

Background

- It is well known that Inflammatory Bowel Disease (IBD) increases the risk of developing Colorectal cancer, thus guidelines recommend regular surveillance.
- There is increased propensity towards dysplasia in IBD and given its ability to affect all areas of the alimentary tract, it may affect the development of cancer in the upper gastrointestinal tract
- Several older works separately explored the influence of IBD on Cholangiocarcinoma, Gastric cancer, and Gastrointestinal lymphomas in the 1990's and early 2000's.
- With the advent of biologic therapy, AI, and improved detection and treatment techniques for IBD, it would be interesting to examine the risk conferred towards the development of Upper Gastrointestinal malignancy

Objectives

- Primary outcome: Determine the Association between Inflammatory Bowel Disease, and Upper Gastrointestinal malignancy in the current era

Methods

- The NIS database quantified hospitalizations for patients >18 years old with history of IBD and upper gastrointestinal malignancy in 2014.
- Upper gastrointestinal malignancy was defined as: esophageal cancer, gastric cancer, small bowel malignancy, and cholangiocarcinoma.
- ICD-9 codes for Ulcerative colitis, Crohn's Disease and Upper GI malignancy were obtained.
- Results were adjusted for demographics, payer status, and co-morbidities (Charlson Comorbidity Index)
- Statistical Analyses were completed with Stata v. 13

Results

Table 1: Baseline characteristics of patients with IBD and Upper GI Malignancy

Table 1: Characteristics of patients with IBD and Upper Gastrointestinal Malignancy			
Variable	UC	CD	P value
	N= 190	n= 180	
Female	29 (14.86%)	29 (16.22%)	0.71
Race			0.25
Caucasian	167 (87.88)	164 (91.18)	
Black	6 (3.03)	11 (5.88)	
Hispanic	11(6.06)	5 (2.94)	
Age	56.84 + 2.81	55.50 + 2.70	0.74
Income			0.11
0-25% percentile	35 (18.42)	26 (14.29)	
26-50% percentile	35 (18.42)	21 (11.43)	
51-75% percentile	40 (21.05)	93 (51.43)	
76-100% percentile	80 (42.11)	41 (22.86)	
Insurance			0.35
Medicare	108 (56.76)	70 (38.89)	
Medicaid	10 (5.41)	30 (16.67)	
Private Insurance	72 (37.84)	80 (44.44)	
Region			0.26
Northeast	60 (31.58)	30 (16.67)	
Midwest	65 (34.21)	55 (30.56)	
South	45 (23.68)	50 (27.78)	
West	20 (10.53)	45 (25)	
Hospital Size			0.97
small	25 (13.16)	25 (13.89)	
medium	30 (15.79)	25 (13.89)	
large	135 (71.05)	130 (72.22)	
Teaching Hosp	90 (47.3)	68 (37.84)	0.09
COPD	15 (7.89)	5 (2.78)	0.33
ESRD	15 (7.89)	15 (8.33)	0.94
CAD	0%	11 (5.56)	0.14
Liver Disease	40 (21.05)	20 (11.11)	0.18
DM2	20 (10.53)	11 (5.56)	0.43
HTN	65 (34.21)	70 (38.89)	0.69

Values are No. (%) except for age (mean + Standard Error) ; IBD= Inflammatory Bowel Disease; UC= Ulcerative Colitis; CD= Crohn's Disease; COPD- Chronic Obstructive Pulmonary Disease; ESRD= End Stage Renal Disease; CAD= Coronary Artery Disease; HTN= Hypertension; DM2= Diabetes Mellitus Type 2

- There were 370 patients with IBD; 190 patients had Ulcerative Colitis
- There was a predominance of Caucasians and male sex, with average age 55-56 years old
- There was a greater prevalence of Chronic Lung Disease, Liver Disease, and DM2 in the Ulcerative Colitis cohort, with greater Coronary Artery Disease in the Crohn's Disease group

Results Continued

Table 2: Association between subtypes of IBD and Upper GI Malignancy

Table 2: Association between Inflammatory Bowel Disease and Upper GI Malignancy			
	Adjusted Odds Ratio	95% Confidence Interval	P value
Crohn's Disease	1.56	1.10 - 2.21	0.01
Ulcerative Colitis	2.07	1.42 - 3.01	<0.00
Inflammatory Bowel Disease (combined)	1.79	1.39 - 2.31	<0.00

- There was increased association between IBD and Upper GI Malignancy, as well as when stratified by IBD subtype

Table 3: Association of Crohn's Disease with Upper GI Malignancy

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	Total	Adjusted Odds Ratio	95% Confidence Interval	P value
Esophageal Cancer	50	0.67	0.35 - 1.3	0.24
Gastric Cancer	5	2.74	0.39 - 19.02	0.31
Small Bowel Malignancy	75	16.82	9.65 - 29.33	<0.00
Cholangiocarcinoma	50	1.22	0.61 - 2.44	0.58
All (combined)	180	1.56	1.1 - 2.21	0.01

- Crohn's Disease has a significantly increased association with small bowel malignancy, but a non-significant relationship with other upper GI malignancies

Table 4: Association of Ulcerative Colitis with Upper GI Malignancy

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	Total	Adjusted Odds Ratio	95% Confidence Interval	P value
Esophageal Cancer	25	0.51	0.21 - 1.22	0.13
Cholangiocarcinoma	165	5.83	3.87 - 8.77	<0.00
All (combined)	190	2.07	1.42 - 3.01	<0.00

- There were a less diverse range of upper GI malignancies seen with Ulcerative Colitis
- There was an significant relationship seen between Ulcerative Colitis and Cholangiocarcinoma

Discussion

- This is the first study in recent years to examine both subtypes of IBD and various forms of cancer in the Upper GI tract.
- Both subtypes of IBD are associated with development of neoplasia in the Upper GI tract
- There is a more diverse range of Upper GI tract malignancies observed in Crohn's Disease
 - The most significant relationship is with small bowel cancer, likely related to its propensity to cause ileal strictures, dysplasia, etc.
- There was fewer forms of upper GI tract malignancies seen in Ulcerative Colitis
 - As noted in previous studies, there was a notable relationship between Ulcerative Colitis and cholangiocarcinoma (possibly through association with PSC)
- In this cohort, IBD does not appear to increase the risk of developing esophageal cancer or stomach cancer

Conclusions

- In spite of the advances in treatment of Inflammatory Bowel Disease, there is still an increased risk of developing malignancies of the Upper GI tract, which differ based upon the subtype of IBD
- Future prospective studies would be beneficial to examine the risk factors which influence development of these cancers

References

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Disclosures

There are no conflicts of interest.