

# CLINICAL TRIAL PUBLICATIONS SUMMARY

USE	PAPER/TRIAL	AUTHORS/PUB	HIGHLIGHTS
BE	AIM Dysplasia Randomized Controlled Trial: One-year follow-up	Shaheen NJ, Sharma P, Overholt BF, et al. Radiofrequency Ablation in Barrett's Esophagus with Dysplasia. N Engl J Med 2009;360:2277-2288.	<ul style="list-style-type: none"> <li>• Randomized, sham-controlled trial conducted at 19 U.S. centers</li> <li>• 127 patients with Barrett's high-grade or low-grade dysplasia (up to 8 cm length)</li> <li>• Expert pathology lab (Cleveland Clinic) reviewed all biopsies for study endpoints</li> <li>• Random assignment to either RFA or a sham intervention (no RFA)</li> <li>• Frequent biopsies of the esophagus were performed to assess outcomes</li> <li>• All patients received high-dose esomeprazole</li> <li>• 77% complete eradication of IM vs. 2% control (p&lt;0.001)</li> <li>• 91% complete eradication of low grade dysplasia vs. 23% control (p&lt;0.001)</li> <li>• 81% complete eradication of high grade dysplasia vs. 19% control (p&lt;0.001)</li> <li>• 87% lower cancer incidence in RFA (1.2%) vs. control (9.3%) (p&lt;0.05)</li> <li>• 78% lower overall disease progression in RFA (3.6%) vs. control (16.3%) (p&lt;0.05)</li> <li>• At 1 year, buried glands were present in 5% of RFA vs. 40% of control (p&lt;0.001)</li> <li>• Adverse events: 2 overnight admissions for chest pain, 1 GI bleed in RFA</li> <li>• Strictures: 5 patients in RFA (6% of patients, 1.7% of procedures)</li> </ul>
BE	AIM Dysplasia Randomized Controlled Trial: Two- and three-year follow-up	Shaheen NJ, Fleischer DE, Eisen GM, et al. Durability of Epithelial Reversion after Radiofrequency Ablation: Follow-up of the AIM Dysplasia Trial. Gastroenterology 2011;141:460-468.	<ul style="list-style-type: none"> <li>• At 2 and 3 years, CR-IM and CR-D maintained in &gt;90% of patients with allowance of limited focal RFA (touch up)</li> <li>• In Kaplan-Meier survival analysis, dysplasia remained eradicated in &gt;85% and IM in &gt;75%, without maintenance RFA (with mean follow-up &gt; 3 years)</li> </ul>
BE	AIM II 2.5-year follow-up Trial	Fleischer DE, Overholt BF, Sharma VK, et al. Endoscopic ablation of Barrett's esophagus: a multicenter study with 2.5 year follow-up. Gastrointest Endosc 2008; 68:867-876.	<ul style="list-style-type: none"> <li>• Dosimetry and effectiveness trial in two phases, non-dysplastic IM 2-6 cm</li> <li>• 70% Complete Response (CR) at 1 yr (HALO<sup>360</sup> only), and 98.4% CR at 2.5 yrs (addition of HALO<sup>90</sup>)</li> </ul>

