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Research Article

**TYPE AND PREVALENCE OF FRACTURES IN OLD  
OSTEOPOROTIC WOMEN AND ASSOCIATION WITH  
DEMOGRAPHICS OF ACTIVITY LEVEL AND STATUS**<sup>1</sup>Hafiza Neelam Muneeb, <sup>1</sup>Sidra Shafique, <sup>2</sup>Tayyba Niaz, <sup>3</sup>Attiya Irshad, <sup>3</sup>Atoofa Rasheed<sup>1</sup>Riphah International University Lahore<sup>2</sup>Nur University Lahore<sup>3</sup>University Institute of Physical Therapy, University of Lahore**Article Received:** August 2020**Accepted:** September 2020**Published:** October 2020**Abstract:**

**Objective:** This study was conducted to find out the types of fractures in old osteoporotic women and factors that are responsible for increased risk.

**Methodology:** Data was collected from Fatima Memorial Hospital. A Cross Sectional Survey was conducted based on 03 months period and 50 patients were studied. The Questionnaire was used for each patient. All patients were Recruited using purposive sampling technique.

**Results:** Osteoporosis occur in old women most commonly. BMD and BMI have a strong relation with fractures. Osteoporotic fractures may be due to reduced bone mineral density, high BMI score (obese people), intake of steroids and previous family history of fractures. The risk of osteoporotic fractures increases with age.

**Conclusion:** Types of fractures in old osteoporotic women above 60 years are hip fracture, vertebral column fracture, wrist fracture and fragility fracture or other types less common. Hip fracture (femoral neck fracture) occurrence is predominant in old osteoporotic women. Low BMD (< -2.5) and high BMI score are major risk factor for fracture.

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**INTRODUCTION:**

Osteoporosis is a bone disease of reduced density decreased and also progressive in nature. In osteoporosis fracture risk greatly increased because micro architecture of bone deteriorates. Osteoporosis is simple to prevent rather to treat. In fact, healthy life style greatly enhances bone health. (Celi et al., 2013). Resistance training exercises are very important in maintaining bone density. Moreover, exercise also improve coordination, gait, and balance, proprioception, reaction time, and muscle strength. (Siegrist, 2008)

Fractures are the most hazardous outcome osteoporosis. Most common sites for c fractures are of the spine, wrist, hip and shoulder. This affect almost 55% of Americans after age 50 and above, in which 80% are females. Worldwide 1/3 of women and 1 in 12 men over the age of 50 are probable to have osteoporosis. It is accountable for lots of fractures per annum, typically relating the lumbar spines, hip and wrist. (Hallberg et al., 2004)

Hip fractures especially accountable for the most of the serious consequences of osteoporosis. Hip fractures are of two types that arise are femur and Trochanteric fractures. A 50 year old white lady is likely to have 17.5% risk of femur fracture this value also increases with age.(Kassim et al., 2013)

After hip second most common fractures are vertebral often the most devastating than others can be managed if recognized early. (AnKessenich, 2000). In the US, almost 250,000 wrist fractures per year are due to osteoporosis. Wrist fractures are 3<sup>rd</sup> most common form of osteoporotic fractures. Delicacy fractures of the rib cage are also very common in young men as 35. These are often ignored as symbols of osteoporosis, as these males are often actually active and agonize the fracture in the passage of physical activity. For example, as a result of trauma by falling although due to water skiing or jet skiing. However, a speedy test of the person's testosterone level succeeding the analysis of the fracture will willingly expose whether that person might be at danger or not.

Osteoporotic fractures develop a strong association with low Bone density and obesity. Obese individuals with great fat and BMI are at increased risk of crack than those with low BMI. The main complications of osteoporotic fractures of bones are severe pain, collapse of vertebrae, breathing difficulty, disability and even death in postoperative complications. Moreover, hunched back with forward head posture and height loss. Also, atrophy can arise due to lengthy

bed rest. Loss of self-esteem and quality of life disturbed. There might be many mobility complaints and functional boundaries. Pneumonia, deep vein thrombosis and pulmonary embolism are very life-threatening conditions. This Study will help to determine the frequency and different types of fractures in old osteoporotic women and to create awareness about the risk factors of fractures, prevention from them and how to manage this disabling condition(fractures) in old female population.

