

GASTRIN

INTRODUCTION

Gastrin is a hormone secreted by G-cells of antrum of the stomach and pancreatic islet of Langerhans. The secretion is stimulated by alkalinity, stomach distension, vagal stimulation & by the presence of peptides / aminoacids / alcohol / calcium in the stomach. Gastric acidity inhibits the secretion of Gastrin. High levels of gastrin are associated with neuroendocrine tumors like Gastrinoma / Zollinger – Ellison syndrome (ZES) which show hypergastrinemia.

NORMAL RANGE

13-115 pg/mL

CLINICAL USE

- Diagnosis of Gastrinomas / Zollinger-Ellison syndrome
- Investigation of patients with Achlorhydria or Pernicious anemia

INTERPRETATION

Increased Levels

Increased serum gastrin without gastric acid hypersecretion
• Atrophic gastritis
• Pernicious anemia (75%)
• Carcinoma body of stomach
• Gastric acid inhibitor therapy
• After vagotomy
Increased serum gastrin with gastric acid hypersecretion
• Zollinger-Ellison syndrome
• Hyperplasia of antral gastrin cells (G-cells)
• Isolated retained antrum (post antrectomy when duodenal stump contains antral mucosa)
Increased serum gastrin with gastric acid normal or slight hypersecretion
• Rheumatoid arthritis
• Diabetes mellitus
• Pheochromocytoma
• Vitiligo
• Chronic renal failure (50%)
Pyloric obstruction with gastric distension
Short bowel syndrome
• Massive resection
• Extensive regional enteritis
Incomplete vagotomy

Decreased Levels

- Antrectomy with vagotomy
- Hypothyroidism
- Drugs like Anticholinergics & Tricyclic antidepressants

HIGH RISK FACTORS

- Peptic ulcer disease
- Peptic ulcer in unusual location or multiple ulcers

LABORATORY DIAGNOSIS

- Fasting Gastrin levels – Significant only with gastric pH ≤ 2

Fasting Gastrin in pg/mL	Gastric pH	Remarks
>1000	≤ 2	Gastrinoma (40-60% patients) – ZES established
<1000	≤ 2	<ul style="list-style-type: none">• H.pylori infection• Antral G-cell hyperplasia• Gastric outlet obstruction• Renal failure

- Secretin provocative test / Gastrin stimulation by Secretin – Gastrinoma patients show an increase of at least 200 pg/mL or 50% by 5 or 10 minutes post administration of Secretin 2 U / kg body weight IV as a bolus

LIMITATIONS

- Gastrin levels follow circadian rhythms being lowest in early morning and highest during the day
- No consistent relationship has been established between H.pylori and gastric acid secretion or serum gastrin levels