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BE	AIM II 5-year Durability Trial	Fleischer DE, Overholt BF, Sharma VK, et al. Endoscopic radiofrequency ablation for Barrett's esophagus: 5-year outcomes from a prospective multicenter trial. <i>Endoscopy</i> 2010;42:781-789.	<ul style="list-style-type: none"> <li>• Assess durability of CR-IM at 5 years (after 2.5 year CR-IM) years</li> <li>• 92% of patients maintained CR-IM at 5 yrs</li> <li>• No neoplastic progression</li> </ul>
BE	AIM Dysplasia Randomized Controlled Trial: Quality of life (QoL)	Shaheen NJ, Peery AF, Hawes RH, et al. Quality of life following radiofrequency ablation of dysplastic Barrett's esophagus. <i>Endoscopy</i> 2010;42:790-799.	<ul style="list-style-type: none"> <li>• Assess whether RFA of dysplastic BE improves QoL compared to sham</li> <li>• Compared with sham, RFA patients had significantly less worry about esophageal cancer and esophagectomy, and, significantly reduced depression and impact on work and family life</li> </ul>
BE	EURO I Trial	Pouw RE, Wirths K, Eisendrath P, et al. Efficacy of radiofrequency ablation combined with endoscopic resection for Barrett's esophagus with early neoplasia. <i>Clin Gastroenterol Hepatol</i> 2010;8:23-29.	<ul style="list-style-type: none"> <li>• First multi-center trial evaluating combined-approach EMR + RFA in Barrett's esophagus with early neoplasia</li> <li>• 24 patients</li> <li>• 100% CR-D, 96% CR-IM</li> <li>• Median 22 months follow-up</li> </ul>
BE	AIM-LGD Trial	Sharma VK, Kim HJ, Das A, et al. A prospective pilot trial of ablation of Barrett's esophagus with low-grade dysplasia using stepwise circumferential and focal ablation (HALO System). <i>Endoscopy</i> 2008;40:380-387.	<ul style="list-style-type: none"> <li>• Circumferential and focal ablation of Barrett's esophagus with low-grade dysplasia: one- and two-year follow-up</li> <li>• First study evaluating use of the HALO System in low-grade dysplasia patients</li> <li>• At 2 year follow-up: CR-LGD 100% and CR-IM 90%</li> </ul>
BE	HGD Registry	Ganz RA, Overholt BF, Sharma VK, et al. Circumferential ablation of Barrett's esophagus that contains high-grade dysplasia: A U.S. multi-center registry. <i>Gastrointest Endosc</i> 2008;68:35-40.	<ul style="list-style-type: none"> <li>• HALO<sup>360+</sup> circumferential ablation is safe and effective for the treatment of Barrett's esophagus with high-grade dysplasia</li> <li>• First U.S. multi-center high-grade dysplasia experience</li> <li>• CR-HGD 90%</li> <li>• #1 most accessed article from ScienceDirect July - September 2008</li> </ul>

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USE	TITLE	AUTHORS/PUB	HIGHLIGHTS
BE	Academic Medical Center Trials (AMC-I and II), stepwise ablation of Barrett's esophagus with high-grade dysplasia	Gondrie JJ, Pouw RE, Sondermeijer CM, et al. Stepwise circumferential and focal ablation of Barrett's esophagus with high-grade dysplasia: results of first prospective series of 11 patients. <i>Endoscopy</i> 2008;40:359-369.  Gondrie JJ, Pouw RE, Sondermeijer CM, et al. Effective treatment of early Barrett's neoplasia with stepwise circumferential and focal ablation using the HALO system. <i>Endoscopy</i> 2008;40:370-379.	<ul style="list-style-type: none"> <li>• Combined modality therapy using EMR to remove visible abnormalities followed by stepwise circumferential and focal RFA for flat BE containing dysplasia is safe and effective.</li> <li>• CR-Dysplasia 100%, CR-IM 100%</li> </ul>
BE	AMC Experience	Pouw RE, Gondrie JJ, Sondermeijer CM, et al. Eradication of Barrett esophagus with early neoplasia by radiofrequency ablation, with or without endoscopic resection. <i>J Gastrointest Surg</i> 2008 Oct;12(10):1627-36; discussion 1636-1637.	<ul style="list-style-type: none"> <li>• 44 patients with dysplasia or early CA underwent stepwise ablation, median BE segment length 7 cm</li> <li>• 31 patients first underwent endoscopic resection for visible abnormalities</li> <li>• CR-D and CR-IM 98% (43/44 patients) at median 21 months follow-up</li> </ul>
BE	Cost-effectiveness Analyses	Inadomi JM, Somsouk M, Madanick RD, et al. A cost-utility analysis of ablative therapy for Barrett's esophagus. <i>Gastroenterology</i> 2009;136:2101-2114.  Das A, Wells C, Kim HJ, et al. An economic analysis of endoscopic ablative therapy for management of nondysplastic Barrett's esophagus. <i>Endoscopy</i> 2009;41:400-408.	<ul style="list-style-type: none"> <li>• Authors employed a decision analysis model to compare the cost-utility of ablation with that of endoscopic surveillance in patients with all grades of BE.</li> <li>• Using conservative efficacy assumptions, treatment of any grade of BE with endoscopic ablation is likely the most cost-effective management approach. "If ablation permanently eradicates <math>\geq 28\%</math> of LGD or 40% of nondysplastic metaplasia, ablation would be preferred to surveillance." (Inadomi, et al.)</li> <li>• "Within the limits of the model, ablation for non-dysplastic Barrett's esophagus is more cost-effective than endoscopic surveillance." (Das, et al.)</li> <li>• Conclusion: Endoscopic eradication therapy for LGD and NDBE is more cost-effective than endoscopic surveillance alone.</li> </ul>