**MATERIAL AND METHODS:****3.1 Study design**

Observational study

**3.2 Study area**

Fatima Memorial Hospital

**3.3 Data collection instrument**

Questionnaire

**3.4 Duration of study**

Three months after approval of synopsis

**3.5 Sample size**

50 patients

**3.6 Data collection technique**

Convenience sampling

**3.6.1 Inclusion criteria**

- Age above 60 years
- Only females
- Diagnosed with fracture due to osteoporosis

**3.6.2 Exclusion criteria**

All other patients who are not fulfilling the above-mentioned criteria were excluded. The patients with other disabling conditions like shock, spinal cord injuries and any other than osteoporotic fractures were excluded.

**3.7 Data collection procedure**

All the patients fulfilling the inclusion criteria visiting the ortho dept. of Jinnah hospital and LGH will be evaluated by the physiotherapist and investigated for the type of fractures in old osteoporotic women.

**3.8 Data analysis procedure**

All the collected data was entered to SPSS 17 (statistical package for social sciences) for analysis.

**RESULTS:**

Osteoporosis occur in old women most commonly. BMD and BMI have a strong relation with fractures. Osteoporotic fractures may be due to reduced bone mineral density, high BMI score (obese people), intake of steroids and previous family history of fractures. The risk of osteoporotic fractures increases with age. A 3 months study was conducted to find out types of fractures in old osteoporotic women. A sample of 50

patients was taken. The ages of these patients ranged above 60 years. Mostly of the female included in study were married (98%). Regarding socio-economic status lower class were more affected (74%). Almost 90% were housewife and 10% were working. On the basis of data collected from the study sample it was observed that many patients had hip fracture. 68% had hip fracture, 22% had spine fracture (compression fracture), 8% had wrist fracture and 2 % had other fractures. Table 4.6 and chart 4.6 shows risk factors associated with fracture. 92% were on steroid medication. Previous history of fracture (14%) and family history of fracture with osteoporosis (7%) were also observed. Table 4.7 shows the comparison between the type of fracture and major risk factors including BMD and BMI score. Majority of patients

with BMI score greater than 30 had hip fracture (56%), Spine fracture was less common (12%), Wrist fracture was least common (8%) (Table 4.7, chart 4.8). Majority of patients with BMD value below -2.5 had hip fracture (62%) in most common, spine fracture less common (22%), wrist fracture (8%) least common. (Table 4.7, chart 4.7). Results shows the comparison between the type of fracture and major risk factors including BMD and BMI score. Majority of patients with BMI score greater than 30 had hip fracture (56%), Spine fracture was less common (12%), Wrist fracture was least common (8%) .Majority of patients with BMD value below -2.5 had hip fracture (62%) in most common ,spine fracture less common (22%) , wrist fracture (8%) least common.

**Table 1: Descriptive Statistics of Age of Old Osteoporotic Women with Fractures**

	Mean	Std. deviation	Maximum	Minimum
Age	67.48	2.45	73	61

**Table 2: Frequency Distribution of Marital Status**

Marital status	Frequency	Percent
Unmarried	1	2%
Married	49	98%
Total	50	100%

**Table 3: Frequency Distribution of Socio-Economic Status**

Socioeconomic Status	Frequency	Percent
Lower class	37	74%
Middle class	12	24%
Upper class	1	2%

