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Research Article

OSTEOPOROSIS IN PEPTIC ULCER DISEASE

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Abstract:

Introduction: Objective. To determine the frequency of osteoporosis in cases with peptic ulcer disease. **Methods;** This was a Cross sectional study conducted at multicenter, Medical departments. In this study there were 300 cases of liver cirrhosis enrolled over the period of January 2018 to December 2018 between the ages of 30 to 60 years of any gender. These cases then underwent upper GI endoscopy and finally the 100 cases of peptic ulcer were considered. The detailed data was collected. The cases with previous history of bone trauma, metabolic disorders, end stage renal or liver disease and those with diabetes mellitus were excluded. The cases with diagnosed PUD then underwent DEXA scan and score less than 2.5 was labeled with osteoporosis. **Results;** In this study there were total 100 cases out of which 56 were males and 44 females. The mean age was 35.44 ± 5.35 years. Osteoporosis was seen in 10 (10%) of cases. Osteoporosis was more seen in females affecting 7 and 3 males out of their respective groups ($p = 0.12$). It was also more common in cases with age group more than 40 years where 8 cases were seen with p value of 0.04. There was no significant difference in terms of duration of PUD with osteoporosis ($p = 0.78$). **Conclusion:** Osteoporosis is not uncommon in cases of peptic ulcer disease. Higher age is significantly associated with this.

Key words. PUD, Osteoporosis, DEXA scan, T score

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INTRODUCTION;

Peptic ulcer disease (PUD) is one amongst the common presentations at the medical and gastrointestinal wards and outpatient departments. The nature has provided with a natural balance of acid production and its counter alkaline agents to keep a static and safe balance. The peptic ulcer develops whenever, there is an imbalance between these factors and the insulting agents supersede the protective mechanisms.

Peptic ulcer is defined in an area starting from the lower end of the esophagus to the first part of the duodenum. Gastro oesophageal reflux is one of the most common causes for it. There are multiple factors that can influence over this and lead to this breach in mucosa. These include life style modification, increased beverages use, chocolates, smoking, alcohol etc. Various drugs are also culprit for this and NSAIDs being the most notorious ones. *H pylori* is the most studied bug that is found in the stomach and lead to injury of the mucosa. There are many studies that have labeled the strong association between the PUD and the presence of *H pylori*.²⁻³

Osteoporosis is a disease caused by decreased bone mineralization. Different tools to assess for bone mineral density diagnose it. There are multiple factors that can causes osteoporosis in cases of PUD. Decreased absorption, co morbid conditions like smoking, DM, female gender is also common. Furthermore, there are some other factors that need to be studied and are not well developed for their association with osteoporosis. Long-term use of omeprazole is also well studied among the recent ones.⁴⁻⁶ According to one study by Wu CH *et al*, the incidence of osteoporosis in cases of PUD was found to be in 9.35% of cases.⁷ While in another study from Japan in cases of peptic ulcer due to *H pylori*, osteoporosis was seen in 20.5% of cases.⁸

OBJECTIVE;

To determine the frequency of osteoporosis in patients with peptic ulcer disease.

MATERIALS AND METHODS:

This was a Cross sectional study conducted at multicenter, Medical departments. In this study there were 300 cases of liver cirrhosis enrolled over the period of January 2018 to December 2018 between the ages of 30 to 60 years of any gender. These cases then underwent upper GI endoscopy and finally the 100 cases of peptic ulcer were considered in this study. The other detailed clinical history, regarding duration of symptoms was also taken. The cases with previous history of bone trauma, metabolic disorders, end stage renal or liver disease and those with diabetes mellitus were excluded. The cases with diagnosed PUD then underwent DEXA scan and score less than 2.5 was

labeled with osteoporosis. Data was entered and analyzed using SPSS version 20.0. The data was stratified against the confounding variables and the p value less than 0.05 was considered as significant.

