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Screening for Post-Menopausal Osteoporosis in Women ages 30-64 Review of a Pilot

Program in Primary Care

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ABSTRACT

The risk of an osteoporotic hip fracture is greater than the combined risks of breast cancer, myocardial infarction and stroke, yet research shows less than 25% of women are being screened. Post-menopause, either surgical or natural, is a risk factor for osteoporosis. Nurse practitioners are in an excellent position to lead the way in osteoporosis screening. This article presents findings in a recent osteoporosis screening program in a primary care office.

Background

Osteoporosis is the leading cause of fractures in persons over 50. [1] Non-hip fractures are responsible for 80% of fractures presenting to hospitals worldwide. [2] Only 23% of women over age 67 suffering non-hip fragility fractures or hip fractures are evaluated and treated for osteoporosis.[3] In 2014, prevalence data studied showed 54 million Americans 50 years and older are affected by osteoporosis, (10 million with osteoporosis) and (44million with low bone mass),equaling approximately half of the United States adult population.[4] United States Preventative Service Task Force (USPSTF) estimates by 2020 12.3 million persons 50 years or older are expected to have osteoporosis.[5] Physiologically fractures occur as a result of low bone mass. Estimate annual incidence of osteoporotic fracture in 2014 is greater than 1.5 million people with a cost estimate of more than $17 billion dollars spent yearly on osteoporosis patients.[6] Defined by the

World Health Organization, osteoporosis is the loss of bone mass and micro-architectural deterioration of bone which contributes to increased bone fragility leading to an increased fracture rate worldwide. [7] Research shows fewer than 25 % of women are being screened.[7] This lack in care continues to place women at risk for serious, often preventable fractures and their sequelae. Nurse practitioners, as primary care providers have an excellent opportunity to be leaders in osteoporosis prevention.

Literature review by the USPTF in 2017 found that the risk benefit of screening for women 65 years and older is at least moderate, and therefore women under the age of 65 who are post-menopausal, either surgical or natural, with at least one risk factor, should also be screened additionally.[8] Hadjidakis studied the effects of bone loss in relation to the age of menopause and type of menopause, surgical versus natural.[9] (Lower vertebral bone mineral density was found in women with an early bilateral salpingo-oopherectomy (BSO) versus a woman who had a natural menopause in ages 45-55 years old. [10]Yoshida studied this same cohort measuring the metabolic biomarker N-terminal telopeptide (NTX), which is found in the urine with bone turnover.[11] He found there existed significant increased NTX levels from 6 to 12 months following an oophorectomy associated with seriously decreased bone mineral density(BMD) by as much as 6.7% at 12 months post -op. He concluded there is a two-fold increase in lower bone density for those women who underwent surgical menopause versus a natural one. [12] His research illustrates the seriousness of this problem , which is not given appropriate emphasis to providers in the clinical setting .

Purpose

The goal of this program was to increase the identification of post-menopausal women surgical or natural, between ages 30-64 by screening for those qualified for referral for a dual absorptiometry (DXA) test scan through the use of a nationally recognized and accepted screening tool, The Simple Calculated Osteoporosis Risk Estimation (SCORE) risk assessment tool. [13.] This program parallels the level B recommendation by the USPSTF which recommends bone density testing in postmenopausal women under the age of 65 who have an increased risk of osteoporosis which is determined through the use of a formal clinical risk assessment tool. [14]The USPSTF evaluated evidence and concluded that clinical risk assessment tools including the SCORE assessment tool are moderately accurate in identifying those at risk of osteoporosis.[15]

All female patients identified as post-menopausal seen in the primary care practice between May 2019 and July 2019 were screened with the SCORE tool to determine if they were referred for a DXA scan. The DXA scan is done to determine bone density, a significant determinate used in the diagnosis of osteoporosis.

Identification of Osteoporosis

According to the 2018 Endocrine society guidelines, DXA scans are considered the gold standard utilized in diagnosing osteoporosis.[16]The evidence states that post-menopausal women either surgical or natural have an increased loss of bone mass in the years

immediately following the decrease in circulating estrogen.[17] Currently providers collectively have established the practice of providing bone density testing for women over the age of 65, however the evidence clearly states that it is the ocurance of menopause with the depletion of estrogen (occurring either natural or surgically) causing the accelerated bone breakdown process leading to osteoporosis that should be the sentinel event precipitating a referral for a DXA scan.[18] Evidence supports the process of identification of these at risk women needing a DXA scan to evaluate for the presence of asymptomatic osteoporosis before the first fracture occurs.[19] Research demonstrates that the single most significant predictor of osteoporotic risk fracture prediction is BMD which is obtained from a DXA scan. [20]

