

# Metoclopramide

**BRAND NAME: REGLAN**

AVAILABLE IN  
5 mg & 10 mg  
TABLETS

(Oral suspension exists but is famous  
for unpalatable taste to pets)

## HOW THIS MEDICATION WORKS

Nausea can be the result of many medical scenarios including infection, poisoning, anxiety, vertigo, and primary stomach/intestinal disease. Recovery depends on proper nutrition and gastrointestinal function which in turn depend on the control of nausea. Obviously nausea control is important for general patient comfort as well.

Metoclopramide has two uses: nausea relief through its direct effect on the brain and improvement of the rhythm of stomach contraction (i.e. stomach motility modification.) In the case of metoclopramide, probably the anti-nausea effect is the dominating mechanism of action in the dog while the motility modifying effect dominates in the cat.

One of the stomach's most important functions is to grind the food we eat into a fine slurry that can pass through the intestines freely. A strong rhythm of contraction is necessary to effect this and this rhythm creates the stomach's motility.

Motility disorders are common and may be chronic (of long duration) or of sudden onset. When motility is reduced in the stomach, food pools there and creates a sensation of nausea and bloating. In some cases, bile refluxes from the intestine back into the stomach causing irritation and more nausea. Metoclopramide normalizes stomach contractions so that food and bile can pass in the correct direction.

There is an additional effect of metoclopramide that is helpful in the control of nausea: There is a special biochemical barrier separating the brain and central nervous system from the blood stream so that only certain biochemicals can cross over. This partition is called the blood-brain barrier. Metoclopramide is able to cross the blood-brain barrier and act on the brain directly to control the sensation of nausea.

Metoclopramide thus helps the vomiting patient in two ways: by normalizing stomach motility and by acting directly on the brain to reduce the sensation of nausea.

## HOW THIS MEDICATION IS USED

Signs of nausea in pets include:

- Loss of appetite
- Vomiting
- Drooling
- Loud stomach or intestinal sounds
- Chewing motions

Metoclopramide can be used to control nausea in any situation (except in the event of stomach bleeding or intestinal obstruction). If a motility problem is suspected (a classical history would include vomiting food many hours after eating), metoclopramide should also be helpful. If a motility disorder extends beyond the stomach (for example, a colon motility disorder might lead to constipation), metoclopramide would not be expected to be helpful.

Other less common uses of metoclopramide include increasing milk production in a nursing mother animal who is inadequately lactating. Metoclopramide promotes the activity of dopamine, which in turn promotes the milk producing hormone prolactin. This effect sounds like it would be useful but this effect is fairly weak so other therapies may be more effective. Another use for metoclopramide is to improve bladder contraction in patients with poor ability to empty the bladder.

Metoclopramide can be used to tighten the tone in the cardiac sphincter (the sphincter at the top of the stomach that allows the entry of food into the stomach from the esophagus). In patients with megaesophagus, regurgitation of food out of the stomach is a big problem and some patients regurgitate less if this sphincter is tightened after a meal, effectively trapping the food in the stomach where it belongs, while other patients do worse and regurgitate more as closing the sphincter prematurely traps food in the esophagus.

### **METOCLOPRAMIDE IS BEST GIVEN 20 MINUTES BEFORE A MEAL**

## **SIDE EFFECTS**

Side effects are rare with metoclopramide but generally stem from the ability to penetrate the blood-brain barrier. Animals predisposed to seizures (i.e., epileptics) may experience seizures though this should not be a problem for normal animals.

Some animals experience drowsiness and others will experience marked hyperactivity. Hyperactivity can be reversed with a dose of Benadryl (diphenhydramine).

Constipation has been reported as a side effect in some individuals. This is not a common side effect.

If you suspect your pet is having an adverse reaction to metoclopramide, discontinue the medication and inform your veterinarian. There is another motility modifier called cisapride (Propulsid) that may be a good alternative. This medication does not cross the blood-brain barrier and hence does not have the behavioral side effects that metoclopramide can, but it also does not reduce the sensation of nausea by this additional mechanism either.

## **INTERACTIONS WITH OTHER MEDICATIONS**

Metoclopramide should not be used with phenothiazine tranquilizers (such as acepromazine) if there is any potential for seizures in the patient. Both medications serve to lower the threshold to seizures. A similar increased risk of seizures is seen when metoclopramide is combined with the pain reliever tramadol.

Propantheline bromide (Pro-Banthine), which is used to treat some cardiac arrhythmias, will inactivate metoclopramide. Alternatively, a cholinergic medication such as bethanechol will enhance the motility modifying properties of metoclopramide.

Narcotic analgesics may negate the effects of metoclopramide.

The use of metoclopramide with MAO inhibitors could lead to hypertension (high blood pressure) crisis. Examples of MAO inhibitors include: seligeline (used for cognitive dysfunction/senility) and amitraz (a common tick control product).

The chance of neurologic side effects is increased when metoclopramide is used in conjunction with mirtazapine, an appetite stimulant. The same is true when metoclopramide is combined with antianxiety medications such as amitriptyline, clomipramine, and fluoxetine.

## **CAUTIONS AND CONTRAINDICATIONS**

In patients with pheochromocytoma (a rare adrenal tumor) the use of metoclopramide can induce dangerously high blood pressure.

If stomach obstruction is suspected in a given patient, it is best not to encourage motility and some other anti-nausea drug is preferred. Having said this, it is important to realize that as motility modifiers go, other medications are much stronger. If one is actually looking for motility modification as a chief effect and metoclopramide is felt to be inadequate, one of the following medications might be of use:

Cisapride      Erythromycin      Ranitidine      Tegaserod

Metoclopramide should be avoided in patients with false pregnancy as it promotes the hormones which are maintaining this undesired state.

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