**Table 4: Frequency Distribution of Working Status (n=50)**

Working status	Frequency	Percent
House wife	45	90%
Working	5	10%
Total	50	100%

**Table 5: Frequency Distribution of Fractures (n=50)**

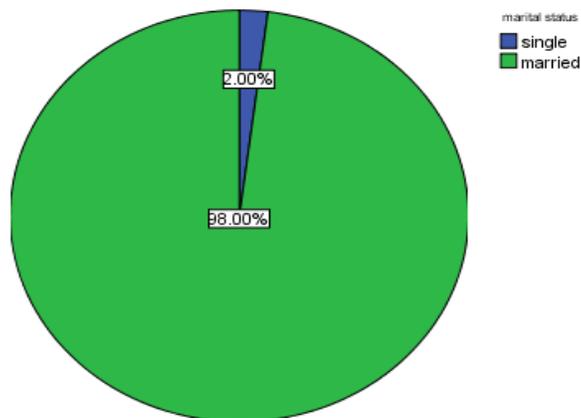
Fracture	Frequency	Percent
Hip fracture	34	68%
Spine fracture	11	22%
Wrist fracture	4	8%
Any other	1	2%
Total	50	100%

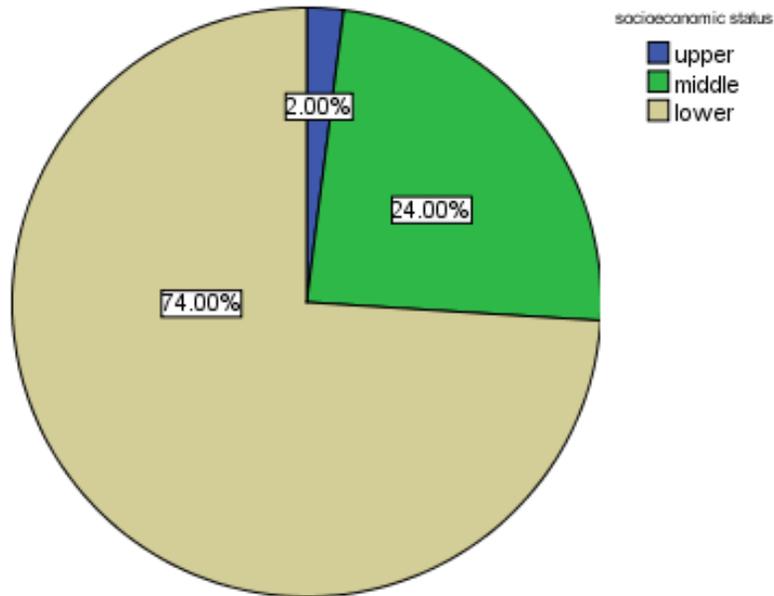
**Table 6: Frequency Distribution of Risk Factors Associated with Fracture(n=50)**

Variables	Yes	No	Total
Intake of steroids	46(92%)	4(8%)	50(100%)
Previous history of Fracture	14 (28%)	36(72%)	50(100%)
Family history of osteoporosis with fracture	7(14%)	43(86%)	50(100%)

**Table 7: Comparison Between Risk Factors and Type of Fracture (n=50)**

Risk Factors		Type of Fracture				
		Hip fracture	Spine fracture	Wrist fracture	Any other	Total
BMI score	25-30	6 (12%)	5 (11%)	0 (0%)	0 (0%)	11 (22%)
	>30	28 (56%)	6 (12%)	4 (8%)	1 (2%)	39 (78%)
BMD value	Below -2.5	31 (62%)	11 (22%)	4 (8%)	1 (2%)	47 (94%)
	Equal to -2.5	2 (4%)	0 (0%)	0 (0%)	0 (0%)	2 (4%)
	Greater than -2.5	1 (2%)	0 (0%)	0 (0%)	0 (0%)	1 (2%)

**Graph 1: Frequency Distribution of Socio-Economic Status (n=50)**



Graph 2: Pie Chart Showing Frequency Distribution of Socio-Economic Status (n=50)

