fractures were excluded. Retrospective analysis was done to determine baseline characteristics, type and duration of ADT, Anti-OsteoRx, SupplRx, and osteoporosis CRF.
Results: 615 men on ADT +/- SupplRx +/- Anti-OsteoRx were included in the study. 10.08% had OsteoFx irrespective of SupplRx or Anti-OsteoRx. Comparing the OsteoFx group to the non-fracture group, the following CRF were found to be statistically significant ($p < 0.05$): age at prostate cancer diagnosis (75.10 +/- 11.80 vs 71.59 +/- 9.80 y), diabetes mellitus (DM) (33.9 vs 19%), pre-existing comorbidities affecting bone (PreCo) (41.9 vs 24.8%), steroid use (11.3 vs 4.0%), and anti-convulsant and proton-pump inhibitor (med) use (45.2 vs 26.8%).
9.89% of 374 men on ADT only without (wo) Anti-OsteoRx fractured. Statistically significant CRF for OsteoFx were age (76.86 +/- 10.55 vs 73.02 +/- 10.06 y), DM (40.5 vs 19.6%), PreCo (45.9 vs. 26.4%), and med use (48.6 vs. 25.5%).
In the following subgroups there were no statistically significant difference in CRF: • 7.64% of 170 men on ADT + SupplRx wo Anti-OsteoRx • 19.23% of 52 men on ADT only + Anti-OsteoRx • 10.52% of 19 men on ADT + SupplRx + Anti-OsteoRx
To increase statistical power, patients on ADT +/- SupplRx were assessed: • Among 71 men on ADT +/- SupplRx + Anti-OsteoRx, there were no statistically significant differences in CRF • Among the 544 men on ADT +/- SupplRx wo Anti-OsteoRx, significant CRF for OsteoFx were age (75.16 + 11.70 vs 71.37 + 9.85 y), DM (38 vs 19.4%), PreCo (38 vs 24.1%), steroid use (12 vs 3.8%), and med use (48 vs 24.3%)
Discussion: Men with prostate cancer requiring ADT have a higher incidence of osteoporosis defined by DXA prior to initiating ADT compared to age-matched cohorts (Hussain et al). Our study revealed ADT with CRF is associated with OsteoFx irrespective of SupplRx or Anti-OsteoRx. Limitations include inability to evaluate efficacy of Anti-OsteoRx due to insufficient power.
Conclusion: OsteoFx risk assessment utilizing CRF, FRAX, DXA with timely intervention may prevent OsteoFx in these high-risk patients.

Bone and Mineral Metabolism
FRACTURE PREVENTION AND TREATMENT

Diagnostic Accuracy of Different Screening Tools for Identifying Osteoporosis Risk Among Post-Menopausal Filipino Women Aged 45–65 Years

JUSTIENE MIA KLARISSE ALCANTARA DANGA, RMT, MD[1], Steven Johnson Lim, MD[1], Jacquelyn Sulit, MD[1], Elizabeth P. Pacheco, MD[2].
[1]THE MEDICAL CITY, PASIG, Philippines, [2]The Medical City, Quezon, Philippines.

Early screening of osteoporosis decreases fracture risk. Several identified clinical risk factors led to the development of screening tools to estimate osteoporosis risk. Bone Mineral Densitometry (BMD) as a diagnostic tool for screening is not practical because of high cost and poor availability. The extensively studied osteoporosis screening tools are: Simple Calculated Osteoporosis Risk Estimation (SCORE), the Osteoporosis Risk Assessment Instrument (ORAI), the Age Bulk One or Never Estrogen (ABONE), body weight (WEIGHT), and the Osteoporosis Risk Index (OSIRIS). These tools were developed and validated in Caucasians. Validation of these tools for specific populations is necessary because of the observed variations in BMD across geographic and ethnic groups. To date, the utility of these screening tools in the Philippines is unknown. We conducted a cross-sectional analysis of all patients who underwent BMD screening for osteoporosis in a tertiary hospital from January 2015 to September 2020. The study participants were postmenopausal Filipino women aged 45 to 65 years. The subjects had no history of osteopenia, osteoporosis, hip or spine fractures, use of osteoporosis medications, renal insufficiency, bilateral oophorectomy, hysterectomy, or early menopause. We identified demographic and clinical risk factors. These risk factors were used to calculate the risk score of five osteoporosis risk assessment tools: ORAI, ABONE, WEIGHT, OSTA, and ORISIS. Using the DEXA T-score as an external criterion, the sensitivity, specificity, positive and negative predictive values, positive and negative likelihood ratios, and diagnostic accuracy for each tool were calculated. Included were 1869 subjects with a mean age of 57.9 + 4.3 years old. Osteoporosis, with a T-score of <-2.5 at the lumbar or femoral neck area, was seen in 665 (35.58%). Risk factors such as weight, height, BMI, menopausal years, history of previous fractures, and intake of oral calcium supplements correlated significantly with a higher risk (OR=1.025, 95%CI: 0.974–1.079; OR=1.059, 95%CI: 0.84–1.338; OR=1.063, 95%CI: 0.817–1.383; OR=1.74, 95%CI: 1.198–2.528; and OR=1.088, 95%CI: 0.869–1.319), of having osteoporosis in the said population. ORAI and WEIGHT have the highest probability of identifying patients with a sensitivity of 88.42% and 91.28%, and accuracy of 85.71% and 87.98%. Both performed equally in screening for osteoporosis in this setting. However, ABONE, OSTA, and ORISIS underestimated the number of high-risk osteoporosis patients, because of their low sensitivity and diagnostic accuracy. Both ORAI and WEIGHT are simple and easy to calculate and can serve as an initial screening tool to identify Filipino postmenopausal women who are at high risk for osteoporosis. A prospective study with a correlation of fracture occurrences may provide evidence for the value of these tools as a screening test.

