AGA Academy of Educators Award Presentation

Richa Shukla, MD
Assistant Professor
Baylor College of Medicine
May 9, 2017
Background

• Current endoscopic training based on apprenticeship model ("see one, do one")

• Challenges in current training model
  • Subjectivity in training
  • Difficulty in integrating technical and cognitive aspects (i.e. interpretation of findings) of endoscopy at early stages of training
Evolving Competency Expectations

• ACGME has outlined milestone-based expectations to achieve competency in Internal Medicine sub-specialties

In order to ensure quality metrics are met, ASGE created Assessment of Competency in Endoscopy (ACE) tool

ASGE Assessment of Competency in Endoscopy (ACE), EGDT Skills Assessment Tool

Failure:
Staff:
Date of procedure:
Time of Intubation:
Time of Maximal Intubation Extent:

1. Fellow’s knowledge of the indication & pertinent medical issues (INR, Viral, Allergies, PMH etc.):
   - NA. Fellow observed
   - F. Novice (Poor knowledge of patient’s issue, or started sedating without knowing the indication)
   - I. Intermediate (Missed an important element, i.e. Allergies, GI Surgical History or INR is pt on Coumadin)
   - A. Advanced (Missed minor elements)
   - S. Superior (Appropriate knowledge and integration of patient information)

2. Management of patient discomfort during this procedure (sedation titration, intubation management, lope reduction):
   - NA. Fellow observed
   - F. Novice (Does not quickly recognize patient discomfort or requires repeated stuff prompting to act)
   - I. Intermediate (Recognizes pain but does not address in a timely manner)
   - A. Advanced (Adequate recognition and correction measures)
   - S. Superior (Competent continuous assessment & management, i.e. intermittent reassessment sedation level and comfort)

3. What is the first step landmark the fellow reached without any hands-on assistance?
   - NA. Fellow observed only or Procedure terminated before completion
   - H. Hypopharynx
   - D. Distal esophagus
   - S. Stomach
   - D. Duodenal bulb
   - X. Second portion of the duodenum
   - O. Other (Post-surgical anatomy encountered, fellow reached maximal intubation)

4. Scope tip control/ advancement techniques (esophageal intubation, transpyloric pylorus & duodenal sweep):
   - NA. Fellow observed
   - F. Novice (Unable to intubate esophagus or traverse pylorus without significant coaching or assistance)
   - I. Intermediate (Slow advancement, wide tip motion, repeated attempts needed to intubate esophagus or traverse pylorus)
   - A. Advanced (Reasonable fine tip control for intubation, transpyloric pylorus and inspection)
   - S. Superior (Safe & effective technique, efficient independent advancement without the need for coaching)

5. Adequately visualized mucosa during withdrawal (including reperfusion):
   - NA. Fellow observed withdrawal
   - F. Novice (Difficulty with reperfusion, requires assistance to visualize significant portions of the mucosa)
   - I. Intermediate (Able to visualize much of the mucosa but required direction to re-explore missed areas)
   - A. Advanced (Able to adequately visualize most of the mucosa without coaching)
   - S. Superior (Competent visualization around difficult turns and folds and good use of suction/ cleaning techniques)

6. Pathology identification/ interpretation:
   - NA. Study not normal (Go to Question 7)
   - F. Novice (Poor recognition of abnormalities. Misses or does recognize significant pathology)
   - I. Intermediate (Recognizes abnormal findings but cannot interpret, i.e. “erythema”)
   - A. Advanced (Recognizes abnormality and correctly interprets, i.e. “erythema suggests gastritis”)
   - S. Superior (Competent identification & assessment, e.g. “erythema with erosions in a pattern suggestive of NSAID gastropathy”)

7. Interventions performed by fellow:

CHECK ALL THAT APPLY:
- NA – Fellow did not perform any interventions (go to question 8)
- Reversal
- Sedation
- Antacids
- Hemostasis
- EGD tube placement
- APC vessel lesion ablation (APTC, APVE)
- Other

Hypothesis and Validation

• Novice endoscopists, i.e. first year fellows, will show improvement in confidence and competency with a novel, smartphone based endoscopy training application (supplementing standard training approach)

• Feasibility testing performed with assistance of 6 first year GI fellows at Baylor College of Medicine
The gastroesophageal junction is demarcated by the squamocolumnar junction or the "z-line." It is important to look for irregularity of the z-line, as this may be a sign of conditions such as esophagitis or Barrett’s esophagus. The location of the Z-line should be denoted by its distance from the incisors.
Results

• After use of the smartphone application, all fellows showed improvement in confidence in the following areas:
  • Obtaining informed consent
  • Esophageal intubation
  • Identification of gastric landmarks (greater/lesser curvature, antrum etc.)
  • Entering second portion of duodenum
  • Identifying and managing post-procedural complications
Results

- 5/6 fellows reported they were somewhat to much more likely to use a smartphone app to help identify abnormal GI pathology and to obtain information on treatment/management guidelines

- 4/6 fellows reported increased confidence with performing upper endoscopy

- 5/6 fellows reported increased confidence in their ability to identify abnormal pathology

- All fellows demonstrated improvement in objective questions measuring competency with interpreting EGD findings
Conclusions

• Fellows showed improvement in cognitive and technical aspects of upper endoscopy with use of a smartphone application

• Fellows were receptive to the use of such a training tool

• There is a need to develop novel training tools to adapt to learning styles of incoming novice endoscopists.
Future Directions

• Expansion to iOS
• Creation of augmented and virtual reality partner tools to expand the range of simulation-based training tools
• Larger, randomized study to evaluate validity of novel training tools