Participating in the Webinar

All attendees will be muted and will remain in Listen Only Mode.

Type your questions here so that the moderator can see them. Not all questions will be answered but we will get to as many as possible.

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LIVE VIRTUAL GRAND ROUNDS WEBINAR
ACG will send a link to a CME & MOC evaluation to all attendees on the live webinar.

ABIM Board Certified physicians need to complete their MOC activities by December 31, 2021 in order for the MOC points to count toward any MOC requirements that are due by the end of the year. No MOC credit may be awarded after March 1, 2022 for this activity.
MOC QUESTION
If you plan to claim MOC Points for this activity, you will be asked to: Please list specific changes you will make in your practice as a result of the information you received from this activity.

Include specific strategies or changes that you plan to implement. THESE ANSWERS WILL BE REVIEWED.

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Samantha Nazareth, MD
July 15, 2021 at Noon Eastern

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Phillip K. Henderson, DO
July 22, 2021 at Noon Eastern

Visit gi.org/ACGVGR to Register
Disclosures:

Speaker:
Katarina B. Greer, MD, MS Epi
Dr. Greer, faculty for this educational event, has no relevant financial relationship(s) with ineligible companies to disclose.

Moderator:
Rena H. Yadlapati, MD, MHS
Consulting agreement: Phathom Pharmaceuticals
Institutional Consulting Agreement: Medtronic, Ironwood
Medical Advisory Board with Stock Options: RJS Mediagnostix

*All of the relevant financial relationships listed for these individuals have been mitigated

Achalasia: Clinical Practice Guideline Update
Virtual Grand Rounds
Dr. Katarina B. Greer, MD/MS
July 8th, 2021
Achalasia: Clinical Practice Guideline Update

• Outline
  • ACG Guideline development process
  • Summary of diagnostic workup
  • Available treatment options based on patient’s functional status
  • When is POEM the preferred treatment option
  • Management of previously treated patients

Vaezi MF, Pandolfino JE, Yadlapati RH, Greer KB, Kavitt RT.
ACG Clinical Guidelines: Diagnosis and Management of Achalasia, PMID: 32773454.
Achalasia: Guideline Development

Questions Relevant to Diagnosis of Achalasia

• Who should be evaluated for achalasia?
• What tests should be included in the evaluation of achalasia?
• What is the benefit of defining achalasia subtype?
Achalasia: Diagnostic Evaluation

Figure 1. (a) Endoscopic appearance of foam and saliva in the esophagus in achalasia. (b) Folds in the esophagus at the gastroesophageal junction requiring more than usual pressure to traverse in achalasia. (c) Barium swallow showing dilated esophagus with retained barium and "bird beak". 

Confidence in Diagnosis of Achalasia Based on High Resolution Manometry

- Conclusive diagnosis of achalasia
- Inconclusive diagnosis of achalasia
  - Provocative testing
  - Role of Timed Barium swallow
  - Role of Functional Luminal Imaging Probe

Updated manometry protocol – CC4.0

Patterns of Achalasia with FLIP

A) Absent contractile response
B) Distention induced contractility without repetitive retrograde contractions (RRC)
C) RRC
D) Sustained occluding contractions


Type III Achalasia Pattern and Opioid Use

- Opioids appear to cause opioid induced esophageal dysfunction (OIED) by interfering with inhibitory signals in the esophagus

Ravi K et al. Diseases of the Esophagus (2016) 29, 15–21
Achalasia Guideline: Diagnosis

<table>
<thead>
<tr>
<th>Statement</th>
<th>GRADE Quality</th>
<th>Strength of recommendation</th>
</tr>
</thead>
<tbody>
<tr>
<td>We recommend that patients who are initially suspected of having GERD but do not respond to acid-suppressive therapy should be evaluated for achalasia.</td>
<td>Very low</td>
<td>STRONG</td>
</tr>
<tr>
<td>We recommend using esophageal pressure topography over conventional line tracing for the diagnosis of achalasia</td>
<td>High</td>
<td>STRONG</td>
</tr>
<tr>
<td>We suggest that classifying achalasia subtypes by the Chicago Classification may help inform both prognosis and treatment choice</td>
<td>Low</td>
<td>CONDITIONAL</td>
</tr>
</tbody>
</table>

ACG Clinical Guidelines: Diagnosis and Management of Achalasia, PMID: 32773454.

