Saline Load Test

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Purpose

Saline load test is used to determine the presence or to estimate the degree of gastric retention. This test was first described by Goldstein & Boyle in 1965.[1]

Preparation

1. Patient should be fasting for 8 hours.
2. Patient should not be taking any medicine which prolongs gastric emptying.
3. A l000ml I/V bottle of normal saline may be used to prepare the solution. Solution is prepared by removing 250mI of Saline from bottle.
4. Empty the stomach with a 32 french size Ewald tube or large bore Nasogastric tube. Emptying of the stomach contents is initiated with the patient in sitting position. This is repeated with the patient lying on left side, on stomach, on right side, and then on the back. Total aspirated fluid is pooled in a beaker and its volume, pH and colour is recorded. An overnight gastric residual contents greater than 200ml. is consistent with outlet obstruction.[2,3]

Saline Load Test:

a) 16 F Nasogastric tube is inserted to about 65cm. from the nares.
b) An standard I/V tubing is attached to the bottle containing 750ml. of Saline solution.
c) Bottle is suspended from an 1/V pole.
d) Tip of the I/V tubing is attached to the female adaptor of patient's nasogastric tube. Patient is still in sitting position. Clamp is now fully open so that fluid may run freely from the bottle through the tubing into the patient's stomach, at this point time is noted. When all the saline runs out of the bottle the tube is disconnected from the adaptor and nasôgastric tubing is clamped to prevent the reflux of gastric contents. Patient remains in the sitting position for full 30 minutes. On completion of 30 minutes, aspiration of the gastric contents is begun with the patient sitting and then in each lying positions i.e. back, on stomach, on right and left sides.

Interpretation

The normal stomach can empty greater than 500ml. of normal saline in 30 minutes after instillation of 750ml. leaving no more than residual of 250ml. Normal average 30 minutes residual collection after Saline Load Test is 88ml. with the Standard deviation of 82ml. Average obstructed patients return 500m1. to 750ml. after 30 minutes.

References

1. Goldstein, H., Boyle, J.D. The Saline Load Test; A bedside evaluation of gastric retention. Gastro enterology, 1965;49 275.
2. Goldstein, H., Janin, M., Schfiro, M. et al. Gastric retention associated with gastro-duodenal disease: Astudyof 217 cases.Am. J. Dig, Dis. 1966;11:887.
3. Backus, H.L. Gastroenterology Volume I, Saunders Philiadeiphia, 1974.