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USE	TITLE	AUTHORS/PUB	HIGHLIGHTS
BE	Mayo Dysplasia Experience	Sharma VK, Kim HJ, Das A, et al. Circumferential and focal ablation of Barrett's esophagus containing dysplasia. Am J Gastroenterol 2009 ;104:310-317.	<ul style="list-style-type: none"> <li>• "CR for dysplasia in 95 % and 79 % of LGD and HGD patients, respectively."</li> <li>• Conclusion: "the relative ease of use, low cost, and lack of significant side-effect profile are compelling reasons to continue to utilize and study this particular treatment modality."</li> </ul>
BE	The Pre-Clinical Dosimetry and Human Esophagectomy Trial	Ganz RA, Utley DS, Stern RA, et al. Complete ablation of esophageal epithelium with a balloon-based bipolar electrode: a phased evaluation in the porcine and in the human esophagus. Gastrointest Endosc 2004; 60:1002-1010.	<ul style="list-style-type: none"> <li>• Established initial energy density dose range of 6-12 J/cm<sup>2</sup></li> </ul>
BE	Motility Before and After RFA	Beaumont H, Gondrie JJ, McMahon BP, et al. Stepwise radiofrequency ablation of Barrett's esophagus preserves esophageal inner diameter, compliance, and motility. Endoscopy 2009;41:2-8.	<ul style="list-style-type: none"> <li>• Evaluation of whether RFA has an adverse effect on esophageal function in patients treated for Barrett's esophagus.</li> <li>• Assessed esophageal inner diameter, lower esophageal sphincter pressure and length, esophageal contraction amplitude, and compliance before and after RFA in 12 patients.</li> <li>• The functional characteristics of the esophagus are preserved after RFA.</li> </ul>
BE	Characteristics of Neo-squamous Epithelium after RFA	Pouw RE, Gondrie JJ, Rygiel AM, et al. Properties of the neosquamous epithelium after radiofrequency ablation of Barrett's esophagus containing neoplasia. Am J Gastroenterol 2009;104:1366-1373.	<ul style="list-style-type: none"> <li>• Evaluation of post-RFA neo-squamous epithelium for genetic abnormalities and buried glandular mucosa</li> <li>• Rigorous evaluation of the post-RFA neo-squamous epithelium in 22 BE patients showed neither persistent genetic abnormalities nor buried glandular mucosa.</li> </ul>

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GAVE	HALO <sup>90</sup> for Treatment of GAVE	Gross SA, Al-Haddad M, Gill KR, et al. Endoscopic mucosal ablation for the treatment of gastric antral vascular ectasia with the HALO90 system: a pilot study. <i>Gastrointest Endosc</i> 2008;67:324-327.	<ul style="list-style-type: none"> <li>• 6 patients underwent a mean of 1.7 focal HALO<sup>90</sup> RFA sessions</li> <li>• Mean Hgb improved from 8.6 to 10.2 g/dl</li> <li>• 5/6 patients no longer transfusion dependent</li> </ul>
RP	Using RFA for Chronic Radiation Proctitis	Zhou C, Adler DC, Becker L, et al. Effective treatment of chronic radiation proctitis using radiofrequency ablation. <i>Ther Adv Gastroenterol</i> 2009;2:149-156.	<ul style="list-style-type: none"> <li>• 3 patients treated with 1-2 focal HALO<sup>90</sup> RFA sessions</li> <li>• 12-17 month follow-up</li> <li>• Resolution of bleeding in all</li> <li>• On endoscopy – neosquamous re-epithelialization</li> </ul>
RP	Using RFA for Chronic Radiation Proctitis	Nikfarjam M, Faulx A, Laughinghouse M, Marks JM. Feasibility of Radiofrequency Ablation for the Treatment of Chronic Radiation Proctitis. <i>Surg Innov</i> 2010;17:92-94.	<ul style="list-style-type: none"> <li>• Case report: 77 yo M with chronic hemorrhagic RP; failed APC therapy</li> <li>• 3 focal HALO<sup>90</sup> RFA sessions</li> <li>• No significant bleeding after 1st treatment</li> <li>• Patient symptom free at 6 months follow-up</li> </ul>