Pancreatitis is the most common disorder of the exocrine pancreas in dogs. Despite its common occurrence, clinicians have traditionally been restricted to providing only supportive and symptomatic care. This approach has been associated with high morbidity and mortality rates. Recently, the U.S. Food and Drug Administration (FDA) granted conditional approval for fuzapladib sodium for injection (Panoquell-CA1; Ceva Animal Health, ceva.us) for use in dogs with pancreatitis. Conditional approval is based on management of clinical signs associated with the acute onset of pancreatitis in dogs. Conditional approval means that when used according to the label, the drug is safe and has a “reasonable expectation” of effectiveness. To achieve full FDA approval, the drug company is required to provide “substantial evidence” of the drug’s effectiveness, and this information can be collected while the product is sold under conditional approval. Panoquell-CA1 should be used in conjunction with traditional supportive and symptomatic care in dogs with pancreatitis.

**Fuzapladib Sodium for Injection (Panoquell-CA1)**

**Approval Status:** Conditional approval (November 2022) by the FDA.

**Manufacturer/distributor:** Fuzapladib sodium for injection was developed by Ishihara Sangyo Kaisha Ltd. (ISK) and is registered by ISK Animal Health LLC. The product is marketed and distributed in the United States by Ceva Animal Health.

**Mechanism of action:** Panoquell-CA1 is a leukocyte function–associated antigen 1 (LFA-1) activator.

---

**Abstract**

Management of pancreatitis in dogs is challenging, and clinicians have traditionally been restricted to providing supportive and symptomatic care. Fuzapladib sodium for injection (Panoquell-CA1; Ceva Animal Health, ceva.us) has recently received conditional approval from the U.S. Food and Drug Administration for use in dogs. This medication offers the potential for targeted treatment in the management of this challenging disorder.
inhibitor. LFA-1 is expressed on the surface of neutrophils and interacts with intercellular adhesion molecule 1 on the vascular endothelium, allowing for neutrophil movement from the bloodstream into a site of injury/inflammation. By inhibiting LFA-1, Panoquell-CA1 is designed to prevent extravasation of neutrophils into the tissues.

**Indication and clinical use:** Panoquell-CA1 is indicated in the management of clinical signs associated with the acute onset of pancreatitis in dogs.

**Administration:** Panoquell-CA1 is an IV injection dosed at 0.4 mg/kg q24h for 3 days. The injection should be given over 15 seconds to 1 minute. Panoquell-CA1 is distributed as a lyophilized powder that is reconstituted with 3.5 mL of sterile diluent to make a 4 mg/mL solution. Once diluted, the drug can be stored in the refrigerator (2 °C to 8 °C [36 °F to 46 °F]) for up to 28 days in a multi-use vial.

**When to avoid:** Do not use in dogs with known hypersensitivities to fuzapladib sodium. The drug has also not been studied in pregnant, lactating, or breeding animals; in dogs less than 6 months of age; or in dogs with cardiac, hepatic, or renal disease.

**Key clinical data:** Dogs treated with fuzapladib sodium have been shown to have a significant reduction in the modified canine activity index (MCAI) score from day 0 to 3, relative to a control population. The MCAI is a clinical severity score that has been used in a prior study of pancreatitis in dogs. The clinical severity scoring system is based on assessment of patient activity, appetite, vomiting, cranial abdominal pain, dehydration, stool consistency, and the presence of blood in the feces.

**Most common side effects:** Adverse effects reported in a field study of fuzapladib sodium included anorexia, digestive tract disorders, respiratory tract disorders, hepatopathy/jaundice, abnormal urine, diarrhea, arrhythmias, cardiac arrest, hypersalivation, heart murmurs, limb edema, subcutaneous swelling and bruising, tremors/shaking/shivering, abrasions, cerebral edema, anaphylaxis, and hypertension. Some of these adverse effects were reported in both the fuzapladib sodium and control groups, and it cannot be definitively determined whether adverse effects are related to the underlying disease or medication administration.

**Additional information:** Additional information on the conditional approval for Panoquell-CA1 can be found via the freedom of information summary (application number: 141-567).

---

**SUPPORTIVE AND SYMPTOMATIC CARE**

**Fluid Therapy**

Most dogs that are presented with pancreatitis are dehydrated. The AAHA fluid therapy guidelines provide criteria to allow for accurate detection of
dehydration in dogs. 10 IV fluid therapy is used to correct dehydration and maintain pancreatic blood flow. Isotonic crystalloids are the preferred fluid option for most dogs. In human medicine, recent studies have shown that moderate fluid resuscitation (fluid boluses are given only in response to hypovolemia) is an equally effective strategy as aggressive fluid therapy but is associated with the benefit of a reduced risk of fluid overload. 11,12 The author follows a similar (moderate) approach in dogs with pancreatitis.

Analgesia

Opioids are currently considered the analgesic of choice in dogs with pancreatitis. 13 Some dogs may display minimal signs of abdominal discomfort; however, all dogs with pancreatitis should be assumed to have some level of abdominal discomfort and should be treated accordingly. 13 Full µ-opioid agonists such as fentanyl can be used in severe cases, while partial µ-opioid agonists such as buprenorphine may be suitable for mild cases. Ketamine and/or lidocaine continuous-rate infusions may be used in cases with refractory pain or in an attempt to reduce opioid use. Pain control should be regularly monitored via the modified Glasgow pain scale or other validated scoring system. 14

Nutrition

Historically, clinicians were recommended to “rest the gut” in dogs with pancreatitis. 15 This management method was designed to reduce pancreatic stimulation. However, this theory has fallen out of favor as secretions are already decreased in pancreatitis and injured pancreatic cells are unable to fully respond to physiologic stimuli, making the rationale less relevant in clinical cases. 16,17 Additionally, “resting the gut” is associated with detrimental effects, such as mucosal atrophy, enterocyte apoptosis, gut barrier dysfunction, and bacterial translocation. 18,19 A significant push is now being made toward early enteral nutrition in dogs with pancreatitis. Assisted enteral nutrition is well tolerated in dogs with pancreatitis and results in an earlier return to voluntary food intake and fewer adverse gastrointestinal signs relative to dogs that receive delayed feeding. 20,21

Additional Therapies

Antiemetic medications (e.g., maropitant citrate, ondansetron) are commonly used in dogs with pancreatitis. Prokinetic drugs (e.g., metoclopramide) may be used on a case-by-case basis and after adjustment of opioid dose if ileus is suspected. Corticosteroids are anti-inflammatory and may be beneficial in some cases of pancreatitis. 22 The author currently restricts the use of corticosteroids to dogs with no contraindications for their use and after conventional therapy has failed or in dogs with vasopressor-refractory hypotension.

SUMMARY

Panoquell-CA1 is a novel treatment modality to assist in the management of clinical signs associated with the onset of pancreatitis in dogs. It is currently conditionally approved by the FDA. It is designed to be used alongside supportive and symptomatic care. TVP

References


Disclosure
Dr. Cridge has established professional relationships (which include honoraria and speaking fees) with Ceva Animal Health.