Explor Anim Med Res,
Vol.4, Issue - 2, 2014, p. 129-130

ISSN 2277- 470X (Print), ISSN 2319-247X (Online)
Website: www.animalmedicalresearch.org

Editorial

INDIAN SCIENTISTS – SEROTONIN ODYSSEY

In 1940, Eraspamer reported first time that a chemical substance present in the rabbit gastric mucosa which inhibits gastric secretion and named it as "Enteramine" which was subsequently identified as 5-hydroxytryptamine. Later on, both 5-HT and its precursor 5-HTP were found to have gastric inhibitory activity on different experimental animals and in man. Cali and Cardova (1956) observed that intravenous administration of 5-HT stimulated the gastric acid secretion in Heidenhain's pouch dogs. This observation indicates that for inhibitory response of 5-HT intact cholinergic pathway is essential. It was also observed that the stimulatory effect of food or histamine was inhibited by 5-HT.

Further, Grossman (1948) showed the role of "gastrin" intricating it with gastric acid stimulation, besides cholinergic and histaminergic pathway, but those studies were limited to laboratory only. Later, the functional role of gastrin on gastric secretion became clear following the determination of structure of gastrin by Tracy and Gregory (1964) and the synthetic analogs, ICI 50123 (pentagastrin) and tetragastrin were available for clinical use. There was a major breakthrough on the understanding of gastric secretary mechanisms after the clinical use of pentagastrin. By this time the accumulated information on the study of gastric inhibitory activity of 5-HT (Black *et al.,* 1956) and on the peristaltic reflex (Bullbring 1958) resuscitated the role of the autacoids on different physiological functions. This suggestive lead role of 5-HT becoming apparent by different studies with its clinical correction.

The mechanism (s) responsible to inhibit gastric secretion induced by food stimulation and/or pentagastrin and histamine was not clear since late 1970s, when Sanyal and Waton (1972) observed that on continuous intravenous administration of pentagastrin stimulated the gastric acid secretion attaining peak within 30-45 minutes followed by a decrease in the secretion termed as "fade" by Paton in 1961. Sanyal and Waton (1972) demonstrated "fade" phenomena could be blocked by prior administration of 5-HT antagonists (cyproheptadine) and reserpine, suggesting involvement of 5-HT in "fade" phenomena. This study strongly suggests that the 5-HT has definite role in gastric secretion inhibition.

Sanyal (1970) contemplated to explore the inhibitory mechanism of gastric secretion with the backup knowledge that pentagastrin induced gastric secretion inhibition is reversed following pre-treatment with cyproheptadine and reserpine. Conversely,

Banana powder reduces gastric acid secretion by increasing 5-HT level in stomach and blood. Nature of interaction between these mediators and the receptor sub- types involved need to be explored. He proposed the hypothesis that after food intake the gastric secretion is stimulated by increasing blood and stomach gastrin level. But how the gastric secretion shut down by the inhibitory secretagogue specially the serotonin is not known with the present context. With this objective to relate serotonin, Prof. Sanyal aimed for further research with suggested hypothesis on the auto regulatory mechanism of gastric secretion, to bridge up the gaps and reported that cyproheptadine a 5-HT antagonist decreased 5-HT activity and ulcer formation by stimulating gastric acid secretion on basal state (Sanyal 1971). He also suggested that further work is warranted to prove the hypothesis. Recent literature reveals that role of magnesium is associated with serotonin synthesis and metabolism along with clinical correlation. In order to promote autacoids research Dr. Govinda Achari was instrumental in establishing the Uvnas Prize for the best work on autacoids.

Prof. Tapan Kumar Mandal

Chief Editor
Exploratory Animal and Medical Research

*** Cite this article as**: Mandal TK (2014) Indian Scientists – Serotonin Odyssey. Explor Anim Med Res 4(2): 129-130.