



INVITRO COMPARISON OF ANTACID DRUGS: APPLICATION TO SIX MARKETED FORMULATIONS



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BACKGROUND

Antacids are intended to neutralize the gastric H⁺ ions without interfering with the secretory process. They are generally administered 1 h 30 min after the beginning of a meal. Given the multitude of antacids on the market, it would be interesting to have quantitative techniques to compare these products and to demonstrate their physiological behavior. To evaluate the behavior of antacids in the presence of an increasing amount of acidity in vitro and to predict their use depending on the importance and periodicity of gastric acidity in vivo.

PURPOSE

To evaluate the behavior of antacids in the presence of an increasing amount of acidity in vitro and to predict their use depending on the importance and periodicity of gastric acidity in vivo.

MATERIAL AND METHODS

We studied the in vitro behavior of six antacid drugs. For this, a therapeutic dose was diluted in 100 ml of distilled water, to which were added increasing amounts of 0.1 N HCl in increments of 0.2 ml every 30 s up to a total acid volume of 25 ml. The variation in pH of the mixture was followed by pH-metry. Each test was repeated three times. The composition of the studied antacids is shown in table 1.



CONCLUSION

The proposed method allowed us to quantitatively compare the studied antacids. According to the results, drug C slightly neutralized stomach acid without an extended effect. It can be prescribed for low and temporary gastric acidity. Drugs A, B and F had an average and extended neutralizing action (pH stabilization around 5). They can be prescribed for moderate and prolonged gastric acidity. Regarding drugs D and E which had a strong neutralizing and long acting action that stabilized the pH around 7.5, they can be prescribed for high and prolonged gastric acidity.

Table 1. The composition of the studied antacids :

Antiacid drugs	Chemical composition
Drug "A"	For 100ml of oral suspension: -Aluminium hydroxide-->3,49mg -Magnesium hydroxide3,99mg
Drug "B"	For a 20g sachet of oral suspension: -Aluminum phosphate gel at 20%.....12,38g -Magnesium oxide.....152mg
Drug "C"	For a 20g sachet of oral suspension: -Colloidal aluminum phosphate at 17%.....14,4g
Drug "D"	For a 10ml sachet of oral suspension: -Aluminium alginate500mg -Sodium bicarbonate267mg
Drug "E"	For one effervescent tablet: -Sodium bicarbonate170mg -Sodium sulfate285mg -Sodium dihydrogen phosphate.....195mg
Drug "F"	For one Suckable tablet: -Calcium carbonate680mg -Magnesium carbonate80mg

RESULTS

The in vitro behavior of the six antacid drugs in the presence of increasing amounts of 0.1 N HCl is represented in the figure below :