The Program

Instructing the medical assistants and providers on accurate completion of the SCORE assessment tool was accomplished in our weekly team meeting after approval for the program was secured by appropriate administrative chain of command. Each female of this select cohort seen in clinic for 90 consecutive days May 1st through July 1st 2019, was screened with the SCORE tool. Upon successful completion of the SCORE screen, each female patient identified as at risk by the tool, was referred to have a DXA scan. Interpretation of the DXA scan results and formulating the diagnosis of osteoporosis was done by a certified clinical densitometrist. Follow up appointments were provided to each individual screened to review results, diagnosis, recommendations and formulate a patient centered treatment plan. This appointment time was also used to provide patient education of the pathology of osteoporosis as well as pharmaceutical option chosen.

The Findings

There were 53 women aged 30-64 surveyed for participation in this program, those identified as post-menopausal(either surgical or natural) were then screened with the SCORE tool. Of the 28 screened ,13 scored high enough to be referred for a DXA scan. The result of the scans was consistent with what I have been seeing in practice for the past 2 years with 13 patients identified with either low bone mass (formerly osteopenia) or osteoporosis. This represents 55% of the cohort screened. I anticipated 50% of patients surveyed would be identified as at risk for osteoporosis and referred for a DXA scan. This significant finding demonstrates that osteoporosis is not just a disease process of elderly women but of all post-menopausal women which is occurring in a much earlier time period.

Implications of Practice

The silent disease of osteoporosis steals independence from women. Exposing this disease to the public and providers alike is the first step towards screening patients to identify those at highest risk. Numerous metrics are now part of a routine new patient intake assessment. Incorporating the short SCORE assessment during this process will identify those women who are post-menopausal needing to be tested by DXA. Just like a mammogram, DXA

scan evaluation of bone health needs to secure its place in the priority of health testing. Educating providers with this information is one of the critical links to identifying potentially affected patients. Early diagnosis and treatment of low bone mass or osteoporosis will reverse this condition, and prevent unnecessary fractures.

Conclusion

The nurse practitioner is the perfect health care provider to spearhead community education programs aimed at teaching the public about this silent disease Empowering people with knowledge strengthens their ability to be self-advocates for their health. Share the knowledge and change a life, one at a time.

References

1. Camacho MD, P., Petak MD, S., Brinkley MD, N., Clarke MD, B., Harris MD, S., Hurley MD, D., ... Watts MD, N. (2016, 09/2016). American Association of Clinical Endocrinologists and American College of Endocrinology Clinical Practice Guidelines for the Diagnosis and Treatment of Postmenopausal Osteoporosis . *Endocrine Practice* , *22*(Supplement 4), 1-41.

2. Camacho MD, P., Petak MD, S., Brinkley MD, N., Clarke MD, B., Harris MD, S., Hurley MD, D., ... Watts MD, N. (2016, 09/2016). American Association of Clinical Endocrinologists and American College of Endocrinology Clinical Practice Guidelines for the Diagnosis and Treatment of Postmenopausal Osteoporosis . *Endocrine Practice* , *22*(Supplement 4), 1-41.

3. Camacho MD, P., Petak MD, S., Brinkley MD, N., Clarke MD, B., Harris MD, S., Hurley MD, D., ... Watts MD, N. (2016, 09/2016). American Association of Clinical Endocrinologists and American College of Endocrinology Clinical Practice Guidelines for the Diagnosis and Treatment of Postmenopausal Osteoporosis . *Endocrine Practice* , *22*(Supplement 4), 1-41.

4. Curry,S chair USPSTF. (2018). Screening for Osteoporosis to Prevent Fractures US Preventive Service Task Force Recommendation Statement. *Journal American Medical Association*, *319*, 2521-2531. http://dx.doi.org/doi:10.1001/jama.2018.7498

5. Curry,S chair USPSTF. (2018). Screening for Osteoporosis to Prevent Fractures US Preventive Service Task Force Recommendation Statement. *Journal American Medical Association*, *319*, 2521-2531. http://dx.doi.org/doi:10.1001/jama.2018.7498

6. Curry,S chair USPSTF. (2018). Screening for Osteoporosis to Prevent Fractures US Preventive Service Task Force Recommendation Statement. *Journal American Medical Association*, *319*, 2521-2531. http://dx.doi.org/doi:10.1001/jama.2018.7498

7. Camacho MD, P., Petak MD, S., Brinkley MD, N., Clarke MD, B., Harris MD, S., Hurley MD, D., ... Watts MD, N. (2016, 09/2016). American Association of Clinical Endocrinologists and American College of

Endocrinology Clinical Practice Guidelines for the Diagnosis and Treatment of Postmenopausal Osteoporosis . *Endocrine Practice* , *22*(Supplement 4), 1-41.

