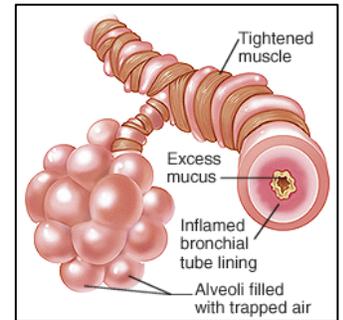


# Drugs for Gastric pH & Emptying

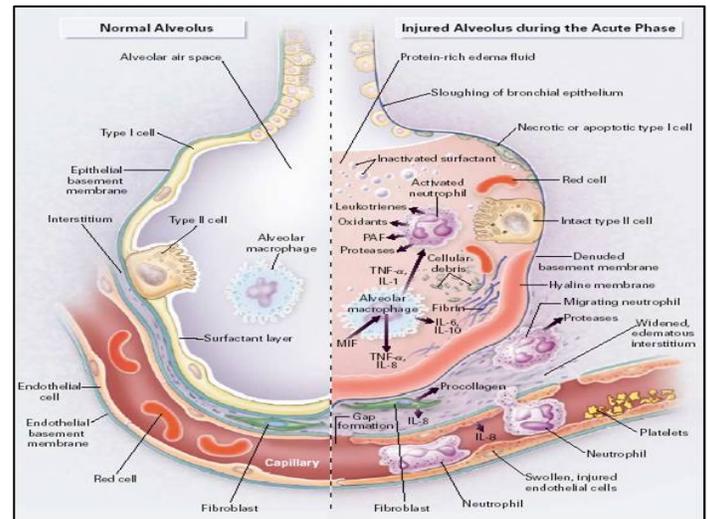
## **Anesthetic Pearls:** Anesthetic Implications and Management of Drugs for Gastric pH and Emptying

The risk of aspiration pneumonitis (Mendelson's Syndrome) causes anesthesiologists to consider drugs for gastric pH and emptying. A **more solid and acidic aspirate** leads to a greater risk of a more severe aspiration pneumonitis which carries a significant rate of morbidity and mortality. Even with the advancement of newer ventilators and antibiotics, the mortality rate of aspiration pneumonitis continues to remain at approximately 30%. Basic numbers to remember that increase the risk of pulmonary aspiration are a **gastric pH <2.5 and volume >25cc**. Several classes of medications are used to reduce the acidity of gastric contents and to improve gastric emptying.



### **I. H-2 Blockers (Cimetidine, Famotidine, Ranitidine)**

1. Decreases the gastric acidity (increases gastric pH) and volume
2. Does NOT alter pH of fluid already present
3. Warfarin and Theophylline clearances are reduced secondary to alterations of the cytochrome p-450 system
4. Serum levels of some drugs are increased secondary to displacement from protein binding sites
5. Rapid IV administration can cause **bradycardia, hypotension, and cardiac arrest**



### **II. Metaclopramide (Reglan)**

1. Central Dopamine agonist
2. Increases gastric and intestinal motility
3. Increases lower esophageal sphincter
4. Relaxation of pylorus and duodenum
5. Side effects: tardive dyskinesia and drug induced dyskinesia
6. Avoid in pheochromocytoma or GI obstruction
7. Avoid in patients taking MAOI's

### **III. Antacids (Bicitra)**

1. Increases gastric pH by neutralizing or removing acid from gastric fluid
2. Raises gastric pH and possibly increases gastric motility
3. Non-particulate antacids (Bicitra) mix more easily than particulate antacids (Maalox, Rolaids, Tums) and are less likely to cause chemical burns if aspirated without mixing

Interestingly, anticholinergics (Glycopyrrolate, Atropine) were thought to confer safety toward aspiration risk, but this has been found to be false. The anticholinergics do not increase gastric pH or reduce gastric volume.