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### REVIEW

- 4252** Update on the association of hepatitis B with intrahepatic cholangiocarcinoma: Is there new evidence?  
*Fragkou N, Sideras L, Panas P, Emmanouilides C, Sinakos E*
- 4276** Viral infections in inflammatory bowel disease: Tips and tricks for correct management  
*Craviotto V, Furfaro F, Loy L, Zilli A, Peyrin-Biroulet L, Fiorino G, Danese S, Allocca M*
- 4298** Pancreatic cancer: A review of epidemiology, trend, and risk factors  
*Hu JX, Zhao CF, Chen WB, Liu QC, Li QW, Lin YY, Gao F*
- 4322** Minimally invasive image-guided therapy of primary and metastatic pancreatic cancer  
*Bibok A, Kim DW, Malafa M, Kis B*
- 4342** Comprehensive review of diagnostic modalities for early chronic pancreatitis  
*Ge QC, Dietrich CF, Bhutani MS, Zhang BZ, Zhang Y, Wang YD, Zhang JJ, Wu YF, Sun SY, Guo JT*

### MINIREVIEWS

- 4358** Dysregulated liver function in SARS-CoV-2 infection: Current understanding and perspectives  
*Huang YK, Li YJ, Li B, Wang P, Wang QH*
- 4371** Impact of surgery for chronic pancreatitis on the risk of pancreatic cancer: Untying the Gordian knot  
*Kalayarasan R, Narayanan S, Sahoo J, Mohan P*
- 4383** Neoadjuvant therapy for pancreatic ductal adenocarcinoma: Opportunities for personalized cancer care  
*Hamad A, Brown ZJ, Ejaz AM, Dillhoff M, Cloyd JM*
- 4395** Role of artificial intelligence in multidisciplinary imaging diagnosis of gastrointestinal diseases  
*Berbis MA, Aneiros-Fernández J, Mendoza Olivares FJ, Nava E, Luna A*
- 4413** Hyperbaric oxygen therapy as a complementary treatment for radiation proctitis: Useless or useful? – A literature review  
*Alpuim Costa D, Amaro CE, Nunes A, Cardoso JS, Daniel PM, Rosa I, Branco JV*

### ORIGINAL ARTICLE

#### Retrospective Study

- 4429** Multifocal autoimmune pancreatitis: A retrospective study in a single tertiary center of 26 patients with a 20-year literature review  
*Huang XM, Shi ZS, Ma CL*

- 4441** Recent trends in the prevalence and distribution of colonic diverticula in Japan evaluated using computed tomography colonography

*Isohata N, Nagata K, Utano K, Nozaki R, Nozu S, Kato T, Kijima S, Matsumoto H, Majima K, Ryu Y, Hirayama M, Endo S*

**Observational Study**

- 4453** Prognostic role of plasma level of angiopoietin-1, angiopoietin-2, and vascular endothelial growth factor in hepatocellular carcinoma

*Choi GH, Jang ES, Kim JW, Jeong SH*

**Prospective Study**

- 4468** Determinants of disease-specific knowledge among children with inflammatory bowel disease and their parents: A multicentre study

*Kowalska-Duplaga K, Gawlik-Scislo A, Krzesiek E, Jarocka-Cyrta E, Łazowska-Przeorek I, Duplaga M, Banaszkiewicz A*

**LETTER TO THE EDITOR**

- 4481** Is there higher percentage of undetected osteopenia and osteoporosis among patients with ulcerative colitis in Saudi Arabia?

*Olic Akrapovic I, Radic M, Tonkic A*

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## Is there higher percentage of undetected osteopenia and osteoporosis among patients with ulcerative colitis in Saudi Arabia?

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### Abstract

Detection of prevalence and development of osteopenia or osteoporosis in patients with inflammatory bowel disease using only bone mineral density could be inappropriate to detect all individuals at risk for osteoporosis. Numerous patients could remain undetected by using only bone mineral density as a screening method, especially in patients with ulcerative colitis. Therefore, trabecular bone score should be used as a complementary method.

**Key Words:** Inflammatory bowel disease; Osteoporosis; Bone mineral density; Trabecular bone score

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**Core Tip:** Lower body mass index is a predictor of osteoporosis in patients with inflammatory bowel disease however, fracture risk can be increased despite normal bone mineral density. Therefore, use of trabecular bone score would ensure recruitment of individuals with normal bone mineral density at increased risk of fractures in trials.

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We read with a great interest the study by Ewid *et al*[1], that evaluated the connection between inflammatory bowel disease (IBD) and bone mineral density (BMD) in a sample of adult Saudi patients with IBD from a single center.

One important finding of this study was that Crohn's disease (CD) patients are at a higher risk of developing both osteoporosis and osteopenia than ulcerative colitis (UC) patients, even though the study included more patients with severe clinical disease activity and endoscopic activity in the UC group than in the CD group (25% *vs* 5%, respectively). In spite of disease severity, 78% of UC patients had normal BMD *vs* 44% of CD patients. Fracture risk can be increased despite normal BMD. Maldonado *et al*[2] suggested that current screening does not include all IBD patients at increased risk of fractures. We propose using trabecular bone score (TBS) as a complementary tool; as it discriminates patients at higher risk of fractures better than BMD[3].

According to demographic characteristics in the study, mesalamine use was significantly higher in the UC compared to CD group (81% *vs* 10%, respectively). Due to the sample size of UC group an analysis of BMD according to mesalamine use probably could not have been performed nevertheless, the analysis would be highly informative. Hence, we postulate a question: could mesalamine use have contributed to lower risk of developing osteoporosis in UC compared to the CD cohort?

Krajcovicova *et al*[4] observed no significant difference in the prevalence of low BMD in groups of patients with UC and CD. They observed that corticosteroid therapy and menopause had significant negative effects, whereas combined treatment with an anti-tumor necrosis factor (TNF)  $\alpha$  agent and azathioprine had a significant positive effect on  $\Delta$  BMD at the lumbar spine (BMDL) per year[4].

The study also showed that low BMI is a risk factor for reduced BMD. According to Fawzy *et al*[5] and Steinschneider *et al*[6], increased BMD commonly reported in overweight women may be a result of soft tissue interference, further supporting addition of TBS as a screening method for osteoporosis in research and clinical practice.

An unexpected finding in this study is the lack of correlation between steroid use and BMD. Paggiosi *et al*[7] demonstrated that TBS alone and BMDL in combination with TBS, but not BMDL alone were able to discriminate between glucocorticoid-treated and glucocorticoid-naïve women. In the study by Gulyás *et al*[8] TNF- $\alpha$  inhibition slowed down generalized bone loss in rheumatoid arthritis and ankylosing spondylitis. Effect of anti TNF therapy on bone metabolism was not confirmed by Ewid *et al*[1] hence, the effect is questionable in IBD.

Addition of TBS would enable inclusion of individuals with normal BMD at increased fracture risk. In conclusion, by including both screening methods osteoporotic fracture risk in UC *vs* CD cohort could be assessed more accurately.

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