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| الكلية | الصيدلة |
| القسم | الصيدلانيات |
| المادة باللغة الانجليزية | Practical Biopharmaceutics |
| المادة باللغة العربية | عملي صيدلة حياتية |
| المرحلة الدراسية | الرابعة |
| اسم التدريسي | م.م. علي فخري جميل |
| عنوان المحاضرة باللغة الانجليزية | Evaluation of antacids |
| عنوان المحاضرة باللغة العربية | تقييم مضادات الحموضة |
| رقم المحاضرة | 5 |
| المصادر والمراجع | Laboratory Manual of Biopharmaceutics and Pharmacokinetics, S. B. Bhise, R. J. Dias, S. C. Dhawale, K. K. Mali |
| | Applied Biopharmaceutics and Pharmacokinetics |
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## محتوى المحاضرة

**Antacids are medicines that counteract (neutralize) the acid in your stomach to relieve hyperacidity conditions such as indigestion and heartburn.**

**They are used only to relieve symptoms.**

**They can be found as chewable tablet, suspension, and effervescent.**

**Classification of antacids:**

1. **Water soluble (systemic) antacids:**

**Usually have quick and transient action.**

**Can be absorbed and may cause metabolic problems (systemic alkalosis).**

**Common examples are Sodium Bicarbonate, Sodium citrate, Sodium acetate, and Potassium citrate.**

2. **Water insoluble (non-systemic) antacids:**

**Usually have prolonged action.**

**Aren't absorbed and don't cause systemic alkalosis.**

**Divided into buffer and non-buffer antacids.**

**Examples are aluminum hydroxide, magnesium hydroxide, magnesium trisilicate, calcium carbonate, calcium phosphate.**

**Side effects of antacids:**

**Mg salts may cause diarrhea.**

**Al salts may cause constipation.**

**Consumption of large amounts of aluminum containing antacids may cause calcium loss from the body.**

**Problems associated with salt (sodium) restricted diet patients.**

**Many salts used in antacid medicines can cause iron deficiency.**

**Interactions of antacids:**

**Antacids interfere with absorbance of many drugs from GIT by :**

**Alteration of gastric emptying,**

**Alteration of ionization ,**

**Alteration of pH which may affect drug dissolution.**

**Also interfere with excretion of drugs.**

**Criteria of ideal antacid:**

**It should not be absorbed or cause systemic alkalosis.**

**It should not have a laxative or constipated effect.**

**It should exert its effect rapidly and over a long period of time.**

**It should buffer the pH between 3.5 - 5.5.**

**The reaction of antacid with gastric HCl should not cause a large evolution of $CO_2$ gas.**

**It should not cause rebound acidity.**

**It should not affect the absorption of food, nutrient and vitamin.**

**Notes:**

**In order for a product to be labeled as antacid according to FDA, the finished product must contain at least 5meq/dose unit of neutralizing agent and raise the pH of gastric secretion to 3.5 or greater within 10 min.**

**Simethicone is used in some formulas to get rid of gases.**

**Alginate is used to prevent acidity from reaching esophagus.**

**Experimental work:**

**Many types of antacids are evaluated and compared with each other in this experiment.**

**To simulate the physiological conditions in the stomach, artificial gastric juice (A.G.J) is used and the techniques of alternate addition and removal of solutions are used to simulate the release of HCl from oxyntic cell and the periodic emptying of the stomach.**

| Artificial gastric juice (A.G.J) | |
|---|---|
| NaCl | 2 grams |
| Conc. HCl | 7 ml |
| D.W | 1000 ml |
| pH= 1.2-1.4 | |

**Place 150 ml of the (A.G.J.) in 250 ml beaker.**

**Fill 50 ml burette with A.G.J and position it so that the solution may be added to the beaker as desired.**

**Record the initial pH of the juice (at zero time).**

**Add the antacid and stir the juice.**

**To simulate stomach conditions, add 2 ml of fresh juice from the burette every 2 min and at the end of each 10 min withdraw 10 ml from the beaker using a pipette.**

**Record the pH of the 10 ml with the time at which the sample withdrawn.**

**Draw a table and plot pH with time.**