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Introduction of Osteoporosis Screening within Orthopedic Clinics

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Executive Summary

Introduction of the Problem

Osteoporosis affects an estimated 10.2 million Americans, causing life-altering medical issues and economic burdens (Sarafrazi, 2021). During office visits, providers can use screening tools to detect the disease. Detection can lead to a treatment plan to prevent or improve bone disease in patients meeting risk criteria. Primary care providers have the best opportunity to screen during routine visits as they typically have a longer relationship with the patient and focus on preventative care and early detection. However, there are gaps in screening identified across America, leading to patients going undetected until they experience a fracture. US Medicare data shows that 65% of women above 65 years of age post-fracture lacked appropriate screening or treatment for osteoporosis (Barton, 2019). Orthopedists can screen for the disease during office visits, especially post-fracture follow-ups, to help close the detection gaps, promote treatment, and reduce secondary fractures. Studies show orthopedic surgeons would rather defer to primary care; they lack treatment education and are willing to screen in the clinic if a nurse practitioner takes the lead (Barton, 2019).

A large orthopedic practice in Central Illinois lacked an osteoporosis screening tool for detecting osteoporosis during office visits. The providers defer to primary care for screening and treatment. Patients were referred based on physician knowledge of risk factors, post-fracture patients, and the patient's reported history in the electronic medical record. Additionally, the providers needed to be made aware that the organization had an osteoporosis clinic for referrals. This project aimed to implement an osteoporosis screening tool to increase the number of patients screened and referred for osteoporosis treatment.

Literature Review

Pharmaceutical treatment of osteoporosis is beneficial in slowing bone destruction, preventing fractures, and restoring bone loss (Blakie, 2020). Studies concluded that some patients taking medication to treat osteoporosis showed improvement in bone mineral density and fracture risk compared to untreated patients. A financial benefit of screening is fracture prevention. Medical costs are significantly higher for patients who suffer from a fracture. Healthcare costs for patients with hip fractures are \$26,561-\$75,505 higher than for non-fracture patients (Tran, 2021). A patient's quality of life can be affected when suffering from a debilitating fracture. A study showed that one in four women reported decreased quality of life as their BMD declined (Aktas, 2018). In addition, women reported that they felt their concerns were not important to their physician, and the lack of healthcare early in their treatment negatively influenced their independence (Nilsson, 2018). Continuity of care and consistent support from healthcare providers can increase patient compliance and quality of life. Merlijn et al. (2019) conducted a study on risk factors for osteoporosis that were plagued with non-compliance and lack of medication adherence vs. other studies showing patients with support from liaisons or coordinators reported higher medication compliance.

Gaps in screening are significant enough that The World Health Organization (WHO) has called for primary care providers to lead the efforts in managing osteoporosis. However, there are opportunities for orthopedists to share in the responsibility once they become a part of the treatment team. Alisi et al. (2020) conducted a retrospective study reviewing 113 post-fracture patients; less than 10.6% were screened for osteoporosis post-fracture, and only 46.9% were prescribed interventions during their follow-up visit. Additional studies discussed that lack of treatment prior to elective joint surgery could lead to adverse outcomes, pushing for bone

optimization prior to surgery. The American Orthopaedic Association (AOA) recognizes that orthopedists have issues with undertreatment. Own the Bone (OTB) is an initiative the AOA has started to address the issue of reducing secondary fractures and increasing orthopedist involvement with bone health management (Kadri, 2020). A study conducted by Barton et al. (2019) showed that a high percentage of orthopedic surgeons when asked, refused or were reluctant to use a protocol for osteoporosis if it meant ordering a scan and writing a prescription. A high percentage supported a fracture liaison service to manage the protocol. A high percentage recognized that screening is essential but best managed through an APRN or primary care.

Mohammaed et al. (2019) compared seven osteoporosis screening tools, resulting in the Simple Calculated Osteoporosis Risk Estimation (SCORE) tool having the highest sensitivity and acceptable in all other categories for best performance. The Fracture Risk Calculation Tool (FRAX) combines risk factors with scanning to calculate the 10-year probability of a fracture and is recommended by the US Preventative Service Task Force (USPSTF) as a screening tool. Although effective, it is typically used to guide treatment decisions rather than as an initial screening tool (Pecian, 2016). When comparing the SCORE tool to the FRAX tool, SCORE was found to have a higher sensitivity for detection (Pecian, 2013). Both were deemed easy to use because they rely on easily obtainable risk factors. However, the SCORE tool had fewer questions, was easy to calculate online, and was created specifically for osteoporosis screening (Pecina, 2016).