RESULTS:

In this study there were total 100 cases out of which 56 were males and 44 females. The mean age was 35.44 ± 5.35 years. The mean duration of PUD was 2.1 ± 0.2 years and mean T score was 1.3 ± 0.3 (table 1). Osteoporosis was seen in 10 (10%) of cases (figure 1). Osteoporosis was more seen in males affecting 7 (12.50%) cases in contrast to 3 (6.85%) females out of their respective groups ($p= 0.12$). It was also more common in cases with age group more than 40 years where 8 (13.33%) cases were seen with p value of 0.04. There was no significant difference in terms of duration of PUD with osteoporosis ($p= 0.78$) as in table 2.

DISCUSSION;

Osteoporosis is debilitating condition in which there is decreased bone mineral density, which is associated with various diseases and drugs. Life style is thought to be another entity. All these factors can add to peptic ulceration and add to overall morbidity.

In this study osteoporosis was seen in 10 (10%) out of 100 cases. This was also observed by the study done by Sawicki *et al* that revealed that their was almost double the risk of osteoporosis in cases that had peptic ulcer disease.⁶ In their study they elaborated that this risk was even higher when they had other co morbid conditions like DM and HTN, however these cases were excluded in our study.

In the present study, the males were found more commonly affected by osteoporosis than the females. In a study done by Wu CH *et al* it was seen that males not only were higher in numbers but also their association was found significant.⁷ This high number of males was thought to be due to two main factors. First of all smoking habits are common in males and there is also higher prevalence of *H pylori* has been seen in males in a study by Figura *et al*.⁹⁻¹⁰ the study done by Laszlo *et al* pointed at another factors that testosterone has also adverse effects of gastro duodenal ulceration.¹¹ This was in contrast to the previous studies done in the past that found females as more common.¹²⁻¹³ The reason of higher number of females with this disease can be explained by the hormonal factors. Estrogen and progesterone are less in the older age groups in females which are mandatory for the bone mineralization and hence their deficiency lead to another add on risk factor along with the peptic ulcer disease.

In this study higher age was significantly

associated with osteoporosis. This was also proved by the studies in the past. As in a study from Japan by Asaoka *et al*, they found positive co relation between osteoporosis and higher age.¹⁴ Similar was also seen by study of Raisz LG *et al*.¹⁵ This higher number can be due to decreased dietary intake at later age, loss of balance diet, decreased sun exposure, and prevalence of co morbid conditions.

Females also have hormonal factors to cope with, that can add to even higher in number.

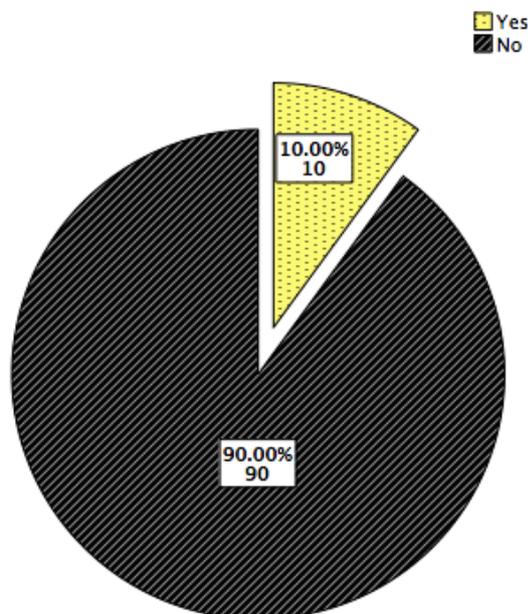
CONCLUSION:

Osteoporosis is not uncommon in cases of peptic ulcer disease. Higher age is significantly associated with this.