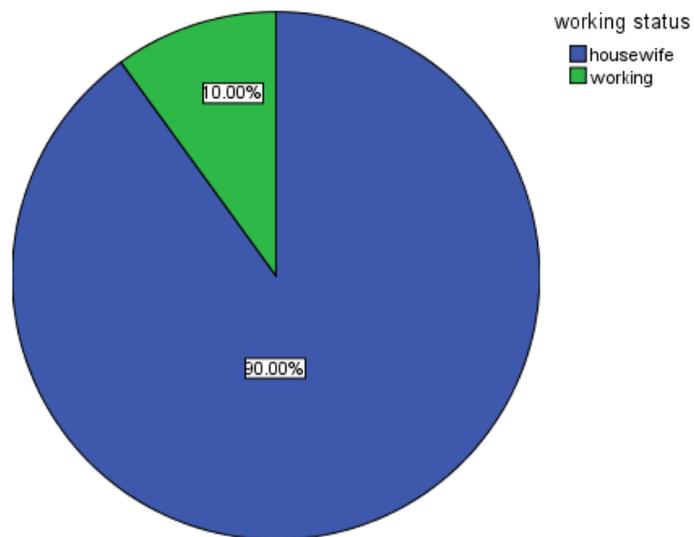


Figure 3: Pie Chart Showing Frequency Distribution of Working Status

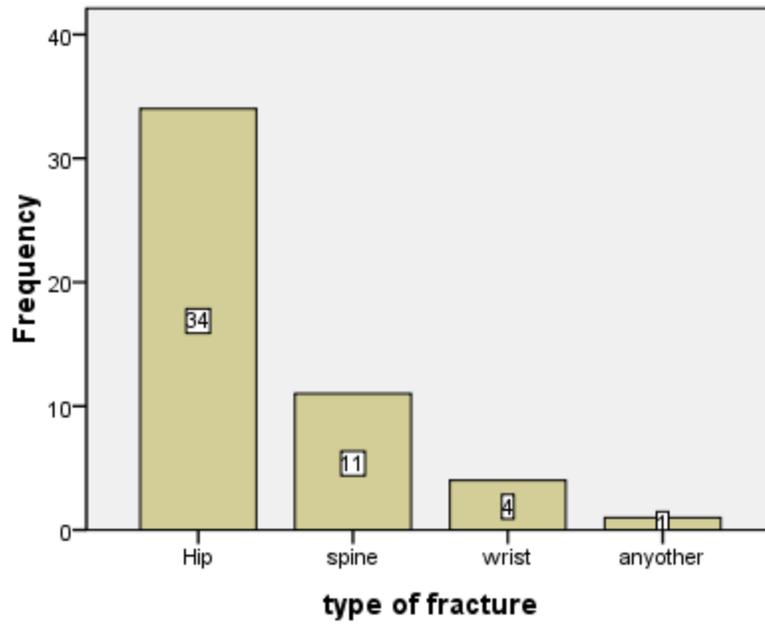


Figure 4: Simple Bar Chart Showing Frequency Distribution of Types of Fracture

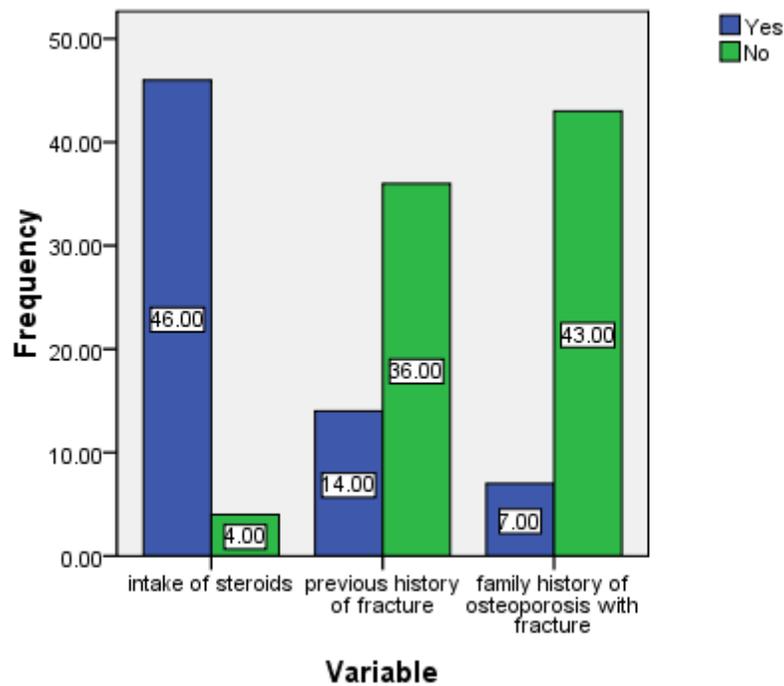


Figure 5: Multiple Bar Chart Showing Risk Factors for Fracture (n=50)