Project Methods

This project's aim was to implement an osteoporosis screening tool in an orthopedic clinic. The goal was to reduce the number of undiagnosed and untreated patients. The practice comprised 12 orthopedic physicians, 11 physician assistants, and one advanced practice nurse

that covers a level 1 trauma center, practicing out of four clinics. The patient census ranged from 70 to 150 patients daily for each location; the physicians were orthopedic subspecialists. The support staff was comprised of RNs, CMAs, MOAs, and Radiology Technicians. The clinic did not use osteoporosis screening tools; patients were identified based on provider expertise and patient history. Osteoporosis education was provided to the support staff through an education module on the hospital's education platform. A data collection tool was created to capture all referrals; initially, this data would have been pulled from the electronic medical record reports based on referrals to the osteoporosis clinic. However, providers still wanted the option to refer to primary care, and those referrals would not be captured accurately in the referral report, so a paper document was created to ensure all referral data was collected. The SCORE screening tool, osteoporosis clinic, and data collection form were introduced through in-services for the providers and care team, with the opportunity to ask questions. The post-implementation feedback survey was explained and provided for all participants after the data collection portion of the project was complete. All women over 65 were screened using the SCORE tool during rooming. The risk factors were collected from the electronic medical record, patient history, and patient response to the questions. Patients not diagnosed or in treatment that scored medium to high risk were ordered a DXA scan, referred to primary care, or referred to the osteoporosis clinic for further treatment. The referral decision was dependent on provider and patient discussion.

Evaluation

A data collection tool was used for each patient screened to gather the appropriateness of the evaluation, the screening score, if the patient was referred for bone density screening, and referral placement. A Likert scale questionnaire was used to collect information regarding

knowledge of screening tools, the importance of screening, and satisfaction with using the SCORE tool. Data was analyzed by comparing follow-up action for each patient screened, level of risk using the SCORE screening tool point system, and overall referral percentage. The data from the Likert scale questionnaire was analyzed by comparing the percentage of responses for satisfaction with the tool, knowledge gained, and the importance of screening in the clinics.

Over eight weeks, 103 patients meeting the criteria were screened using the SCORE tool. Results showed that 52 (50%) of the patients had already been diagnosed and treated for osteoporosis before their orthopedics visit. Primary care providers appear to be screening; however, this finding suggests that screening gaps exist. Of the 51 (50%) newly screened patients, 24 (23%) were low-risk, 21 (20%) were moderate-risk, and 6 (6%) were high-risk. Newly screened moderate to high-risk patients warranted referrals for bone density screening, primary care, or the osteoporosis clinic. Of the 27 (26%) patients needing referrals, only 23 (22.3%) were referred for further treatment due to 4 (67%) of the six high-risk patients refusing treatment. Two of the high-risk patients who refused were greater than 90 years old, with caregivers deciding for them. Overall, the screening tool effectively captured patients at risk for osteoporosis and resulted in 23 (22.3%) patients being sent for further testing, suggesting that the orthopedic clinic can help close the gaps in screening.

Post-project evaluation included a questionnaire with a total of 17 participants' responses. All 17 (100%) participants reported they had never used an osteoporosis screening tool before, and 16 (94%) reported they had no prior knowledge of the SCORE tool. This finding concludes that no prior screening tool was utilized within the orthopedic clinics, which is surprising given that some participants have many years of experience. Ironically, once they used the tool, 15 (88%) reported that using a screening tool is “very important,” with 2 (12%) feeling it was

“somewhat necessary.” None of the respondents felt screening was “not necessary.” When asked for satisfaction using the SCORE tool, responses were mixed. A high percentage strongly agree or agree that the tool was easy to use, helpful for detection, and took minimal time to complete. When asked if they would use this tool regularly in the clinic, a little over half strongly agreed or agreed, 5 (29%) scored neutral, and a low percentage disagreed or strongly disagreed. Written comments about the tool focused on the need to streamline it in the medical record instead of the tool itself. Additional comments described the tool as being a great tool for screening.

Limitations to this project included providers being out of the office, the convenience of the screening tool, provider referral preference, and one provider who opted not to participate in the study. Providers' participation in the project depended on the support team screening; the providers would not agree to screen the patients

Impact on Practice

Initially, there was resistance from some of the support team, fearing the screening process would add more work to their day. However, once the education was complete and they used the tool frequently, they quickly realized that it was making a difference in detecting osteoporosis. Screening tools will continue to be utilized long-term now that the team knows they are available, even more so once it is available in the electronic medical record.

Conclusion

Screening for osteoporosis is a shared responsibility for all providers on a patient's care team. Early detection can positively impact a patient's livelihood medically and financially. There is evidence of gaps in detection, which can be supported by an effective screening process within the orthopedic clinics. This small 8-week study resulted in 23 patients at risk for

osteoporosis being identified and sent for further evaluation. Recommendations include more extended studies conducted to include bone scan results and follow-through evaluation, and orthopedic clinics without a screening process should implement a screening tool. Also, further studies could focus on the orthopedic surgeon's perspective of screening for bone optimization prior to elective total joint surgeries.

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