Treatment of Achalasia

- Pharmacotherapy
  - Calcium channel blockers\(^1\)
  - Nitrates\(^2\)
  - Others: anticholinergics, terbutaline, theophylline, sildenafil\(^3,4\)
  - Decrease in LES pressure, improvement of symptoms in 0-87% of patients
  - Side-effects: headaches, hypotension, pedal edema
  - These should be used only in patients who are not candidates for definitive therapies

Treatment of Achalasia: Botulinum Toxin (BOTOX)

<table>
<thead>
<tr>
<th>Author</th>
<th>Year</th>
<th>Design</th>
<th>Follow-up (mo)</th>
<th>N</th>
<th>Decrease LESP (%)</th>
<th>Patients With Symptom Improvement (%)</th>
<th>Perforation After Dilatation n (%)</th>
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</thead>
<tbody>
<tr>
<td>Ammer et al.</td>
<td>1996</td>
<td>RCT</td>
<td>12</td>
<td>38</td>
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<td>49</td>
<td>100</td>
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<td>Vaezi et al.</td>
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<td>12</td>
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<td>6</td>
<td>66</td>
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<tr>
<td>Prakash et al.</td>
<td>1999</td>
<td>PC</td>
<td>24</td>
<td>26</td>
<td>42</td>
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<td>Mushholfer et al.</td>
<td>1999</td>
<td>RCT</td>
<td>30</td>
<td>12</td>
<td>12</td>
<td>51</td>
<td>44</td>
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<tr>
<td>Mikhail et al.</td>
<td>2001</td>
<td>RCT</td>
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<td>20</td>
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<td>24</td>
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<tr>
<td>Bussel et al.</td>
<td>2003</td>
<td>RCT</td>
<td>10</td>
<td>18</td>
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<td>19</td>
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<tr>
<td>Allesscher et al.</td>
<td>2001</td>
<td>PC</td>
<td>24</td>
<td>14</td>
<td>23</td>
<td>61</td>
<td>52</td>
</tr>
</tbody>
</table>

*EBTI indicates endoscopic botulinum toxin injection; LESP, low esophageal sphincter pressure; RCT, randomized controlled trial; PC, prospective cohort case-control series.


Does Botulinum Treatment Injection (BTI) Limit Future Therapeutic Interventions?

- Studies in swine esophagi showed increased tissue scarring after BTI
- Observational data show conflicting results
  - No effect
  - Increased risk of complications with future procedures
- Limitation: small studies, short term follow up periods

Treatment Options for Achalasia

• In patients with achalasia who are candidates for definitive therapy:
  • Pneumatic dilatation (PD), Laparoscopic Heller myotomy (LHM), and Per-oral
    Endoscopic Myotomy (POEM) are comparable effective therapies for type 1 or
    type 2 achalasia
  • POEM is the preferred treatment option for those with type III achalasia

Vaezi MF et al. PMID: 32773454.

