

GASTRO-TEST

INTENDED USE:

The GASTRO-TEST is a diagnostic tool designed to provide immediate determination of stomach pH without gastric intubation or chemical analysis and serves as a rapid indicator of oesophageal and gastric bleeding.

TEST SUMMARY:

The device consists of a weighted gelatine capsule with 70cm of highly absorbent cotton floss coiled within. One end of the floss protrudes through a hole in the cap while the other is loosely attached to the capsule. A surface marking pH stick and pH colour chart are provided.

PROCEDURE:

Please note, do not pull the string fully out of the capsule. 3-4 Inches will suffice!

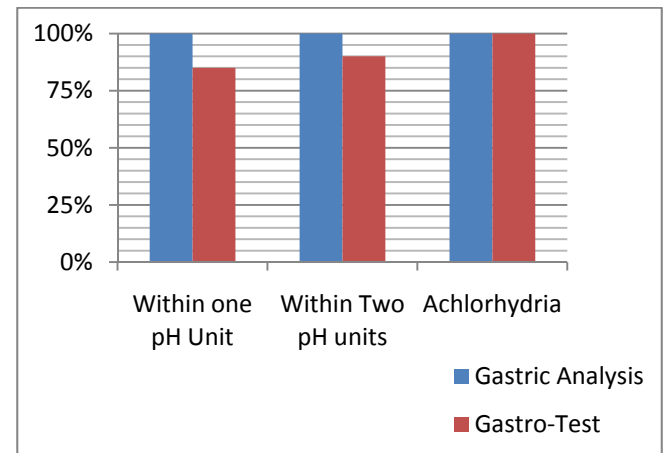
1. With the patient seated on the examining table, a swallow of water is offered to moisten the mouth and throat.
2. The GASTRO-TEST is then swallowed with water while the free end of the line is held outside the mouth. Generally, the capsule descends into the stomach immediately. During this time the proximal loop of floss is outside the mouth, taped to the cheek.
3. The Patient then lies on their left hand side on the table for ten minutes. Or can remain seated if more comfortable. This manoeuvre allows maximal contact of the gastric pool with the floss.
4. The patient then sits up and is instructed to open the mouth and raise his/her chin. This should occur after 7 to 10 minutes.
5. The line is removed with a fairly rapid but gentle pulling motion. The line is placed onto a piece of plain white paper. Determination of pH much be made when the floss is still moist.

READING pH

The freshly removed floss is touched lightly over its distal half with the pH stick. The resultant colours are compared with the pH chart. The mouth and oesophagus are normally pH 7 while the stomach may vary from pH 1 to slightly over pH 7. The findings on any part of the distal half of the floss pH 3 or lower is evidence that the stomach is able to secrete acid normally. The removal of the acid bearing floss through the neutral oesophagus does not alter the pH reading of the line. If in the initial test the stomach pH was above 3, it is recommended that the test be repeated approximately 30 minutes after stimulation of the stomach by caffeine alkaloid, 200-400 mg, given orally.

If after stimulation the stomach pH remains 5 or above, achlorhydria or marked hypochlorhydria presumably exists. If the patient has a consistently low pH after fasting, hyper-secretion of acid is suggested, though there is considerable variability from one person to another.

Gastric Acidity (pH)



The GASTRO-TEST compares well with gastric analysis in pH determination and diagnosis of achlorhydria.

GASTRIC AND OESOPHAGEAL BLEEDING:

The presence of blood on the retrieved string is indicated by a brown or red stain and may be confirmed by chemical or microscopic analysis. The exact position of bleeding may be identified by using the blue markings on the line every 10 cm to determine location. The oesophagus generally extends to the third or fourth blue marking. In experimental studies, as little as 0.25 ml of blood in the oesophagus and 1.0 ml in the stomach may be visually detected. Even smaller quantities may be detected chemically.

CONDITIONS ASSOCIATED WITH ACHLORHYDRIA:

Atrophic Gastritis:

As atrophy of the gastric mucosa progresses, stomach parietal cells gradually lose their ability to produce acid. Intrinsic factor and pepsin secretion also disappear, somewhat more slowly. Parietal cell antibodies are frequently found in sera and gastric juice. While diminished acid production is common in older people, true achlorhydria, characterised by the inability of the stomach to secrete any acid even after adequate stimulation, is less frequent. Probably no more than 2% of the population over 40 have true achlorhydria. However, identification of these persons is of great significance, for they form a high risk group for several important medical problems. Many physicians do not treat atrophic gastritis per se, but use it as an alerting signal for further diagnostic studies or surveillance.

