ANCOOL PI

Each 5 ml contains

Oxethazaine	10 mg
Aluminium Hydroxide	250 mg
Magnesium Hydroxide	250 mg
Simethicone	125 mg

JUSTIFICATION OF THE FORMULATION:

This is a combination of Oxethazaine, Aluminium Hydroxide, Magnesium Hydroxide and Simethicone. It is used for symptomatic relief of gastric hyperacidity associated with gastritis, peptic ulcer, and esophageal reflux with heartburn.

Oxethazaine: Oxethazaine (oxetacaine) is a local anaesthetic agent. Being a potent anaesthetic agent it gives prompt relief to the pain in acutely inflamed gastric mucosa.[1]

Aluminium Hydroxide: Aluminium hydroxide is an insoluble basic substance used as an antacid. Aluminium hydroxide gel and the various mixtures containing it are widely used in the treatment of dyspepsia where there is a definite underlying organic process like peptic ulcer, esophagitis etc.[2]

Magnesium hydroxide: Magnesium hydroxide is an another antacid agent.

Simethicone: Simethicone is a surfactant that may decrease foaming and hence esophageal reflux. It is included in many antacid preparations[3] for the management of flatulence.[4]

Therefore a new formulation with Oxethazaine, Aluminium Hydroxide, Magnesium Hydroxide, and Simethicone is prepared which could decrease the gastric hyperacidity associated with gastritis, peptic ulcer, and esophageal reflux with heartburn

PHARMACOLOGY:

Oxethazaine: Oxethazaine is an amide type of local anaesthetic agent. It produces reversible loss of sensation by preventing or diminishing the conduction of sensory nerve impulses near the site of its application.[5] It is acid stable[6] and has a prolonged action after a relatively slow onset. It is poorly absorbed from mucus membranes. In the normal esophagus, it is probable that little of the oxethazaine adheres to the esophageal mucosa because of rapid transit from pharynx to stomach. [7]

Aluminium Hydroxide: Aluminium hydroxide is primarily used as an antacid. The chemical reaction is $Al(OH)_3 + 3HCl \rightarrow AlCl_3 + 3H_2O$.

Aluminium is said to stimulate mucus secretion and it may help to promote a mucosal barrier to acid. The majority of the aluminium is not absorbed after oral administration. In the gut, aluminium hydroxide reacts with intestinal phosphates to produce insoluble aluminium phosphate, which is excreted in the feces. Other products formed in the gastrointestinal tract lumen include aluminium carbonate, oxyaluminium hydroxide, and aluminium soaps. They are all passed out in the feces. [2]

Aluminium is not metabolized. [2]

Magnesium hydroxide:

Magnesium hydroxide, when given by mouth, reacts relatively rapidly with hydrochloric acid in the stomach to form magnesium chloride and water.[8] Magnesium compounds used as antacids include hydroxide, carbonate and trisilicate. Because they tend to be laxative, they are often given as mixtures with aluminium compounds[9] which have constipating effect.

Because of their insolubility their antacid effect is usefully prolonged over several hours, and systemic absorption is less. 1 gm of magnesium hydroxide will neutralize 35 mmol of acid. Bioavailability of magnesium hydroxide is > 10%. Magnesium is eliminated unchanged and the major excretory pathway is renal. In renal impairment there may be accumulation of magnesium in the body. [9]

Simethicone: Simethicone acts as a defoaming agent to reduce excess gas in the stomach.[8] It is a water repellent agent with low surface tension.[4] Simethicone lowers surface tension and when administered by mouth causes bubbles of gas in the gastrointestinal tract to coalesce, thus aiding their dispersion.[8] It has been claimed that simethicone-antacid suspension can reduce mucolytic effect of hydrochloric acid-pepsin-cholic acid mixture. Simethicone is minimally absorbed, not metabolized, and are excreted mainly in the feces.[4]

JUSTIFICATION OF DOSES:

Aluminium hydroxide has been given orally upto 1g/day as an antacid, between meals and at bedtime.[12] Recommended dose of aluminium hydroxide antacids for peptic ulcer are 500-800 mg four times daily. [2] Recommended dose of magnesium hydroxide is upto 1 gm/day and that of simethicone is 100-250 mg four times daily.[8] The usual oral dose of oxethazaine is 15-40 mg daily divided into three to four doses.[10] Oxethazaine when given

together with aluminium hydroxide and magnesium hydroxide, is said to relieve dysphagia in radiation esophagitis, and to relieve pain due to reflux esophagitis, chronic gastritis, and duodenal ulcer.[11]

Therefore this new combination of Oxethazaine 10 mg, Aluminium Hydroxide 250 mg, Magnesium hydroxide 250 mg, and Simethicone 125 mg per 5 ml of the suspension would constitute an appropriate formulation.

Indications: Symptomatic relief of gastric hyperacidity associated with gastritis, peptic ulcer, and esophageal reflux with heartburn.

Contraindications:[2,9] Renal failure, partial intestinal obstruction, gastric outlet obstruction, constipation, hypophosphatemia. This formulation should not be given to any patient who has demonstrated sensitivity to it.

Adverse effects: [1,2,9]

Encephalopathy and dementia may occur in patients with renal failure, diarrhea may sometimes with aluminium hydroxide-magnesium hydroxide combinations, hypermagnesemia, dizziness, glossitis, skin eruptions etc.

Dose: 5-10 ml before food and at bed time.

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