of complete or incomplete bolus transit based on MII studies. Studies with manometric diagnosis of normal or ineffective esophageal motility (IEM) were included, while diagnoses of achalasia, hypertensive lower esophageal sphincter, or nutcracker esophagus were excluded. The results were statistically analyzed using a nonparametric test (Mann Whitney) and receiver operating characteristic (ROC) analyses to determine the sensitivity and specificity of the cut-off DCI value that corresponded to incomplete bolus transit for both liquid and viscous swallows.

Results: Table 1 shows the mean and median DCI values for liquid and viscous swallows. ROC analyses of the DCIs indicated a cut off value of <1021 with sensitivity of 78.6% and specificity of 68% to identify incomplete bolus transit during liquid swallows (Figure 1A) and cut off value of <1129 with sensitivity of 87.7% and specificity of 59.5% to identify an incomplete bolus transit during viscous swallows (Figure 1B). The performance of a diagnostic variable can be quantified by calculating the areas under the ROC curve (AUROC). AUROC for liquid and viscous were 0.783 (95% CI 0.732-0.829; P < 0.0001) and 0.759 (95% CI 0.699-0.813; P < 0.0001), respectively. The ideal test would have AUROC of 1, whereas a random guess would have AUROC of 0.5. We also analyzed the sensitivity and specificity for the DCI cut off value of 300 reported by Xiao et al (2012) for IES. Our data indicated a sensitivity of 59.5% and specificity of 84.4% for liquid swallows and sensitivity of 53.5% and specificity of 81.6% for viscous swallows.

Conclusion: Low DCI (<1021 for liquid swallows and <1129 for viscous swallows) is associated with incomplete bolus transit on MII with higher sensitivity for viscous swallows.

<table>
<thead>
<tr>
<th>Type of swallow</th>
<th>n (number of swallows)</th>
<th>Median DCI (mm Hg<em>s</em>cm⁻¹)</th>
<th>Mean DCI (mm Hg<em>s</em>cm⁻¹)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Liquid-Complete bolus transit</td>
<td>248</td>
<td>1539</td>
<td>2025</td>
</tr>
<tr>
<td>Liquid-Incomplete bolus transit</td>
<td>42</td>
<td>409.5</td>
<td>742.9</td>
</tr>
<tr>
<td>Viscous -Complete bolus transit</td>
<td>172</td>
<td>1410</td>
<td>2194</td>
</tr>
<tr>
<td>Viscous-Incomplete bolus transit</td>
<td>58</td>
<td>449</td>
<td>743.3</td>
</tr>
</tbody>
</table>

Table 1. Shows the median DCI, mean DCI, and number of swallows for complete and incomplete bolus transit for liquid and viscous swallows, respectively

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Bisphosphonates (BP) and Risk of Esophageal Cancer: A Meta Analysis of Observational Studies
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Purpose: BP are widely used for prevention and treatment of osteoporosis. BP can cause erosive esophagitis and delay healing. According to some, chronic use of BP may be associated with an increased risk of esophageal cancer. Epidemiological studies have evaluated the relationship between BP and the risk of esophageal cancer. However, the results are conflicting.

Methods: We performed a systematic review and meta-analysis of controlled observational studies to examine the association of BP use and the risks of esophageal cancer through a meta-analysis of studies published on this subject in peer-reviewed literature. A comprehensive search of MEDLINE from 1950-2012 was conducted. We also scanned the bibliographies of all retrieved articles for additional relevant articles. All controlled observational studies that compared esophageal cancer outcome in patients with BP to control group were included. We extracted adjusted effect estimates with standard error and calculated pooled odds ratios (ORs) and 95% confidence intervals (CI) using a random effects model (REM). The Cochrane Q X2 test was used to detect heterogeneity of the effects.

Results: 42 identified studies, 6 (3 cohort and 3 case-control) with 3,570 esophageal cancer patients were included in our analysis. Of these, 5 studies were performed in western countries, one in Taiwan. In BP users, compared with non users, the pooled OR for esophageal cancer was 1.02 (95% CI, 0.73-1.42), with no significant heterogeneity between studies (P=0.15). Sensitivity analysis was performed: 1) analysis that included only studies published in full-text form (n=3); and 2) study designs (cohort vs case-control). The pooled OR of the case control studies was marginally significant (OR 1.28, 95% CI, 1.01-1.63). Otherwise, we did not find any major changes in direction and magnitude of the summary estimates and p value of heterogeneity.

Conclusion: We found no association of oral BP and the increased risk of esophageal cancer at the population level.

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Endoscopic Radiofrequency Ablation in Long Segment Barrett’s Esophagus ≥ 8 cm
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Purpose: Radiofrequency ablation (RFA) has been shown to be a safe and effective endoscopic therapy for Barrett’s esophagus (BE) with dysplasia. Most studies have restricted RFA therapy to BE segments less than 8 cm. The present study assessed the safety and efficacy of RFA therapy for BE segments ≥ 8 cm, and compared characteristics between those who achieved complete eradication of intestinal metaplasia (CE-IM) to those who did not.

Methods: Retrospective review of 20 patients with BE with dysplasia (LGD, HGD, or IMC) ≥ 8 cm who underwent RFA. Patients who underwent RFA with a combination of HALO360/HALO90 (Barra), with or without history of endoscopic resection (ER) for visible abnormalities were included. Exclusion were prior treatment with photodynamic therapy or argon plasma coagulation, and ER specimens demonstrating cancer penetrating into the submucosa. Primary endpoint was measured as patients who achieved CE-IM on endoscopy and biopsy specimens.

Results: Of the 20 patients, worst histology prior to RFA treatment consisted of 5 LGD, 13 HGD, and 2 IMC. 14 patients (70%) achieved CE-IM, of which 6 achieved CE-IM at 12 months, and 8 achieved CE-IM at a mean of 21.9 months after first treatment. Of the 6 patients who did not achieve CE-IM, 4 had persistent IM without dysplasia, and 2 had progression from baseline. All 20 patients had a visible hiatal hernia on endoscopy. Age, BE length, and the number of RFA treatments did not show significant differences between the two groups. None of the patients had severe or fatal complications. One patient developed esophageal stricture requiring dilation.

Conclusion: The treatment of long-segment BE ≥ 8 cm containing dysplasia with RFA (± ER) is effective and safe. The presence of a hiatal hernia may represent a risk factor for the development of long segment BE. The time to achieving CE-IM in this subset of patients appears to be longer than short segment BE, requiring additional ablation treatments.