PREVALENCE OF OSTEOPOROSIS AMONG PATIENTS WITH INFLAMMATORY BOWEL DISEASES; A RETROSPECTIVE COHORT STUDY

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Introduction

IBD patients are at increased risk for loss of bone mass due to diverse factors such as steroid treatment, chronic inflammation, and malabsorption. Guidelines recommend screening IBD patients with high steroid use, and recurrent or persistently active disease for osteoporosis with a DXA scan. We evaluated the prevalence, and characteristics of osteoporosis in a nationwide cohort of IBD patients.

Methods and Materials

This is a retrospective cohort study. We collected data from the Healthcare Cost and Utilization Project (HCUP) Nationwide Readmission Databases (NRD) 2016-2018. Median and IQR were used to describe Continuous variables, and proportions were used with categorical variables. Comparison between groups was performed by Mann Whitney test for continuous variables and the Chi-Square test for Categorical variables.

Table 1. Baseline and clinical characteristics of IBD patients with and without Osteoporosis

		OP absent	OP present	P-value
		N= 349,426	N= 15,726	
Median Age (IQR)		55 (37 - 69)	71 (62 - 81)	<0.001
Sex, %	Male	154,405 (44.2)	3071 (19.5)	<0.001
	Female	195,021 (55.8)	12,655 (80.5)	
Bed size of the hospital, %	Small	55,476 (15.9)	2,653 (16.9)	<0.001
	Medium	97,319 (27.9)	4,129 (26.3)	
	Large	196,631 (56.3)	8,944 (56.3)	
CKD, %		33,887 (9.7)	2721 (17.3)	<0.001
Heart failure, %		30,469 (8.7)	2,285 (14.5)	<0.001
Cirrhosis, %		7,706 (2.2)	443 (2.8)	<0.001
Hypocalcemia (%)		6,299 (1.8)	430 (2.7)	<0.001
Iron deficiency anemia		31,725 (9.1)	1,553 (9.9)	0.001
Family history of osetoporosis		106 (0.0003)	44 (0.3)	<0.001
COPD		37,618 (10.8)	3,276 (20.8)	<0.001
Hypertension, %		109,218 (31.3)	6,379 (40.6)	<0.001
Diabetes mellitus, %		60,150 (17.2)	2,771 (17.6)	0.187
Dyslipidemia, %		84,030 (24)	6,244 (39.7)	<0.001
Vitamin D deficiency		9,535 (2.7)	1,110 (7.1)	<0.001
Weight disorders	None	301,574 (86.3)	14,116 (89.8)	<0.001
	Weight loss	5,795 (1.7)	278 (1.8)	
	Obesity or overweight	42,057 (12)	1,332 (8.5)	

Results

We analyzed 365,152 index hospital discharges with IBD. Of whom, 15,726 (4.3%) had osteoporosis and 4,375 (1.2%) had Osteopenia. Of those with osteoporosis, 95.1% had osteoporosis without pathological fracture while 4.9% had osteoporosis with a pathological fracture. The majority of IBD patients with osteoporosis were females (80.5%). IBD patients with osteoporosis were older (median age: 71; Interquartile range (IQR): 62-81 vs 55; IQR: 37-69, P < 0.001), more common to have hypertension (40.6% vs. 31.3%, P< 0.001), abnormal weight loss (1.8% vs. 1.7%, P < 0.001), dyslipidemia (39.7% vs. 24%, P <0.001), vitamin D deficiency (7.1% vs. 2.7%, P < 0.001), hypocalcemia (2.7% vs. 1.8%, P < 0.001), COPD (20.8% vs. 10,8%, P <0.001), CKD (17.3% vs. 9.7%, P < 0.001), increased median length of stays in days (4; IQR: 2-7 vs. 3; IQR: 2-6, P<0.001), higher mortality (2.1% vs. 1.5%, P < 0.001), higher median total charges ($37,782; IQR: $20,330 -$70,987 vs. $32,418; IQR: $17,752 - $62,023, P< 0.001) and a higher 30-day all-cause readmission rate (10% vs. 9.2%, P= 0.003) compared to IBD patients without osteoporosis respectively.

Discussion

In our nationwide cohort of hospitalized IBD patients, more than four percent had osteoporosis. IBD patients with osteoporosis had a higher prevalence of vitamin D deficiency, hypocalcemia, weight loss, and dyslipidemia. Multiple studies reported inconsistent use of osteoporosis screening and underuse of osteoporosis treatment with calcium, vitamin D, and Bisphosphonates. Using our nationwide cohort, we aim to highlight the significant prevalence of osteoporosis and associated hospitalization outcomes in this patient population.

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