

Urinalysis and Body Fluids CR3

Unit 5

4 Gastric Fluids

Gastric Fluid Analysis - objectives

1. Describe the physiology and composition of gastric fluid; including the role of gastrin in its production.
2. List two (2) reasons for gastric fluid analysis.
3. Explain the special patient preparation that should occur before gastric fluid is analyzed.
4. Define or describe the Zollinger-Ellison Syndrome, anacidity, hypochlorhydria, and achlorhydria.
5. Describe the procedure for gastric acidity and state the clinical significance.
6. Describe gastric fluid drug screening and its clinical significance.

Gastric Fluid - production

- Physiology
 - Full stomach, presence of amino acids, stimulation by vagus nerve, other factors
 - Release of hormone Gastrin from stomach G cells
 - Gastrin stimulates release of digestive gastric fluids from the stomach parietal cells.
- Inhibition / shut-down
 - Negative feed-back system
 - Presence of secreted HCl in stomach will inhibit gastrin release
 - Hormones somatostatin, glucagon, calcitonin and others

Gastric Fluid - composition

- **Composition and formation**
 - Produced by the parietal cells in the stomach under the hormonal influence of gastrin.
 - Normal makeup of gastric fluid:
 - * HCl,
 - saliva,
 - mucous,
 - neutralizing chemicals,
 - secretions from the intestines, bile & pancreas

Gastric Fluid

- **Anacidity - lack of normal acidity**
 - Sometimes called achlorhydria (hypochlorhydria)
 - Absence (decrease) of HCl in gastric secretions
 - Usually caused by
 - Atrophy of gastric mucosa
 - Gastric carcinoma
 - Pernicious anemia
 - Severe iron deficiency anemia

Gastric Fluid testing

- **Indications for testing gastric fluids**
 - Peptic ulcer evaluation
 - Gastritis - inflammation of stomach wall
 - Anacidity - inability to produce acid

Gastric Fluid testing

- Indications for testing gastric fluids
 - Zollinger-Ellison (Z-E) syndrome
 - Hypersecretion
 - Gastrin secreting neoplasm usually located within the pancreatic islets
 - Drug analysis
 - Suspicion of recent overdose
 - Examination of gastric fluid / aspirate for presence of pills, capsules, etc. generally performed by attending physician, or perhaps pathologist.
 - Literature provides some information regarding quantitative testing, ie. HPLC, GLC/Mass Spectroscopy.

Gastric Fluid testing

- Specimen collection
 - Nasal or oral intubation
 - Fasting & avoid swallowing saliva
- Normal Specimen
 - ≤ 75 mL
 - Translucent, light gray
 - Slightly viscous
- Laboratory procedures
 - Gastric acid (acid <4.0)
pH paper
 - Drug screening



Reference Listing

- > Please credit those whose work and pictures I have used throughout these presentations.
- > Lillian Mundt & Kristy Shanahan, Graff's Textbook of Urinalysis and Body Fluids, 2nd Ed.
- > Susan Strassinger & Marjorie Di Lorenzo, Urinalysis and Body Fluids, 5th Ed.
- > Wikipedia, the free encyclopedia
> www.wikibedia.org
- > Mosby's Medical Dictionary, 8th edition. © 2009 Elsevier.
- > Clinical Chemistry, Vol 22, 1906-1909. by American Association of Clinical Chemistry.
- > Pub Med.gov. U.S. National Library of Medicine, National Institutes of Health.
