Antiemetics are for the symptomatic management of vomiting until an underlying condition is diagnosed and treated. It is important to
differentiate vomiting from dysphagia and regurgitation. Antiemetics are not effective for dysphagia and regurgitation. The vomiting
pathway is complex. It can be initiated from the gastrointestinal (GI) tract, pharyngeal stimulation, stimulation of the chemoreceptor
trigger zone (CRTZ), vestibular system, intracranial and psychogenic causes. Depending on the source and cause of vomiting, some
therapeutics may be effective and others ineffective.

**Antiemetics**

Maropitant. Maropitant is a neurokinin (NK1) antagonist that is a high efficacy antiemetic. The veterinarian must remember that
maropitant can mask signs of severe or progressing disease due to its high efficacy. It can be effective for GI, pharyngeal, vestibular,
CRTZ, and intracranial initiated vomiting. Maropitant is approved for use in dogs and cats and is available as injectable and oral
formulations. SC administration results in high bioavailability and the oral bioavailability in dogs and cats is ~30 and 50%,
respectively. Once daily dosing is typically effective. Maropitant undergoes saturable hepatic metabolism in dogs in which higher
doses may result in greater than expected increases in plasma concentrations. Drugs such as ketoconazole, itraconazole, fluconazole,
fluoxetine, and paroxetine may decrease metabolism whereas phenobarbital may increase metabolism. Adverse effects of maropitant
can include pain and swelling at injection sight, lethargy, depression, weakness, ataxia, and sedation. Maropitant has cardiac
potassium and calcium channel blocker effects which in healthy dogs are expected to produce minor adverse effects. However animals
with decreased cardiac function may have worsening function and arrhythmias. Drug interactions including severe and potentially
lethal arrhythmias could occur if maropitant is combined with antiarrhythmic drugs such as diltiazem, propranolol, atenolol, and
sotalol among others, but studies documenting interactions are lacking. Additionally, the safety of maropitant has not been fully
addressed when combined with doxorubicin.

Ondansetron is a serotonin (5HT3) antagonist and is a high efficacy antiemetic for GI causes of vomiting including chemotherapy.
It will have lower efficacy for pharyngeal, vestibular and CRTZ vomiting. As with maropitant, ondansetron may mask the signs of
progressing GI disease due to its high efficacy. There are no veterinary approved formulations of ondansetron in the USA, but it is
used in an extra label manner for dogs and cats. The oral bioavailability of ondansetron in dogs is very poor and variable due to first
pass metabolism, therefore PO is not a recommended route of administration. It has a short half-life and requires q 6-8 hr
administration for the most consistent antiemetic effect. Due to its specific action of 5HT3 receptors, ondansetron is well tolerated
with few adverse effects. Constipation can occur. In humans, headaches and dizziness have been reported. High doses of ondansetron
have also been demonstrated to produce blockade of cardiac potassium channels, therefore adverse reaction may occur if combined
with antiarrhythmic drugs such as diltiazem, propranolol, atenolol, and sotalol among others. Other drugs in this class include
dolasetron and granisetron, but they are not commonly used due to their much higher cost.

Metoclopramide is an antiemetic producing effects through inhibition of dopamine (DA2) receptor, gastrointestinal prokinetic
effects and at high doses 5HT3 antagonist effects. In the USA, there are no veterinary approved formulations. However high doses
increase the risk of adverse effects such as CNS excitation and gastrointestinal hypermotility and pain. Due to its prokinetic effects,
metoclopramide is contraindicated with GI foreign bodies or blockages due to the risk of perforation. Metoclopramide can be effective
for GI, CRTZ induced vomiting and may provide some effects for intracranial and pharyngeal vomiting. Metoclopramide may also be
beneficial in cases in which ileus contributes to GI vomiting such as opioid induced ileus. Other adverse effects can include peripheral
and pulmonary edema due to aldosterone release and metoclopramide decreases the seizure threshold. Metoclopramide is available as
injectable (administered IM, SC, IV and IV CRI) and oral formulations. Administration as an IV CRI may be more effective than
other administration techniques.

Antihistamines are limited in efficacy to vestibular induced vomiting such as vestibular disease and motion sickness. Diphenhydramine
is the most common antihistamine used in veterinary medicine as an antiemetic, but others are available.

Butorphanol and fentanyl also produce central antiemetic effects. However if opioids are administered for long durations or at high
doses, ileus may occur which can result in vomiting.

Disclaimer: The information is accurate to the best of the author’s knowledge. However recommendations change as new data
become available and errors are possible. The author recommends double checking the accuracy of all information including dosages.