



DIFFERENT RISK FACTORS IN ASSOCIATION WITH FRACTURES IN POSTMENOPAUSAL WOMEN

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ABSTRACT

According to the World Health Organization (WHO), by the year 2025, 1.1 billion women will be age 50 or over, all of whom are or will soon be experiencing menopause. Bone loss is reported accelerated by the decline in estrogen at menopause which increases the probability of fracture in women in the underlined stage of menstrual cycle. In this study we considered different studies concerning with risk factors of fractures in postmenopausal women. In the beneath a discussion is also made.

Discussion: As estrogen has its influence with bone density in postmenopausal women, results in increased probability of fractures. There is a need of educational camps with regard to dietary habits, preventions and early detection for the women belonging to age group underlined.

KEYWORDS : Fractures, Postmenopausal Women, Risk Factors

Introduction

Literal meaning of Menopause is, the permanent pause of menses, which tends the end of a woman's ability to have children. Women belonging to 50 and over come under this state and due to decline in estrogen, bone density decreases. As decreased bone density results in increased susceptibility to fracture (WHO,1994;Report of the Surgeon General.U.S,2004; Sirola J et al,2003; Ahlberg HG et al,2001; Guthrie J et al,1998; Melton LJ et al,1995; Marshall D et al,1996).Some fractures also account for high morbidity and mortality(Teng GG et al,2008). In this paper, we considered different studies concerning with risk factors of fractures in postmenopausal women.

We came across a prospective cohort study, considering follow-up of 1035 community-dwelling white women aged >65 years. In this study mean (+/-SD) of considered women observed was 7.0+/-1.5 years. According to this study bone mineral density was not found significantly associated with the ratio of animal to vegetable protein intake. Women having a high ratio of animal to vegetable protein intake were found having a higher rate of bone loss at the femoral neck than those with a low ratio ($P = 0.02$) and a greater risk of hip fracture (relative risk = 3.7, $P = 0.04$). These associations were also observed unaffected by adjustment for age, weight, estrogen use, tobacco use, exercise, total calcium intake, and total protein intake(Sellmeyer DE et al,2001).

In another study 4,429 postmenopausal women were considered, receiving osteoporosis treatment in the Prospective Observational Scientific Study Investigating Bone Loss Experience (POSSIBLE US), to assess the prevalence of risk factors (RFs) and on-study fracture. Observed RFs assessed at study entry were age >70 years; fracture since age 50; minimum T-score (hip/spine) ≤ -2.5 at diagnosis; observed body mass index 70 years were the most common RFs in the osteoporosis group. Multiple RFs were scanned more common than a single RF in osteoporotic women (54.2% versus 34.6%; $P < 0.0001$). Women with multiple RFs were reported having more on-study osteoporosis-related fractures than women with a single RF (osteoporosis group: 9.9% versus 6.2%; $P = 0.0092$; osteopenia group: 11.2% versus 4.7%; $P < 0.0001$). In postmenopausal women receiving osteoporosis treatment, multiple RFs increased fracture risk was also found reported in the same study(Yurgin N,2013).

In an observational, descriptive, cross-sectional study, 4,960 women, at 96 Primary Care centers were considered to assess the prevalence of risk factors for osteoporosis and fractures. Considered women were postmenopausal women aged 50 to 65 years attending Primary Care facilities in Spain. Results of this study revealed that the prevalence rates for the major osteoporosis risk factors were low calcium intake (43%), benzodiazepine use(35.1%), and height loss(30.1%). Whereas some other relatively prevalent factors found included were having suffered at least one fall during

the preceding year, positive family history of falls (particularly on the mother's side), smoking, kyphosis, presence of any disease affecting bone metabolism, personal history of falls, and inability to rise from a chair without using one's arms. In the same study the least frequent factors examined were weight loss of greater than 10% over the preceding 10 years and problems in sensory perception that affect patient's ability to walk(Rentero LM et al,2008).