Pernicious Anemia:

Virtually all adult patients with pernicious anemia are achlorhydric. Thus while the finding of achlorhydria in an anemic patient does not establish the diagnosis of pernicious anemia, finding of acid in the stomach essentially rules out this diagnosis. Conversely, the findings of achlorhydria should alert the physician to the possibility of pernicious anemia, and particularly so in the presence of neurologic signs or symptoms suggestive of Vitamin B-12 deficiency. The Pernicious anemia patient may be asymptomatic, or present with weakness, fatigue, shortness of breath, sore mouth or tongue, numbness in the extremities, paresthesias in hands or feet, difficulty in waking, dysphagia, gastrointestinal upset and various other symptoms. The prevalence of this disease is approximately 1-2 per 1000 in the general population, 4 per 1000 in people over 40 and 25 per 1000 in relatives of pernicious anemia patients.

Gastric Cancer:

At least 30% of patients with stomach cancer are achlorhydric. Conversely 10-13% of patients with achlorhydria eventually develop gastric cancer. Most carcinomas in the distal portion of the stomach occur in association with acid production, whereas in patients with achlorhydria the tumors are found in the upper portion of the stomach in over 70% of the cases. Patients with these tumours, particularly if the lesions are small, have an excellent survival rate after gastrectomy. Thus, it is most important to identify persons who are achlorhydric, particularly in the over 40 age group. If gastric symptoms develop in these patients, attention should be directed towards the fundic and subcardial portions of the stomach. With early cancer detection there is an excellent chance for cure.

Thyroid Disease:

Patients with toxic goiter, primary myxedema and Hashimoto's Thyroiditis are much more likely to have achlorhydria and pernicious anemia than is true in the general population. Parietal cell and antithyroid antibodies often may be found in the serum.

Iron Deficiency Anemia:

Achlorhydria is twice as common in hypochromic anemia as in normal control subjects. Whether iron deficiency leads to atrophy of the gastric mucosa, or whether pre-existing gastric atrophy diminishes iron absorption is not precisely known. Nevertheless, the gastric atrophy should be identified and its possible contribution to the anemia evaluated.

Indications For Use:

- The initial and periodic physical examination, particularly in persons over 40.
- Suspected oesophageal or gastric bleeding.

- Initial screening for suspected achlorhydria and pernicious anemia

- To eliminate the diagnosis of pernicious anemia in patients with anemia or with neurologic signs or symptoms

- All relatives of patients with pernicious anemia

- Iron deficiency anemias

- Patients with unexplained gastro-intestinal symptoms

- As a diagnostic aid in the study of duodenal ulcer, thyroid disease, Addison's disease, agammaglobulinemia, vitiligo and other disorders.

Precautions and Contraindications:

No complications have been reported and no known contraindications exist to the use of the Gastro-Test. An occasional patient with a very sensitive gag reflex will be unable to swallow the capsule, or will vomit immediately after doing so. Caffeine should not be used as a gastric stimulant if persons known to be sensitive.

References:

Beal, CB and Brown, JE. A Rapid Screening Test for Gastric Achlorhydria. Amer, J Digest. Dis. 13:113, 1968.

Cheli, R. et al. A Clinical and Statistical Follow-Up Study of Atrophic Gastritis. Amer. J Dig. Dis. 18:1061, 1973

Howitz, J and Schwartz, M. Achlorhydria, and Pernicious Anemia. Lamcet, p. 1131, June 26, 1971.

Strickland, RG and Mackay, IR. A reappraisal of the Nature and Significance of Chronic Atrophic Gastritis. Amer. J. Digest. Dis 18:426, 1973.

Twomey, JJ, et al. The Gastric Disorder in Immunoglobulin-Deficient Patients. Annals of Internal Med. 72:499, 1970

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To see the Gastro-Test being administered to a patient, please go to the following link-

<http://www.nutri-linkltd.co.uk/articulate/gastro/player.html>