Table 01: Study variables

| | Mean | Range |
|-----------------|------------|-------------|
| Age | 35.44±5.35 | 20-60 years |
| Duration of PUD | 2.1±0.2 | 1-4 Years |
| T score | 1.3±0.3 | 1-3 |

Figure 1: Osteoporosis in PUD
n= 100



**TABLE 02: Osteoporosis with respect to different variables
n= 100**

| Variables | | Osteoporosis | | Significance |
|-----------------|-----------|--------------|-------------|--------------|
| | | Yes | No | |
| GENDER | Male | 07 (12.5%) | 49 (87.5%) | p= 0.12 |
| | Female | 03 (6.82%) | 41 (93.18%) | |
| AGE GROUPS | 20-40 | 2 (5%) | 38 (95%) | p= 0.04 |
| | > 40 | 8 (13.33%) | 52 (86.67%) | |
| DURATION OF PUD | < 2 years | 4 (9.52%) | 38 (90.48%) | p= 0.78 |
| | > 2 years | 6 (10.34%) | 52 (89.66%) | |

REFERENCES:

1. Becker DJ, Kilgore ML, Morrissey MA. The societal burden of osteoporosis. *Curr Rheumatol Rep.* 2010;12:186–91.
2. Jakobsen A, Laurberg P, Vestergaard P, Andersen S. Clinical risk factors for osteoporosis are common among elderly people in Nuuk, Greenland. *Int J Circumpolar Health.* 2013;72(8):01-07.
3. Lin SC, Koo M, Tsai KW. Association between *Helicobacter pylori* infection and risk of osteoporosis in elderly Taiwanese women with upper gastrointestinal diseases: a retrospective patient record review. *Gastroenterol Res Pract.* 2014;2014:814756.
4. Wang TC, Lin CC, Lin CD. Increased acquired cholesteatoma risk in patients with osteoporosis: a retrospective cohort study. *PLoS ONE.* 2015;10:e0132447.
5. van der Hoorn MM, Tett SE, de Vries OJ. The effect of dose and type of proton pump inhibitor use on risk of fractures and osteoporosis treatment in older Australian women: a prospective cohort study. *Bone.* 2015;81:675–82.
6. Sawicki A, Regula A, Godwod K, Debinski A. Peptic ulcer disease and calcium intake as risk factors of osteoporosis in women. *Osteoporos Int.* 2003.;14(12):983-86.
7. Wu CH, Tung YC, Chai CY, Lu YY, Su YF, Tsai TH, et al. Increased risk of osteoporosis in patients with peptic ulcer disease. A nationwide population-based study. *Medicine (Baltimore).* 2016;95(16):e3309.
8. Asaoka D, Nagahara A, Hojo M, Sasaki H, Shimada Y, Yoshizawa T, et al. The relationship between *H. pylori* infection and osteoporosis in Japan. *Gastroenterol Res Pract.* 2014;2014:340765.
9. Figura N, Gennari L, Merlotti D, et al. Prevalence of *Helicobacter pylori* infection in male patients with osteoporosis and controls. *Dig Dis Sci.* 2005;50:847–852.
10. Zhang L, Ren JW, Wong CC, et al. Effects of cigarette smoke and its active components on ulcer formation and healing in the gastrointestinal mucosa. *Curr Med Chem* 2012; 19:63–69.
11. Laszlo F, Varga C, Montoneri C, et al. Damaging actions of testosterone on cysteamine-induced gastroduodenal ulceration and vascular leakage in the rat. *Eur J Pharmacol* 1997; 337:275–278.
12. Cappuccio FP, Meilahn E, Zmuda JM, Cauley JA. High blood pressure and bone-mineral loss in elderly white women: a prospective study. Study of Osteoporotic Fractures Research Group. *Lancet.* 1999;354:971–975.
13. Tsuda K, Nishio I, Masuyama Y. Bone mineral density in women with essential hypertension. *Am J Hypertens.* 2001;14:704–707.
14. Asaoka D, Nagahara A, Hojo M, et al. The relationship between *H. pylori* infection and osteoporosis in Japan. *Gastroenterol Res Pract.* 2014;2014:340765.
15. Raisz LG. Physiology and pathophysiology of bone remodeling. *Clin Chem* 1999; 45:1353–1358.