SUMMARY AND CONCLUSION

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In the present work, the effect of verapamil (a calcium channel blocker) on the gastric secretion, ulcer formation and smooth muscle of the rat stomach was investigated.

Douglas & Rubin (1961) since 20 years stated that secretion of granule bound materials generally requires the presence of calcium in the medium.

Calcium may activate certain cytoplasmic enzymes such as protein carboxyl methylase, thereby causing methylation of carboxyl group on granule membrane surfaces (Povilaitis & Ganong, 1981). This change in granule membrane surface may promote the interaction between granule membrane and plasma membrane and initiate the secretory process.

Bolton (1979) stated that in the secretory tissues where the extracellular calcium is necessary for secretion, calcium entering by way of plasma membrane channels is obviously very important. The cell may have more than one type of calcium channels.

In vivo experiments: the effect of verapamil (a calcium channel blocker) on gastric secretions and induced gastric ulceration were done.

As regard gastric secretion, intraperitoneally injection of verapamil with the small dose (2 mg/kg) was significantly decreased the pH, acid concentration and acid output/hr, but did not significantly decreased the volume or the mean pepsin concentration. On the other hand, the large dose of verapamil (10 mg/kg) produced marked decrease in the volume, pH, acid concentration, acid output/hr and pepsin concentration.

As regard the effect of verapamil on experimentally induced gastric ulceration in rats (by immobilization or by acetylsalicylic acid) it was found that it decreased the incidence of ulceration, ulcer score and ulcer index.

Ochillo & Tsai (1982) have shown that isolated to ad gastric muscle contractions was prevented in the presence of calcium free solution.

In vitro experiments: The effect of verapamil (a calcium channel blocker) was studied on acetylcholine, histamine and potassium chloride contraction of isolated fundic strip of rat stomach.

The in vitro data revealed that verapamil was found to decrease amplitude of acetylcholine, histamine and potassium chloride induced contractions of the isolated fundic strip of gastric stomach of rat. Furthermore it inhibited the preparation when added on top of the already present contraction. These in vitro results suggested that verapamil might decrease the motility of the stomach in the rat in vivo.

Silen (1971) and Bdily & Fisher (1976) reported that there is an ischaemic component in stress ulceration. The mechanism of stress gastric ulceration was also suggested to be due to an increased vagal activity, produced by stress. This has been proved by the greater protection affored by anticholinergic drugs.

In conclusion verapamil (a calcium channel blocker) produced reduction in ulcer formation with marked and

significant decrease in the volume and acidity of gastric contents. Also it decreased the motility of the stomach in the rat. These observation suggested that verapamil exhibit an antiulcer effect, probably results from the antisecretory actions and the decrease in motility of the stomach.