A study considered data from UK Million Women Study in 1996–2001, all of these were registered with the UK National Health Service (NHS). In the study considered,561,609 women who had never went through hormone replacement therapy and who provided complete information on menopausal variables (at baseline 25% were pre/perimenopausal and 75% postmenopausal) were reported followed up for a total of 3.4 million woman-years (an average 6.2 y per woman). Only 1,676 (0.3%) were scrutinized admitted to hospital with a first incident hip fracture. Among women aged 50–54 y the relative risk (RR) of hip fracture risk computed was significantly higher in postmenopausal than premenopausal women (adjusted RR 2.22, 95% confidence interval [CI] 1.22–4.04; $p = 0.009$). Study revealed that among postmenopausal women, hip fracture incidence increased with age, with rates being about seven times higher at age 70–74 years than at 50–54 years (incidence rates of 0.82 versus 0.11 per 100 women over 5 y). In case of postmenopausal women of a given age, there was no significant difference found observed in hip fracture incidence between women whose menopause was due to bilateral oophorectomy compared to a natural menopause (adjusted RR 1.20, 95% CI 0.94–1.55; $p = 0.15$), and age at menopause had little, if any, effect on hip fracture incidence(Banks E et al,2009).

In one of the studies considered, the prevalence and incidence of clinical fractures in obese, postmenopausal women who enrolled in the Global Longitudinal study of Osteoporosis in Women (GLOW) was investigated. Considered study was a multinational, prospective, observational, population-based study which was carried out by 723 physician practices at 17 sites in 10 countries and a total of 60,393 women aged 55 years were included. According to the results of the study, Body mass index (BMI) and fracture history were available at baseline and at 1 and 2 years in 44,534 women, of these 23.4% were found obese (BMI 30 kg/m²). In this study fracture prevalence in obese women at baseline observed was 222 per 1000 and incidence at 2 years found was 61.7 per 1000, similar to rates in non-obese women (227 and 66.0 per 1000, respectively). Study also found that the risk of incident ankle and upper leg fractures was significantly higher in obese than in non-obese women, while the risk of wrist fracture was computed significantly lower. Obese women with fracture were considered more likely to have experienced early menopause(JulietGE,2011).

We also considered a retrospective study that was conducted to

study the relative contribution of osteoporosis and falls to the occurrence of symptomatic fractures in postmenopausal women by consideration of 2649 postmenopausal women (mean age, 61y; range, 45–91 years). Results of the study disclosed that Osteoporosis was found in 15% of the patients, 19% reported 1 or more falls during the preceding year, and 1.8% had having a fracture during the preceding year. The age-adjusted risk for a fracture in the past 12 months for a 1 standard deviation decrease in bone density computed in the study was 1.9 (95% confidence interval [CI], 1.4–2.5; P.01). Whereas, adjusted risk for age, bone density, and body mass index (BMI) for a fracture in the past 12 months in patients who reported a fall found was 6.0 (95% CI, 3.1–11.5; P.001). When a comparison is made with women without osteoporosis and without a fall, women with osteoporosis without a fall observed having an age- and BMI-adjusted fracture risk of 2.8 (95% CI, 0.6–12.8; P.10), and women with osteoporosis and a fall having an adjusted-fracture risk of 24.8 (95% CI, 6.9–88.6; P.0001) (Geusens P et al, 2002).

Steven R. et al. enrolled 7868 women between the ages of 60 and 90 years who had a bone mineral density T score of less than –2.5 but not less than –4.0 at the lumbar spine or total hip. Subjects were observed randomly assigned to receive either 60 mg of denosumab or placebo subcutaneously every 6 months for 36 months. In this study it was found that as compared with placebo, denosumab reduced the risk of new radiographic vertebral fracture, with a cumulative incidence of 2.3% in the denosumab group, versus 7.2% in the placebo group (risk ratio, 0.32; 95% confidence interval [CI], 0.26 to 0.41; P=0.01). No increase in the risk of cancer, infection, cardiovascular disease, delayed fracture healing, or hypocalcemia was found triggered in this study (Steven R et al, 2009).

We found another study, taking into account, 110 post-menopausal women who attended the Saveetha obstetrics and Gynaecology department. After informed consent women were interviewed with Questions from the validated questionnaire. In the study, it was observed that 64% women were between 45 to 55 years, 36% women were between 55 to 65 years of age. History of parental fracture was reported present in 5%, 5% were current smokers, glucocorticoids intake was found in 8% and Rheumatoid arthritis in 4%. If we put our concentration on risk, According to FRAX (FRACTURE RISK ASSESSMENT TOOL) tool score 66% women came under low risk, 30% came under moderate risk and 4% comes under high risk for major osteoporotic fracture (Xavier J et al, 2017).

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