A Review of Barrett's Esophagus

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Barrett’s Esophagus is a premalignant condition that predisposes patients to the development of esophageal adenocarcinoma. Esophageal adenocarcinoma dramatically rising over several decades; survival rates of less than 17% in a five-year period. Early detection and treatment continues to evolve; use of radio-frequency ablation effective to treat low grade dysplasia. Studies of risk factors and treatment options explored: Efficacy and durability of endoscopic radiofrequency ablation for treatment of low grade dysplasia as option for metaplasia eradication – Gastrointestinal pathologist experts review on identification of dysplasia prior to treatment – Appropriate endoscopic surveillance intervals – Gastroenterology guidelines for screening and surveillance for long term management – Lifelong endoscopic surveillance individualized to monitor for recurrence of metaplasia

Introduction
Barrett’s Esophagus (BE) is a pre-malignant, dysplastic condition of the distal esophagus that predisposes patients to the development of esophageal adenocarcinoma. Gastroesophageal reflux disease is the precursor to the esophagus. Early RFA treatment in BE Surveillance evaluation for men and women with history of BE; BE without dysplasia, upper endoscopic surveillance, reduce the progression to EAC. Appropriate endoscopic surveillance intervals to further determine successful treatment durability of early endoscopic RFA and the appropriate extent and length of LGD is a predictor of progression to EAC.

Statement of the Problem
• Recommendations for the management and treatment of Barrett’s esophagus continue to evolve, now expanding the use of radio-frequency ablation (RFA) for the treatment of low grade dysplasia BE, previously observed with endoscopic surveillance until advancement to high grade dysplasia. Risk factors associated with the development of Barrett’s esophagus need to be studied due to the increasing burden of conditions associated with the progression to esophageal adenocarcinoma.
• More studies are needed to evaluate the long term efficacy and durability of early endoscopic RFA and the appropriate surveillance intervals to further determine successful treatment of dysplastic BE and reduction of EAC.

Research Question
• In adult patients with non-dysplastic or low grade dysplasia BE, as compared to high grade dysplasia BE, what risk factors predict the progression to EAC? In adult patients diagnosed with low grade dysplasia BE, does earlier treatment with RFA, compared to standard intermittent endoscopic surveillance, reduce the progression to EAC? In adult patients with complete eradication of Barrett’s esophagus, what influences the recurrence of dysplastic progression after successful RFA?

Literature Review
Review of the updated recommendations with consideration of identified risk factors is essential to ensure adequate diagnosis and treatment of BE considering the devastation of progression to EAC. Pathophysiology of Barrett’s Esophagus Main precursor for development of BE is a chronic reflux of stomach acids into the lower esophagus, inducing a premalignant condition in which normal squamous epithelial lining of the esophagus is replaced with columnar epithelium and goblet cells, also known as intestinal metaplasia. Degrees of neoplastic change occur during the sequence of epithelial transformation predisposing to the development of EAC. Risk factors for the dysplastic transitions in BE and EAC – Wani, et al. (2011), the Barrett’s Esophagus Study (BEST), identified risk factors for progression of LGD to EAC to include BE length, age > 60, presence of intestinal metaplasia and Caunician male. Poh! (et al., 2013), reported combinations of certain risk factors influence disease progression at different times. Singh, et al. (2014), found the grade of dysplasia, the length of the BE segment, and the use of expert pathologists determined progression of BE to EAC. Early RFA treatment in BE-LGD to reduce the progression to EAC – Shaheen et al. (2011), in the AIM Dysplasia Trial, found early dysplastic BE can be successfully treated with RFA with a durability of up to three years. The SURF study (Surveillance vs Radiofrequency Ablation) by Phoa, et al. (2014) reported the ablative group risk for progression to HGD/EAC was reduced by 25.0% (95%CI, 14.1-35.9%). P; P<0.05. Bulsiewicz et al. (2013) found 77% of the patients, achieved complete eradication of intestinal metaplasia after RFA despite the degree of dysplasia. Success of RFA depended on healing time between RFA treatments and the length of the BE segment.
• Determine effective follow-up endoscopic surveillance intervals after RFA. Gupta, et al. (2013) analyzed data regarding return of intestinal metaplasia after successful RFA. The median time to CRIM was 22 months with 56% in complete remission by 24 months. The findings suggest the importance of longer term endoscopic surveillance follow up after successful RFA in subjects with varying degrees of BE dysplasia.

Gastroenterology society guidelines for screening and surveillance in Barrett’s Esophagus

<table>
<thead>
<tr>
<th>Gastroenterology Society</th>
<th>Screening</th>
<th>Surveillance NOBE</th>
<th>Surveillance LGD</th>
<th>Surveillance HGD</th>
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<tbody>
<tr>
<td>American Gastroenterology Association</td>
<td>Screen for patients with multiple risk factors: 50+ yrs, old, male, white race, chronic GERD; Hiatal hernia, elevated body mass index, intra-abdominal distribution of body fat. No screening for general population</td>
<td>No dysplasia, surveillance every 3-5 years</td>
<td>Low grade dysplasia, every 6-12 months</td>
<td>High grade dysplasia unable to eradicate: every 3 months</td>
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<tr>
<td>American Society for Gastrointestinal Endoscopy</td>
<td>Consider endoscopic screening in patients with multiple risk factors for BE and EAC. Inform patients this is not a cancer prevention</td>
<td>Consider no surveillance, or yearly 3.5 yrs with upper GI biopsy, ablation in select cases</td>
<td>Confirm with all expert; repeat endoscopic biopsy if confirm LGD. Yearly surveillance. Endoscopic resection or ablation if warranted.</td>
<td>Confirm with all expert; Consider surveillance EGD 3 no. in select patients; Endoscopic resection, RFA, or surgical consultation</td>
</tr>
<tr>
<td>American College of Physicians</td>
<td>Upper endoscopy in men &gt;56 yrs. old with chronic GERD and additional risk factors</td>
<td>Surveillace evaluation for men and women with history of BE. Without dysplasia, surveillance frequency 3.5 yes. more frequent in patients with BE and dysplasia</td>
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Applicability to Clinical Practice
• Primary care providers need to consistently identify risk factors such as age, race, diet, tobacco, obesity and duration of GERD symptoms when determining candidates for early endoscopic screening for BE.
• Factors that predict the progression of non-dysplastic BE to EAC include the initial dysplasia histology and the length of the BE segment.
• Counsel and teach patients regarding control of modifiable risk factors with emphasis of tobacco cessation and management of GERD.
• A diagnosis of EAC has poor survival rates. Risk stratification can help patients make and maintain good decisions for a better overall health outcome.
• Establish a trusting provider to patient relationship so facts regarding BE and the risks of progression to EAC can be clearly shared and communicated.
• Endoscopic therapy with radiofrequency ablation is now the standard of care for treatment of dysplastic BE. It has high rates of success and durability when used alone or in combination with other gastric therapy.
• Follow-up should be individualized, and treatment decisions should reflect consideration of current guidelines. Lifestyle modification should be exhausted before ablative therapy is deemed.

References

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