8. Curry,S chair USPSTF. (2018). Screening for Osteoporosis to Prevent Fractures US Preventive Service Task Force Recommendation Statement. *Journal American Medical Association*, *319*, 2521-2531. http://dx.doi.org/doi:10.1001/jama.2018.7498

9. Curry,S chair USPSTF. (2018). Screening for Osteoporosis to Prevent Fractures US Preventive Service Task Force Recommendation Statement. *Journal American Medical Association*, *319*, 2521-2531. http://dx.doi.org/doi:10.1001/jama.2018.7498

10. Hadjidakis. (1999, 10/01/1999). The Type and Time of Menopause as Decisive Factors for Bone Mass Changes. *European Journal of Clinical Investigation* , 877-885. http://dx.doi.org/DOI: 10.1046/j.1365-2362.1999.00541.x

11. Hadjidakis. (1999, 10/01/1999). The Type and Time of Menopause as Decisive Factors for Bone Mass Changes. *European Journal of Clinical Investigation* , 877-885. http://dx.doi.org/DOI: 10.1046/j.1365-2362.1999.00541.x

12. Yoshida T. (2011, 02/10/2011). Impact of surgical menopause on lipid and bone metabolism. *Journal Climacteric* , *14*, 445-452. http://dx.doi.org/ https://doi.org/10.3109/13697137.2011.562994

13. Yoshida T. (2011, 02/10/2011). Impact of surgical menopause on lipid and bone metabolism. *Journal Climacteric* , *14*, 445-452. http://dx.doi.org/ https://doi.org/10.3109/13697137.2011.562994

14. Ahmadzadeh,A.,Enam,M.,Rajaei,A.,Moslemizadeh,M.,(2014,09/2014). Comparison of   three different osteoporosis risk assessment tools: ORAI(osteoporosis risk assessment instrument, SCORE (simple calculated osteoporosis risk estimation) and OST (osteoporosis self-assessment tool). *Medical Journal of the Islamic Republic of Iran,28,*Published online 2014,09/15.

15. Curry,S chair USPSTF. (2018). Screening for Osteoporosis to Prevent Fractures US Preventive Service Task Force Recommendation Statement. *Journal American Medical Association*, *319*, 2521-2531. http://dx.doi.org/doi:10.1001/jama.2018.7498

16. Curry,S chair USPSTF. (2018). Screening for Osteoporosis to Prevent Fractures US Preventive Service Task Force Recommendation Statement. *Journal American Medical Association*, *319*, 2521-2531. http://dx.doi.org/doi:10.1001/jama.2018.7498

17. Camacho MD, P., Petak MD, S., Brinkley MD, N., Clarke MD, B., Harris MD, S.,   Hurley MD, D., ... Watts MD, N. (2016, 09/2016). American Association of Clinical Endocrinologists and American College of Endocrinology Clinical Practice Guidelines for the Diagnosis and Treatment of Postmenopausal Osteoporosis . *Endocrine Practice* , *22*(Supplement 4), 1-41.

18. Crandall, C. J., Aragaki, A., Cauley, J. A., Manson, J. E., LeBlanc, E., Wallace, R., ... Vitolins, M. (2015, 02/01/2015). Association of Menopausal Vasomotor Symptoms with fracture Incidence. *The Journal of Clinical Endocrinology &Metabolism*, *100*.

19. Faubion,MD, S. S., Kuhle,DO, C. L., Shuster MD, L. T., & Rocca,MD, W. A. (2015, 04/07/2015). Long-term health consequences of premature or early

menopause and considerations for management . *Climacteric*, *18*, 483-491. http://dx.doi.org/doi:10.3109/13697137.20151020484

20. Ahmadzadeh,A.,Enam,M.,Rajaei,A.,Moslemizadeh,M.,(2014,09/2014). Comparison of   three different osteoporosis risk assessment tools: ORAI(osteoporosis risk assessment instrument, SCORE (simple calculated osteoporosis risk estimation) and OST (osteoporosis self-assessment tool). *Medical Journal of the Islamic Republic of Iran,28,*Published online 2014,09/15.

21. Camacho MD, P., Petak MD, S., Brinkley MD, N., Clarke MD, B., Harris MD, S.,   Hurley MD, D., ... Watts MD, N. (2016, 09/2016). American Association of Clinical Endocrinologists and American College of Endocrinology Clinical Practice Guidelines for the Diagnosis and Treatment of Postmenopausal Osteoporosis . *Endocrine Practice* , *22*(Supplement 4), 1-41.