

SUMMARY AND CONCLUSION

Forty adult male rabbits (avoiding any secondary effect on the female sex hormones and the reverse) were utilized in this study. Some animals were given 35 mg/kg body weight/day of L-Dopa orally for 2,4 and 6 months to study the effect of chronic treatment with L-Dopa. Other animals were given distilled water and served as controls.

Paraffin sections were prepared and stained with haematoxylin and Eosin. The mucosa of the gastrointestinal tract was studied histologically. Other sections were stained with periodic acid- Schiff to reveal the carbohydrates, and glycoproteins of the mucus secreting cells and goblet cells in the different segments of the gastrointestinal tract. Pascual's stain, Singh modification of Mosson - Hamperl stain, alkaline diazo stain of Gomori and PAS-lead - Hx methods were performed to reveal the effect of L-Dopa on the neuroendocrine cells of the gastrointestinal tract. Lastly, Schofield method for demonstration of Meissner's and Auerbach's plexuses was performed to study the effect of L-Dopa on these subjects.

The results revealed an increased folding, enlargement and packing of the gastric glands, villi and crypts of Lieberkuhn with gradual apparent increase in number of their epithelium. Vascular dilatation and engorgement of blood vessels between the gastric glands, crypts of intestine, appendix and the rectum were observed. This was due to the trophic effect of L-Dopa and its metabolites and the gastrointestinal irritation caused by the central stimulation of the chemoreceptor trigger zone exerted by the drug. Vascular dilatation and engorgement was exerted by the direct action of the drug on the mesenteric blood vessels.

The mucus secreting cells of the stomach and goblet cells all over the intestines, appendix and rectum showed gradual enlargement and apparent increase in number. This denotes that carbohydrate, glycoproteins of the tissue increased through glycogenesis and proteogenesis exerted by administration of L- Dopa.

As revealed with different stains; the enteroendocrine cells progressively enlarged in size & apparently increased in number and their intensity of cytoplasmic granules. Groups of cells more than 2 were more frequent (2-4) after oral administration of L-Dopa. This explains the ability of the enteroendocrine cells to uptake and decarboxylate the amine precursors into amines and their storage. The noticed gradual hypertrophy and apparent increase in number of the enteroendocrine cells all over the gastrointestinal tract, was exerted by the trophic effect of the neuroendocrine cell products.

There was also hypertrophy of the nervous elements in the Meissner's and Auerbach's plexuses explaining the trophic action of the drug and its metabolites on these dopaminergic and adrenergic (inhibitory) elements and may reflect the causes of the decreased gastrointestinal motility in patients receiving this drug.