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#### 4.5. Endoscopic versus surgical therapy for early cancer in Barrett's esophagus: A decision analysis

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**Background:** Esophagectomy for early esophageal adenocarcinoma is associated with increased operative mortality and morbidity, but possibly a decreased recurrence rate compared with endoscopic therapy when using EMR and radiofrequency ablation.

**Objective:** To compare the cost-effectiveness of esophagectomy and endoscopic therapy in the treatment of early esophageal adenocarcinoma.

**Design:** Decision analysis model.

**Main Outcome Measurements:** Incremental cost-effectiveness ratio.

**Results:** During the 5-year study period, endoscopic therapy cost \$17,000.00 and yielded 4.88 quality-adjusted life years, compared with \$28,000.00 and 4.59, respectively, for esophagectomy. Varying the recurrence rates of cancer or Barrett's esophagus metaplasia after endoscopic therapy did not change the overall outcome. The sensitivity analysis demonstrated, however, that the outcome depended on the rate of lymph node involvement and operative mortality. Under the best of circumstances in favor of esophagectomy, such as 2% operative mortality, no reduced quality of life after esophagectomy, and a low 5-year survival rate after recurrence of endoscopic ablation, the risk of positive lymph nodes still needed to exceed 25% before esophagectomy became the preferred treatment option. This threshold is twice as high as the values reported for early submucosal cancer invasion.

**Limitations:** Limited data are available about the long-term outcome of EMR and radiofrequency ablation.

**Conclusions:** Endoscopic therapy for early Barrett's esophagus adenocarcinoma is more effective and less expensive than esophagectomy. Even in early esophageal adenocarcinoma with submucosal invasion, endoscopic therapy is a cost-effective alternative to esophagectomy, especially in patients with a high operative risk.