Prevention of gastro-oesophageal reflux and regurgitation in anaesthetised dogs and cats

Gastric acid reflux may occur in as much as 50% of dogs under anaesthesia. It frequently remains undetected unless accompanied by regurgitation (presence of liquid with or without food particles emerging from nose or oropharynx). The following interim policy is for prevention and treatment of reflux and regurgitation in dogs and cats whilst further evidence is gathered.

Moderate risk patients:
- Obese
- Large breeds (especially if obese)
- Prolonged recumbency prior to anaesthesia
- Myelography
- Megaoesophagus
- Certain brachycephalic breeds—British and French bulldog, pug, Boston terrier.

High risk patients:
- GI disease
- History of dysphagia
- Patients with history of regurgitation

Pre-emptive Treatment:
- Maintain head raised above shoulder during induction of anaesthesia until cuffed endotracheal tube (ETT) is secured.

Moderate risk patients:
- Omeprazole 1mg/kg po or slow IV evening before and morning of anaesthesia (1).
- Fast from midnight as per usual policy.

High risk patients:
- Omeprazole 1mg/kg po or slow IV evening before and morning of anaesthesia.
- Metoclopramide 1mg/kg bolus over 30 mins at least 2 hrs prior to pre-med followed by 1mg/kg/day CRI continued through anaesthetic (2). See note below ref. inhibition of drug metabolism.
- Fast no longer than 6 hours. Feed last meal of low fat canned food at 6 hours prior to induction. Avoid dry kibble for 10 hrs prior to anaesthesia (3). Refer to anaesthesia for advice if patient is fed by non-oral route.

Re-active treatment (when reflux/regurgitation detected):
- Immediately lower head below shoulder to allow drainage of material. Call for assistance.
- Maintain patent airway.
- If sedated extend tongue. Do not risk bite injury to personnel.
- If anaesthetised and not intubated apply suction to remove material from pharynx and intubate the trachea, inflate the ETT cuff to prevent gas leak at ~15cmH2O positive pressure ventilation. Alert primary clinician and senior anaesthetist.
- If anaesthetised and intubated check ETT cuff is creating seal as above. If leak is heard inflate cuff and alert primary clinician and senior anaesthetist.
• Suction oesophagus and pharynx immediately. Irrigate oesophagus with normal saline or tap water whilst applying suction using dual suction catheters or dog urinary catheters until fluids run clear. Do not allow copious fluids to enter pharynx as no ETT cuff is watertight. Ideally 20ml sodium bicarbonate 4.2% solution should be instilled(4) into the lower oesophagus under supervision of an anaesthetist.

• If material has entered patient’s eye flush with copious normal saline and apply lubricating eye ointment.

• If pre-emptive treatment has not already been instigated, begin as outlined above.

• Administer sucralfate PO q8 hr (cat 250mg, dog <20kg – 500mg, >20kg - 1-2g), once recovered from anaesthesia and swallowing, continue for 3 days.

• Continue omeprazole 1mg/kg UID for 3 days.

• If aspiration suspected begin antibiotic therapy: Clav/amoxicillin 20mg/kg q4hrs and monitor for signs of respiratory compromise. (note evidence of aspiration may not become evident on radiograph for 2 days)

General preventative measures in all patients:

• Avoid placing probes close to the lower oesophageal sphincter. Measure to the level of the 9th rib (dogs) which equates to 7cm in front of the lower oesophageal sphincter (5) for oesophageal temperature probes. Stethoscopes should be placed over the heart base.

• Judicial use of opioids. There is some evidence that morphine preanaesthetic medication may increase incidence of reflux and regurgitation(5).

High dose metoclopramide caution:

• Avoid use in Collies and their crossbreds unless tested double positive for MDR-1 gene.

• This drug is a substrate for cytochromeP2D6. The action of other drugs which are metabolised by this enzyme may be enhanced. Use with caution tramadol, codeine (reduce dose).

• Use of cimetidine or ranitidine may enhance the effects and side effects of metoclopramide.

• Metoclopramide is a dopamine receptor antagonist. Use with other drugs with similar action may precipitate hypotension.