.

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Images provided by the authors

Ethamsylate is a hemostatic agent and angioprotector that stimulates adhesiveness plate and normalize the fragility and vascular permeability altered. Its use is authorized for both human medicine as for veterinary for the control of capillary hemorrhages of diverse origin (traumatic, surgical, obstetric, etc.).
Its mechanism of action is attributed to inhibition of prostacyclin synthesis (PGI2), which causes platelet disaggregation, vasodilation and increased permeability at the capillary level, and the activation of P-selectin, which facilitates the interaction between platelets, leukocytes and the endothelium.
Its use in clinic for more than 30 years without showing adverse effects relevant gives you a large margin of safety; It is relatively non-toxic in dogs and cats, which tolerate doses of up to 200 mg / kg. In human medicine it has described its efficacy as a hair protector in reducing bleeding in different clinical situations and surgical interventions (menorrhagia, periventricular hemorrhage in neonate and bleeding capillaries). However, the information regarding its clinical applications in the canine species it is low. It is known that in animal models of capillary haemorrhage, the administration of etamsylate reduces the bleeding time and the severity of the haemorrhage up to 50% between 30 minutes and 4 hours after administration, and that can act synergistically with desmopressin.

Figure 4. Mastectomy.

Figure 5. Cholecystectomy.

There are several studies that demonstrate the effects of etamsylate in medicine human and veterinary, although in the latter field are very limited. They have been published studies in the equine species that, in vitro, show the beneficial role of etamsylate in platelet activation. In the canine species it has been described that the ethamsylate improves blood flow in the pancreas when there is acute necrotizing pancreatitis and may have an anti-inflammatory effect.
On the other hand, another study does not recommend it for intracranial surgeries because it decreases cerebral blood flow.

Objectives

Due to the scarce publication of experimental works on the use of ethamsylate in the surgery of the canine species, we have established a working protocol to describe its effects on surgical interventions that we perform more usual in our clinic.
All dogs that were going to be operated on were included in procedures in which the risk of bleeding was high as a complement to the other techniques that we use to promote hemostasis and decrease the bleeding.
The type of interventions that we consider of risk is summarized in the attached table. The number of patients included in each type of intervention was variable and maxillofacial surgery predominated.

Procedures with risk of moderate or high bleeding

Maxillofacial surgery	Cleft palate, palatoplasty, tumors that affect the tongue, gums and mucous membranes.
Urogenital surgery	Cystotomy, bladder neoplasms and surgery of ectopic ureter, urethral surgery.
Ear surgery	Ablation of the auditory canal.
Abdominal surgery	Liver biopsy, hepatectomy, nephrectomy and nephrotomy, cholecystectomy, gastrotomy, splenectomy.
Surgery of the nasal cavity and exploration procedures	Rhinoscopy, rhinotomy, surgery of nasal tumors.
Obstetric procedures	Caesarean section.

Procedure

The protocol consisted in the administration intraoperative of an infusion intravenous dose of 2 ml of Hemo 141® (Esteve Veterinary) for every 10 kg of body weight, equivalent to 25 mg of ethamsylate / kg diluted in 20 ml of 0.9% physiological saline at a rate (speed) of 5 ml / kg / h. The time of administration in the postoperative period, it depended on the type of surgery and the evolution of the patient but in most cases we continue administering at the same dose for 5 days after the intervention. In the period of hospitalization was administered via intravenous and ambulatory follow-up subcutaneously Previously, the coagulation factors were analyzed in the patients who were going to undergo surgery with risk of moderate bleeding / elevated and these were inside of the range.

Results

The parameters that we valued were the intensity of the bleeding during the intervention and in the following days. While this assessment is obviously subjective, under our appreciation and based on our experience the bleeding during the intervention decreases, which favors recovery significantly if we apply the dose adequate at the moment and by way of correct administration.

Figure 1. Hyperplasia of the vaginal mucosa. Resection with the help of CO2 laser.

Figure 2. Urethronephrectomy.

Figure 3. Rhinotomy. With the help of diode laser.

Bibliography available in www.argos.grupoasis.com/bibliografias/etamsilato155.doc