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FRACTURE PREVENTION AND TREATMENT

Effect of Statin Use on the Risk of Osteoporotic Fracture in Patients With Metabolic Syndrome: A Nested Case-Control Study

Kyoung Jin Kim, MD[1], Jimi Choi, PhD[1], Ji Yoon Kim, MD[1], Jae Hyun Bae, MD, PhD[1], Kyeong Jin Kim, MD, PhD[1], Hee Young Kim, MD, PhD[1], Hye Jin Yoo, MD, PhD[1], Ji A Seo, MD[2], Nan Hee Kim, MD, PhD[2], Kyung Mook Choi, MD, PhD[1], Sei Hyun Baik, MD, PhD[1], Sin Gon Kim, MD, PhD[1], Nam Hoon Kim, MD, PhD[1].
[1]Korea University College of Medicine, Seoul, Korea, Republic of, [2]Korea University College of Medicine, Ansan City, Korea, Republic of.

Statins may have advantageous pleiotropic effects on bone metabolism, however, the clinical evidence about the association is still unclear. Although many studies have already

evaluated this association, they have performed mostly in a general population with limitation of between-study heterogeneity. Statin may not be equally effective for bone metabolism to every patient, but it can give some benefits for some patients especially with metabolic syndrome (MetS). However, no recent study assessing this relationship, to best our knowledge, has evaluated specifically on patients with MetS. It is also unclear whether the association between statin and osteoporotic fracture differ by statin intensity, dose (cumulative defined daily dose), and duration. This study aimed to investigate the association of statin use with the risk of major osteoporotic fracture in MetS patients from a population-based cohort (NHIS-HEALS, 2002–2015). A nested case-control study was performed in patients with MetS (≥50 years) who had no history of previous osteoporotic fracture. This study included 17,041 cases diagnosed as new-onset osteoporotic fractures and controls matched in a 1:1 ratio by age, sex, body mass index, cohort entry date, and follow-up duration. Conditional logistic regression analysis was used to evaluate covariate-adjusted odds ratio (OR) and 95% confidence interval (CI). During the 4-year follow up period, statin users had a significantly lower risk of major osteoporotic fractures by 9% (OR, 0.91; 95% CI, 0.85 to 0.97) compared with non-users. Among subtypes of major osteoporotic fracture, a risk reduction of vertebral fracture was significant (OR, 0.86; 95% CI, 0.79 to 0.94), but not non-vertebral fracture (OR, 0.97; 95% CI, 0.88 to 1.06) with statin use. Longer duration (OR, 0.97 per 1 year) and cumulative dose (OR, 0.97 per 365 defined daily dose) of statin was negatively associated with the risk of major osteoporotic fracture. There was no difference in risk of major osteoporotic fractures among groups according to statin intensity. In conclusion, this study supports the hypothesis that statin treatment has a beneficial effect on major osteoporotic fracture, especially for vertebral fracture, in patients with MetS with a possibly dose-effect relationship.

