MYLEPROLFERATIVE DISORDERS IN INFLAMMATORY BOWEL DISEASE - AN EPIDEMIOLOGICAL, OUTCOME AND HEALTHCARE UTILIZATION ANALYSIS OF THE NATIONAL INPATIENT SAMPLE DATABASE

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BACKGROUND & AIMS:

- Chronic inflammation and a similar genetic & haplotype profile appears to underly the etiology of both inflammatory bowel disease(IBD) & myeloproliferative disorders (MPN).
- Recent studies show an increased risk of MPN in patients with IBD & vice versa. There have been relatively few large scale population based studies, that have investigated the prevalence, epidemiology & outcomes of IBD patients with MPD including ET, Polycythemia Vera (PV),Chronic myeloid leukemia (CML), Myelofibrosis (MF).
- Here, we investigated the National Inpatient Sample (NIS) database, the largest all-payer inpatient database in USA, to determine the demographics, epidemiological characteristics, hospitalization charges & in-hospital outcomes associated with hospitalized IBD with MPD.

METHODS:

- We analyzed NIS data for all adult hospitalized with IBD as a principal diagnosis & MPD as the secondary discharge code using validated ICD-9 & ICD-10 codes between 2010-2019.
- Descriptive statistics & regression analysis were used to analyze patient characteristics, comorbidities, LOS, hospital charges, & mortality in patients with IBD & MPD & those without.

RESULTS:

- In 2010-2019, a total of 1,666 of 115,510 CD (1.4%) hospitalizations & 1,708 of 68,343 (2.5%) UC hospitalizations were related with MPD & thus included in further analysis. (Table 1)
- Of all the patients hospitalized with IBD with MPD, essential thrombocythemia was the most common MPD (94.9%), followed in order by PV (2.1%), CML (1.5%) & MF (0.4%). (Figure 1)

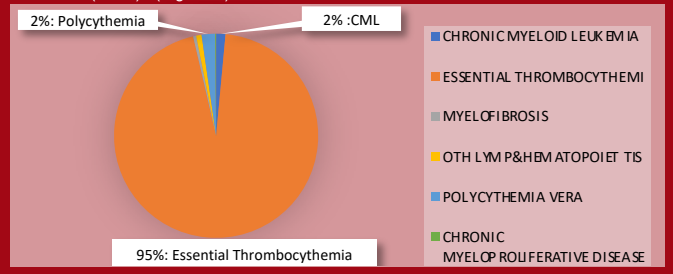

Figure 1: Breakdown of patients with IBD and MPN in percentage

		Overall	IBD-MPN	IBD+MPN	
Variable	Label	N = 187,227	N = 183,853	N = 3,374	P Value
Age, Mean (SD)		44.94 (17.94)	45.01 (17.95)	41.12 (16.88)	< 0.001
Sex	Female	101581 (54.26%)	99777 (54.27%)	1804 (53.47%)	0.618
	Male	85573 (45.71%)	84004 (45.69%)	1569 (46.5%)	
Race	Black	24820 (13.26%)	24284 (13.21%)	536 (15.89%)	< 0.001
	Hispanic	13660 (7.3%)	13307 (7.24%)	353 (10.46%)	
	White	130520 (69.71%)	128369 (69.82%)	2151 (63.75%)	
Payor	Medicaid	31953 (17.07%)	31212 (16.98%)	741 (21.96%)	< 0.001
	Medicare	46506 (24.84%)	45944 (24.99%)	562 (16.66%)	
	Private insurance	87836 (46.91%)	86256 (46.92%)	1580 (46.83%)	
	Self-pay	12779 (6.83%)	12466 (6.78%)	313 (9.28%)	
Hospital Bed Size	Large	106367 (56.94%)	104521 (56.98%)	1846 (54.91%)	0.007
	Medium	50254 (26.9%)	49270 (26.86%)	984 (29.27%)	
	Small	30173 (16.15%)	29641 (16.16%)	532 (15.82%)	
Region	Midwest	45498 (24.3%)	44736 (24.33%)	762 (22.58%)	< 0.001
	Northeast	40988 (21.89%)	40430 (21.99%)	558 (16.54%)	
	South	70600 (37.71%)	69321 (37.7%)	1279 (37.91%)	
	West	30141 (16.1%)	29366 (15.97%)	775 (22.97%)	

Table 1: Demographics of patients with IBD and MPN

		Overall	IBD-MPN	IBD+MPN	
Variable		N = 187,227	N = 183,853	N = 3,374	P Value
Rectal Bleeding		16723 (8.93%)	16185 (8.8%)	538 (15.95%)	**< 0.001**
Intestinal Obstruction		23545 (12.58%)	23294 (12.67%)	251 (7.44%)	**< 0.001**
Intestinal Fistula		10669 (5.7%)	10457 (5.69%)	212 (6.28%)	0.149
Intestinal Abscess		6890 (3.68%)	6733 (3.66%)	157 (4.65%)	**0.003**
Colectomy		20013 (10.69%)	19722 (10.73%)	291 (8.62%)	**< 0.001**
Peritonitis		507 (0.27%)	493 (0.27%)	14 (0.41%)	0.145
Intestinal Perforation		2334 (1.25%)	2278 (1.24%)	56 (1.66%)	**0.035**
Mortality	Alive	186512 (99.67%)	183148 (99.67%)	3364 (99.73%)	0.627
	Died	616 (0.33%)	607 (0.33%)	9 (0.27%)	

Table 2: Outcomes of patients with IBD and MPN

		Overall	IBD-MPN	IBD+MPN	
Variable	Label	N = 187,227	N = 183,853	N = 3,374	P Value
LOS, day, median [IQR]		4 [2, 6]	4 [2, 6]	5 [3, 8]	**< 0.001**
APRDRG Severity	Major /Extreme	48542 (25.93%)	47100 (25.62%)	1442 (42.74%)	**< 0.001**
	Minor /Moderate	138685 (74.07%)	136753 (74.38%)	1932 (57.26%)	
APRDRG Risk Mortality	Major /Extreme	17837 (9.53%)	17425 (9.48%)	412 (12.21%)	**< 0.001**
	Minor /Moderate	169390 (90.47%)	166428 (90.52%)	2962 (87.79%)	
Total Cost,$, median [IQR]		7129.81 [4580.68, 12316.36]	7110.6 [4567.87, 12282.43]	8199.79 [5407.92, 14563.4]	**< 0.001**

Table 3: Length of Stay, Cost, Severity, Mortality of IBD patients with MPN

- The patients with MPD & IBD are younger (41.12 vs 45.01 years, %, p<0.001), more black (15.99% vs 13.21%, p<0.001) & Hispanic (10.46% vs 7.24%, < 0.001), hospitalized in medium sized hospitals (29.27% vs 26.86%) with Medicaid as their primary insurance (47.7% vs 40.7%, p< 0.001). (Table 1)
- Outcomes of patients with IBD are outlined in table 2 and table 3.

DISCUSSION:

- While there were fewer rates of intestinal obstruction & colectomy, MPD in IBD patients was associated with a higher incidence of rectal bleeding, intestinal abscess formation, intestinal perforation & higher risk of disease severity & mortality.
- This also contributed to a higher LOS & higher cost per hospitalization.
- Comorbid MPD in hospitalized IBD patients therefore leads to overall increased healthcare utilization and further studies are needed to understand the role of MPD towards increased severity & risk of complications In hospitalized IBD patients.
- Elevated platelets or hemoglobin in IBD patients should prompt clinicians to rule out ET or PV as concurrent ET and PV in IBD patients leads to worse outcomes as described above

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