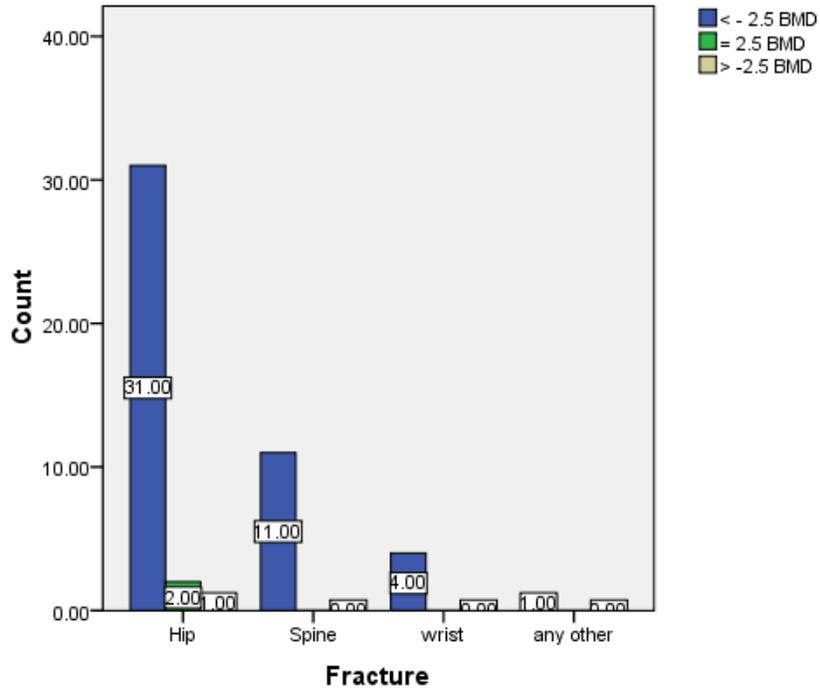


Figure 6: Multiple Bar Chart Showing Frequency Distribution of Fracture With BMD

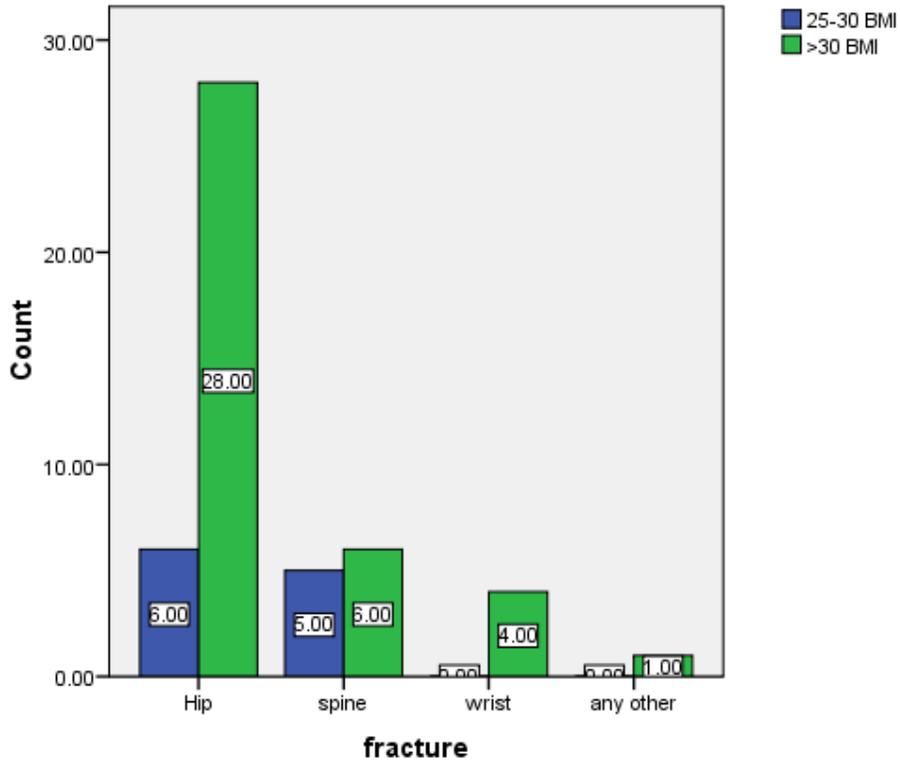


Figure7: Multiple Bar Chart Showing Frequency Distribution of Fracture With BMI

**DISCUSSION:**

Types of fractures in Old osteoporotic women occur frequently. Most common of which is Hip fracture, less common vertebral column fracture and least common are wrist fractures. Fracture occur frequently due to intake of steroids, family history of osteoporosis with fracture, low BMD and high BMI score. According to current study 68% women had hip fracture (femoral neck fracture), 22% had spine fracture (compression fracture), 8 percent had wrist fracture and 2% had other fracture. These results are similar to study of Melton et al. (2005), who studied that estimated life time risk of hip fracture in white women from the age of 50 years onwards is 17.5%, vertebral fractures 15.6%, wrist fracture 16%. According to the current study there are some risk factors which precipitate the different types of fractures including obesity (high BMI score greater than 30), very reduced bone mineral density less than -2.5, Intake of steroids and family history of osteoporosis. These results are similar to the study of Cawsey et al. (2015) who conducted that obese people with low BMD are at increased risk of fracture. The frequency of Hip fracture was highest in the study. Second most common fracture was vertebral column fracture. These results are similar to the study of Kanis et al. (2000) who investigated that fractures of hip and spine carry higher risks than fractures at other sites and lifetime risks of fracture of the hip in particular have been underestimated.

**CONCLUSION:**

Review of literature and research concludes the following points:

- Types of fractures in old osteoporotic women above 60 years are hip fracture, vertebral column fracture, wrist fracture and fragility fracture or other types less common.
- Hip fracture (femoral neck fracture) occurrence is predominant in old osteoporotic women.
- Low BMD (< -2.5) and high BMI score are major risk factor for fracture.
- Intake of steroid and family history of fracture also cause future risk for osteoporotic fracture.

**Limitations of Study**

There are following limitations related to our study work.

- The following study was collected in a limited area with limited number of persons so the results and conclusions are only applicable to these or only those patients who come for treatment in hospital from where data was collected.

- We could not take a very large sample because of shortage of certain resources and time.
- Closed ended questions were asked so the researcher had to select from the given options.

