

IAEA/ESNM Webinar Series on Paediatric NM

Nuclear Medicine evaluation of gastroesophageal reflux and pulmonary aspiration in children

Self-assessment questions

Q1: Gastroesophageal reflux is associated with complications This condition is called gastroesophageal reflux disease (GERD). The incidence of GERD is

1. 100%
2. 10%
3. 35%
4. 75%

Answer: 2

Q2: The following is not a complication of gastroesophageal reflux

1. Apnea and apparent life threatening event (ALTE)
2. Esophagitis
3. Asthma
4. Duodenal ulcers

Answer: 4

Q3: The correct statement regarding the diagnosis of gastroesophageal reflux is

1. Upper GI series with barium is the gold standard
2. Extended esophageal pH monitoring is the most sensitive technique because it shows both acidic and non acidic reflux episodes
3. The milk scan is a sensitive technique to demonstrate gastroesophageal reflux
4. Esophageal endoscopy is the best way to detect reflux

Answer: 3

Q4: The radiopharmaceutical used in gastroesophageal reflux scintigraphy is

1. Tc-99m sulfur colloid
2. Tc-99m MAA
3. Tc-99m pertechnetate
4. Tc-99m MAG3

Answer: 1

Q5: When preparing the meal for a milk scan the tracer should be added to

1. A bottle containing two thirds of the meal volume
2. A bottle containing one third of the meal volume
3. The radiopharmaceutical should be diluted in 10 cc of saline and administered directly into the mouth
4. The radiopharmaceutical should be cooked with an egg

Answer: 2

Q6: A referring physician requests a milk scan to determine the presence of gastroesophageal reflux, pulmonary aspiration and gastric emptying rate in a 1-year-old child. Choose the correct statement

1. A milk scan cannot evaluate gastric emptying
2. For gastric emptying evaluation in this child a separate gastric emptying study with a standard egg based meal is recommended
3. If gastric emptying is to be determined from the milk scan study the thorax and the entire stomach should be in the field of view
4. Gastric emptying cannot be evaluated because it requires a 4 hour fast

Answer: 3

Q7: Mark the correct statement regarding gastroesophageal reflux scintigraphy

1. Aspiration is more commonly seen than gastroesophageal reflux
2. The study cannot detect pulmonary aspiration
3. The study is highly sensitive in detecting gastroesophageal reflux. Aspiration is identified only in a small percentage of the cases.
4. The study performs poorly in detecting aspiration of gastric contents but is highly sensitive in detecting aspiration of saliva

Answer: 3

Q8: Aspiration of saliva is

1. A normal phenomenon in well thriving children
2. Has no significant clinical consequences
3. Can be clearly detected with barium swallow studies
4. Can be the cause of recurrent pulmonary infections

Answer: 4

Q9: Mark the correct statement regarding the radionuclide salivagram:

1. The study requires a 4 hour fast
2. Should always be performed under sedation or anesthesia
3. The radiopharmaceutical should be given in a very small volume (1 drop).
4. The radiopharmaceutical is given with 15 cc of water

Answer: 3

Q10: A radionuclide salivagram shows tracer activity in the trachea and proximal bronchi 20 minutes after the beginning of the study. As the study progresses the activity in the airways disappears. What is the significance of this finding?

1. This indicates that pulmonary protective mechanisms (cough, mucociliary transport system) are intact.
2. Activity gradually disappears from the airway because of radionuclide decay.
3. Activity is gradually not seen in the airways because aspirated saliva is diluted with pulmonary secretions.
4. Tracer activity in the airways and lungs cannot persist longer than 15 minutes because of biological degradation of the radiopharmaceutical.

Answer: 1