Treatment of Achalasia

• Pneumatic dilatation
  • Standard dilators do not disrupt muscularis propria
  • 30, 35, 40mm dilators
  • The pressure required is usually 10–15 psi of air held for 15–60 seconds
  • All patients must be candidates for surgery
    • ~ perforation in 1.9% (1-10%)
    • Symptom response in 74-90% of patients
  • Predictors of favorable response – older age (>45yo), female sex, narrow
    esophagus, LES pressure of less than 10mm after PD
  • Routine esophagogram does not need to be obtained after PD
Treatment: Pneumatic Dilatation

- Direct treatment comparisons
  - PD vs. POEM\(^1\)
  - PD vs. LHM\(^2-4\)
  - PD vs. Endoscopic BTI\(^5,6\)
  - PD vs. Medical therapy\(^7\)


Treatment for Achalasia – Heller Myotomy (HM)

- Involves division of circular muscle fibers of the LES
  - Open thoracic myotomy success ~83%
  - Laparoscopic HM (LHM) success ~ 89%
    - Efficacy decreases over follow up
    - Achalasia type determines success of LHM (Type I- 81%, Type II- 92%, Type III- 72%)
  - RCT data supports addition of fundoplication to myotomy to help decrease GERD symptoms
    - Short term: 47% GERD if no fundoplication vs. 9% in patients with Dor
    - Long term follow up data

Treatment of Achalasia: POEM

- Advantage of POEM is that the length of myotomy can be tailored
- POEM more successful than LHM for patients with type III achalasia (OR 3.50, 1.39–8.77; p< 0.007)


Who is the Ideal POEM Candidate?

- Patient who has appropriate indication for procedure
  - Appropriate patient, competent interventionist
- Preferred in Type 3 achalasia
- POEM can be an effective treatment in unique patient populations
  - Prior incomplete myotomy
  - Patients with prior obesity surgery
Who Should Not be Offered POEM?

- Patients with severe coagulopathy
- Severe fibrosis from prior endoscopic treatments
- Severe esophagitis
  - Risk of esophagitis after POEM
- Inability to tolerate anesthesia, poor compliance with peri- and post-intervention recommendations

Outcomes of Treatments

POEM

- Highest rate of severe esophagitis after procedure
  - ~5.3% vs 3.7% in LHM and 1.5% in PD

LHM

- Highest rate of procedure related SAEs
  - ~6.7% vs. 4.7% in PD and 1.4% in POEM

PD

- Lowest ranked treatment strategy

Achalasia Guideline: Treatment

<table>
<thead>
<tr>
<th>Statement/Grade Quality/Strength of recommendation</th>
<th>GRADE Quality</th>
<th>Strength of recommendation</th>
</tr>
</thead>
<tbody>
<tr>
<td>We recommend that PD is superior to medical therapy in relieving symptoms and physiologic parameters of esophageal emptying.</td>
<td>Very low</td>
<td>STRONG</td>
</tr>
<tr>
<td>We recommend that PD or LHM are both effective and equivalent short- and long-term procedures for patients with achalasia who are candidates to undergo definitive therapy.</td>
<td>High</td>
<td>STRONG</td>
</tr>
<tr>
<td>We recommend botulinum toxin injection as first-line therapy for patients with achalasia who are unfit for definitive therapies compared with other less effective pharmacological therapies.</td>
<td>Moderate</td>
<td>STRONG</td>
</tr>
<tr>
<td>We recommend that myotomy with fundoplication is superior to myotomy without fundoplication in controlling distal esophageal acid exposure.</td>
<td>Moderate</td>
<td>STRONG</td>
</tr>
</tbody>
</table>

ACG Clinical Guidelines: Diagnosis and Management of Achalasia, PMID: 32773454.

Treatment Failure

- Comprehensive assessment
  - Eckhardt score
  - Timed barium swallow
  - High resolution manometry
Treatment Options After Failed Initial Interventions

- Pneumatic dilatation
- Revision of myotomy
- POEM
- Esophagectomy
- BOTOX injection

Recommendations for Treatment

Failed initial therapy:
- PD is safe treatment option for patients with achalasia who had prior surgical myotomy or POEM
- POEM is a safe option in patients with achalasia who have previously undergone PD or LHM
- Heller myotomy should be considered before esophagectomy in patients who have failed PD and POEM
Summary of Management of Achalasia

Questions?

Speaker: Katarina B. Greer, MD, MS Epi

Moderator: Rena H. Yadlapati, MD, MHS