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FRACTURE PREVENTION AND TREATMENT

Ethnicity, Ethnic Language, and Fracture Risk Conditions in Women Initiating Osteoporosis Therapy

Joan Chia-Mei Lo, 94612, MD[1], Malini Chandra, MS MBA[1], Jeanne A. Darbinian, MPH[1], Rita L. Hui, PharmD MS[2], Nancy P. Gordon, ScD[1].

[1]Kaiser Permanente Northern California Division of Research, Oakland, CA, USA, [2]Pharmacy Outcomes Research Group, Kaiser Permanente California, Oakland, CA, USA.

Introduction: The ethnic diversity of women with osteoporosis has increased, but data on acculturation and health remain limited. Having a primary language (PL) other than English may reflect acculturation level and/or immigration as an adult. We used electronic health record (EHR) data from a large US health plan to examine the association of baseline clinical risk conditions and PL among US Chinese and US Hispanic women who initiated osteoporosis therapy. **Methods:** We identified women age 65-74y who initiated osteoporosis therapy in 2002–2014, excluding those with skeletal disorders, advanced kidney disease and metastatic cancer. PL was ascertained from the EHR. The study included 1676 Chinese women with English-PL (50%) vs Chinese-PL (50%); 3453 Hispanic women with English-PL (72%) vs Spanish-PL (28%); and 20,289 non-Hispanic White (White) women with English-PL. Clinical conditions assessed included: current smoking; BMI <19 kg/m2; Charlson-Deyo Comorbidity Index (CCI); diabetes (DM) based on diagnosis with treatment; rheumatoid arthritis (RA) based on 2 diagnoses; and fracture diagnosis in the prior 5 years. Language subgroups (* denotes significant difference by PL, p<.05) and ethnic groups (all ethnic differences cited are significant at p<.05) were compared using chi-square tests. **Results:** Mean age was (69±3y) for Chinese, Hispanics, Whites, and PL subgroups. Prior fracture was lower in Chinese (12.8%) and Hispanics (25.6%) vs Whites (29.7%), with Chinese lower than Hispanics. Smoking was lower in Chinese (1.6%) and Hispanics (6.7%) vs Whites (11.3%). CCI score ≥3 was lower in Chinese (5.2%) and higher in Hispanics (13.0%) vs Whites (10.4%). RA was low overall and lowest in Chinese, especially Chinese-PL. More Chinese (4.2%) and fewer Hispanics (0.8%) had a BMI <19 vs Whites (2.2%). DM was higher in Hispanics (14.8%) and Chinese (8.2%) compared to Whites (5.7%). Significant and non-significant differences by PL were observed for current smoking (0.8%* vs 2.4% for Chinese-PL vs English-PL; 4.0% vs 7.8% for Spanish-PL vs English-PL), prior fracture (11.4%* vs 14.2% for Chinese-PL vs English-PL; 24.3% vs 26.1% for Spanish-PL vs English-PL) and DM (10.5%* vs 5.8% for Chinese-PL vs English-PL; 24.3% vs 26.1% for Spanish-PL vs English-PL) in Chinese and Hispanic women. **Conclusion:** Among older women initiating osteoporosis therapy, US Chinese women have lower comorbidity but a higher DM prevalence compared to white women, especially those with Chinese-PL. Hispanic women have higher comorbidity and higher DM prevalence than White women, with no differences by PL. Variation in prior fracture, low BMI, RA, and smoking were also seen. These findings highlight ethnic differences in women receiving osteoporosis care, including differences by primary language in Chinese women. Future studies should examine fracture risk factors and outcomes in US immigrant populations, especially Asians.

Bone and Mineral Metabolism
FRACTURE PREVENTION AND TREATMENT

Factors Associated With Inadequate Response to Bisphosphonate Therapy in Patients With Osteoporosis in Real-Life Clinical Practice: a Single-Center Retrospective Analysis of 300 Patients

Luciana Pinto Valadares, MD, PhD, Bruno Silva de Araujo Ferreira, MD, MSc, Bernardo Matos Cunha, MD, PhD, Larissa Aniceto Moreira, MD, Frederico Gideoni Albinati Batista, MD, Cristiane Fonseca Hottz, MD, Gabriel Galvao Rafael Magalhaes, MD, Sergio Henrique Rodolpho Ramalho, MD, MBA, MSc.

Hospital SARAH Brasilia - SARAH Network of Rehabilitation Hospitals, Brasilia, Brazil.

Introduction: Bone mineral density (BMD) measurement by dual X-ray absorptiometry (DXA) is a useful tool to monitor response to osteoporosis treatment in clinical practice. Despite bisphosphonates therapy, some patients