

The Relationship Between Patient Satisfaction and Use of Healthcare Services in Patients With Barrett's Esophagus Using Confocal Laser Endomicroscopy versus Standard of Care

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Introduction

- The global prevalence and burden of Barrett's esophagus, a precursor to esophageal adenocarcinoma, is increasing
- The object of the present study was to analyze patient satisfaction while comparing differences in gastroenterology health services utilization among patients treated using Cellvizio (Confocal Laser Endomicroscopy, CLE) versus standard of care

Methods

- A retrospective, multicenter chart review was conducted on 60 patients with Barrett's esophagus. Individuals were classified into 1 of 2 cohorts of 30 patients each according to whether they received at least 1 Cellvizio procedure (i.e., Cellvizio versus random 4-quadrant biopsy standard of care—also known as the Seattle Protocol)
- Patient age, gender, and 12 comorbidity indicators were also captured as covariates
- Bivariate differences in variable means across the 2 groups were assessed using the Kruskal-Wallis equality of populations test. Finally, linear multivariate models of the 8 health services measures were estimated
- Patients were also given a survey requesting them to rank their experience utilizing Cellvizio versus standard of care
- The satisfaction scale went from 1 (would not undergo again) to 10 (highly recommend)

Results

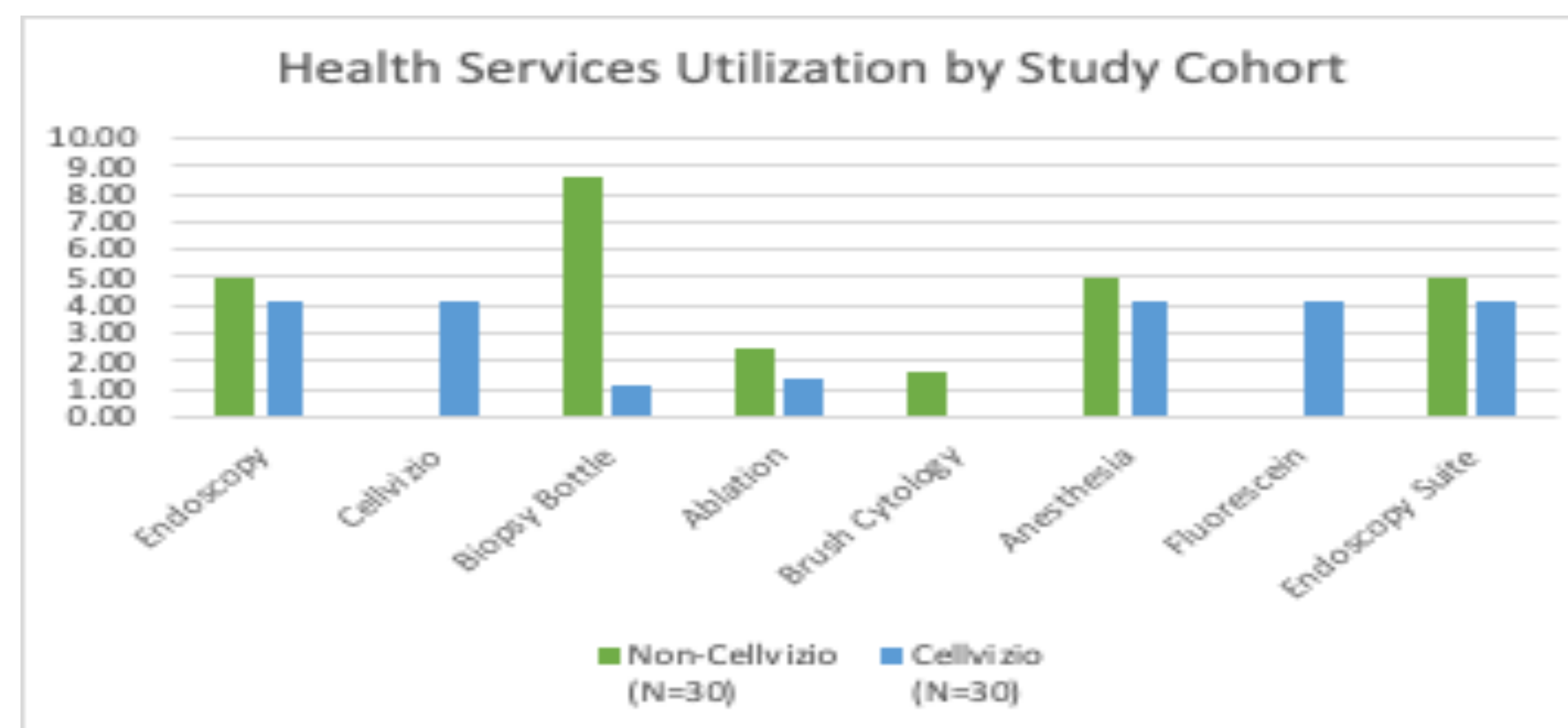
- Compared to those receiving standard of care, Cellvizio patients were older (71 versus 63 years; $p=0.002$)
- No other statistically significant differences in gender or comorbidities were detected
- Controlling for covariates, while patients in the Cellvizio cohort had greater use of Cellvizio and fluorescein (3.94 more of each than standard of care; $p<0.001$), they also had 1.04 fewer endoscopies and anesthesia services ($p=0.001$), 7.49 less biopsy bottles ($p<0.001$), 1.30 fewer ablations ($p<0.001$), and 1.46 less brush cytology services ($p<0.001$).
- The patient's surveys also revealed a satisfaction score of 8.5 with Cellvizio and 6.3 with standard of care