**REFERENCES:**

1. Browner, W.S, et al. "Mortality following fractures in older women.The Study of osteoporotic fractures." Arch Intern Med 156.14 (1996): 1521-5.
2. cauley, J.A, et al. "risk factors forseverity and type of the hip fracture." J Bone Minor Res 24.5 (2009): 943-55.
3. cawsey, S, et al. "women with severe obesity and relatively low bone mineral density have increased fracture risk." osteoporos int 26.1 (2015): 103-11.
4. Heiki, A, et al. "Fracture pevention with vitamin D supplementation." JAMA 293.18 (2005): 2257.
5. Heini, Paul F. "A survey of osteoporotic fracture treatment,osteoporotic spine fracture." Osteoporosis international 16.2 (2005): 85-92.
6. ivecenter, J.R, et al. "mortality after all major types of osteoporotic fracture in men and women: an observational study." Lancet 353.9156 (1999): 878-82.
7. Knut, S. "Fracture fixation problems in osteoporosis." Elsevier 35.2 (2003): 107-113.
8. Mariana, B, P Dehora and T Marcelo. "Physicaltherapy in the postoperative of proximal femur fracture in elderly." Acta Ortop Bras 21.3 (2013): 175-178.
9. Melton, L Joseph. "adverse outcomes of osteoporotic fractures in general population." bone and mineral research (2003): 1139-1141.
10. Rene, et al. "Osteoporotic fracture treatment." Acta Orthop. Belg 77.4 (2011): 441-447.
11. Stromsoe, K. "Fracture fixation problems in osteoporosis." injury 35.2 (2004): 107-13.
12. Bennell, K. L., Matthews, B., Greig, A., Briggs, A., Kelly, A., Sherburn, M. and Wark, J. (2010). Effects of an exercise and manual therapy program on physical impairments, function and quality-of-life in people with osteoporotic vertebral fracture: a randomised, single-blind controlled pilot trial. BMC Musculoskelet Disord., 11: 36.
13. Blakeney, W.G. (2010). Stabilization and treatment of colles' fracture in elderly patients.Clin Interv Aging.,18 (5):337-44.
14. Body, J. J., Bergmann, P., Boonen, S., Boutsen, Y., Bruyere, O., Devogelaer, J. P.and Reginster, J. Y. (2011). Non-pharmacological management of osteoporosis: a consensus of the Belgian Bone Club. Osteoporos Int., 22(11): 2769-2788.

15. Bonnaire, F., Strassberger, C., Kieb, M. and Bula, P. (2012). Osteoporotic fractures of the proximal femur. What's new?. *Chirurg.*, **83**(10): 882-891.
16. Browner, W.S, et al. "Mortality following fractures in older women.The Study of osteoporotic fractures." *Arch Intern Med* 156.14 (1996): 1521-5.
17. cauley, J.A, et al. "risk factors forseverity and type of the hip fracture." *J Bone Minor Res* 24.5 (2009): 943-55.
18. cawsey, S, et al. "women with severe obesity and relatively low bone mineral density have increased fracture risk." *osteoporos int* 26.1 (2015): 103-11.
19. Heiki, A, et al. "Fracture pevention with vitamin D supplementation." *JAMA* 293.18 (2005): 2257.
20. Heini, Paul F. "A survey of osteoporotic fracture treatment,osteoporotic spine fracture." *Osteoporosis international* 16.2 (2005): 85-92.
21. ivecenter, J.R, et al. "mortality after all major types of osteoporotic fracture in men and women: an observational study." *Lancet* 353.9156 (1999): 878-82.
22. Knut, S. "Fracture fixation problems in osteoporosis." *Elsevier* 35.2 (2003): 107-113.
23. Mariana, B, P Debra and T Marcelo. "Physicaltherapy in the postoperative of proximal femur fracture in elderly." *Acta Ortop Bras* 21.3 (2013): 175-178.
24. Melton, L Joseph. "adverse outcomes of osteoporotic fractures in general population." *bone and mineral research* (2003): 1139-1141.
25. Rene, et al. "Osteoporotic fracture treatment." *Acta Orthop. Belg* 77.4 (2011): 441-447.
26. Stromsoe, K. "Fracture fixation problems in osteoporosis." *injury* 35.2 (2004): 107-13.
27. Brian, k.A., koda-kimble., Mary, A., Young,L.Y., Wayne,A.k. and Joseph,G.(2009).*Applied therapeutics: the clinical use of drugs.* Philadelphia: wolters kluwer Health/Lippincott Williams and Wilkins.pp.103-3.
28. Yamamoto, T. (2012). Subchondral insufficiency fractures of femoral head.*Clin Orthop Surg.*, **4**(3):173-80.
29. Browner, W.S, et al. "Mortality following fractures in older women.The Study of osteoporotic fractures." *Arch Intern Med* 156.14 (1996): 1521-5.
30. cauley, J.A, et al. "risk factors forseverity and type of the hip fracture." *J Bone Minor Res* 24.5 (2009): 943-55.