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Health care for osteoporosis in inflammatory bowel disease: Unmet needs in care of male patients?

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Abstract

Background and aims: Osteoporosis is a frequent complication of inflammatory bowel disease (IBD). It may be related to IBD itself or to its therapy. In this study, the quality of care regarding diagnosis and treatment of osteoporosis was examined.
Methods: In this retrospective, monocentric study 293 consecutive patients with IBD (98 ulcerative colitis, 195 Crohn's disease) were included. Information on age, gender, weight, nicotine abuse, course, disease pattern and medication was assessed, results of dual X-ray absorptiometry (DEXA-scan) were evaluated.
Results: DEXA-scan was performed in 174 patients (59 male, 115 female). Bone mineral density (BMD) was impaired in 38.5% of these patients. Male patients were diagnosed more often with osteopenia or osteoporosis than females (55.9% vs. 29.6%, $p=0.03$) and had a risk of bone disease comparable to postmenopausal women. Additionally, duration of corticosteroid treatment and IBD were identified as risk factors for osteoporosis. Follow up DEXA-scan demonstrated an overall deterioration of BMD in patients with normal baseline results.
Conclusions: While in general, women are considered at higher risk for osteoporosis, male patients had a higher risk of impaired BMD, especially when under treatment with corticosteroids. The high incidence of reduced BMD supports the recommendation to screen patients with IBD at an early stage of disease, although a possible bias has to be considered for patients at a tertial referral centre for IBD. Patients with normal baseline DEXA-scan were still at risk to develop bone disease and it seems advisable to monitor patients with IBD for reduced BMD continually.

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1. Introduction

In up to two third of patients with inflammatory bowel disease (IBD) bone mineral density (BMD) is below the range of healthy persons,[1,2] and osteoporosis is manifested in up to 40% of Crohn's disease patients.[3–5] Conflicting data exist regarding the increased risk of bone fractures in patients with IBD compared to healthy subjects,[6–8] reflecting the difficulty to estimate the fracture risk in IBD.[9] However, it could be demonstrated, that reduced BMD correlates with an increased fracture risk in these patients,[10,11] and determination of BMD is recommended to identify patients with an increased fracture risk.[12,13]

Some etiologies are identified for bone disease in IBD: chronic inflammation *itself* promotes loss of BMD, and malassimilation of nutrients may significantly contribute. Moreover, undesired side-effects of corticosteroids add to loosing bone density and bone structure, an effect that is depending on the dose and duration of the treatment.[14] Also, age, underweight, physical inactivity, nicotine abuse and gender have been reported as risk factors for low BMD in IBD patients.

Prophylaxis and therapy of osteoporosis seem to be put into praxis inadequately: it has been reported that only 63.5% of IBD patients with osteoporosis are substituted with vitamin D and calcium, and only 19.9% are additionally treated with bisphosphonates.[1] Only a minority of clinicians is actually acknowledging guidelines on osteoporosis,[15] and not more than 40% of American gastroenterologists follow the guidelines of their professional association in screening for osteoporosis and low trauma fractures and initiate appropriate treatment.[16]

Under-diagnosing and under-treating bone disease in IBD contribute significantly to the patients' morbidity: it has been reported, that more than 80% of IBD patients with fractures had no appropriate treatment of previously diagnosed osteopenia or osteoporosis.[17]

It was therefore the aim of this study to evaluate the frequency of reduced BMD and consecutive care for IBD patients and to identify risk factors contributing to or predicting reduced BMD.

2. Methods

This is a retrospective, monocentric study that included 293 consecutive patients recruited in a specialized IBD outpatient clinic at the University of Halle (Saale), Germany. Structured information was extracted from the patients' records and was accompanied by structured interviews. The following data were assessed: age, gender, weight, nicotine abuse, and course of IBD (time of diagnosis, disease pattern, frequency of flares, complications, treatment regimen with detailed information on corticosteroid, immunosuppressant and anti-TNFα-antibody intake, including time of treatment, initiation, duration, and dosing). Dual X-ray absorptiometry (DEXA-scan) was offered to all patients at our outpatient clinic who had presented with at least 1 year of symptomatic IBD. Date and results of DEXA-scan and the history of fractures (date and localisation) were recorded. T-scores

Table 1 Characteristics regarding age, body mass index (BMI), nicotine abuse, treatment (corticosteroids, thiopurines, and anti-TNFα-agents) and disease pattern. No significant differences between male and female patients could be observed in these groups (chi-squared-test, $p>0.05$).

	Total number or mean ± SD (% of all patients)	No DEXA-scan n (or mean ± SD)	Patients undergoing DEXA-scan			
			n (or mean ± SD)	% of total	Male (% of male)	Female (% of female)
All patients	293	119	174	59.3%	59	115
Age (years)	40 ± 14.2	38.8 ± 15.3	42.2 ± 13.4		44.1 ± 14.5	41.2 ± 12.7
BMI	23.8 ± 4.6	24.0 ± 5.2	23.6 ± 4.3		24.8 ± 5.4	23.2 ± 3.6
BMI < 21 kg/m^2	45	16	29	64.4%	8 (13.5%)	21 (18.2%)
Nicotine abuse	96	37	59	60.1%	21 (35.6%)	38 (33%)
Male	110	61	59	53.6%		
Female	183	68	115	62.8%		
Medical treatment						
Corticosteroid intake	251 (85.5%)	98	153	61.3%	52 (88.1%)	101 (87.8%)
<6 months	47 (18.7%)	26	21	44.6%	6 (11.6%)	15 (14.9%)
6–24 months	82 (32.7%)	33	49	59.7%	15 (28.9%)	33 (32.7%)
>24 months	99 (39.2%)	15	84	84.5%	31 (59.5%)	53 (52.5%)
Unknown	23 (9.4%)	19	4	17.4%	3	1
Thiopurines	230 (78.9%)	77	153	66.5%	56 (94.9%)	97 (84.3%)
Anti-TNFα	89 (30.4%)	21	68	76.4%	25 (43.8%)	43 (37.4%)
Disease pattern						
UC	98 (33.5%)	45	53	54.1%	24 (40.7%)	29 (25.2%)
CD, colitis	33 (11.3%)	14	19	57.6%	5 (8.5%)	14 (21.2%)
CD, ileocolonic	115 (39.2%)	50	65	56.2%	19 (32.2%)	46 (40.0%)
CD, small bowel	47 (16%)	10	37	78.7%	11 (18.6%)	26 (22.6%)