Variable	Non-Cellvizio (N=30)	Cellvizio (N=30)	p-value
Male	0.63	0.43	0.18
Age (years)	63.13	71.23	0.00
Hospital:			
Advocate	0.00	0.23	0.12
Advocate/St. Joseph	0.00	0.03	0.82
Christ	0.10	0.00	0.51
Good Samaritan	0.23	0.00	0.12
Oak Lawn	0.27	0.03	0.12
Silvercross	0.23	0.40	0.27
St. Joseph	0.17	0.30	0.38
Comorbidities:			
Hypertension	0.73	0.67	0.66
Asthma/Chronic Obstructive Pulmonary Disease	0.07	0.13	0.66
Diabetes	0.27	0.30	0.82
Hypersensitivity Lung Disease	0.37	0.37	1.00
Coronary Artery Disease	0.17	0.17	1.00
Thyroid Disease	0.10	0.07	0.82
Anxiety/Depression	0.10	0.07	0.82
Pancreatitis	0.03	0.10	0.66
Dyslipidemia	0.10	0.07	0.82
Liver Disease	0.10	0.00	0.51
Atrial Fibrillation	0.07	0.10	0.82
Rheumatoid Arthritis	0.03	0.07	0.82

Table 1. Statistical differences in mean values across cohorts assessed using Kruskal-Wallis Equality of Populations Test (p-values reported). All values are proportions except Age (years)

Variable	Non-Cellvizio (N=30)	Cellvizio (N=30)	p-value
Number of:			
Endoscopy	5.03	4.13	0.0003
Cellvizio	0.00	4.13	0.0000
Biopsy Bottle	8.60	1.17	0.0000
Ablation	2.43	1.33	0.0000
Brush Cytology	1.60	0.00	0.0000
Anesthesia	5.03	4.13	0.0003
Fluorescein	0.00	4.13	0.0000
Endoscopy Suite	5.03	4.13	0.0003

Table 2: Statistical differences in mean values assessed using Kruskal-Wallis Equality of Populations Test (p-values reported)



Discussion

- Barrett's esophagus, a precursor to esophageal adenocarcinoma, is a common condition with increasing global prevalence and burden
- Screening for gastrointestinal adenocarcinomas using conventional endoscopy and biopsies has showed success, however, Cellvizio showcases a lot of potential due to its specificity of producing high resolution images of the mucosal layer as well as the reduced number of biopsies needed
- We reveal that the use of Cellvizio is associated with lower health services utilization of endoscopy, anesthesia, biopsy, ablation and higher patient satisfaction