SCIENTIFIC ARTICLE

Clinical Efficacy of a Fragility Care Program in Distal Radius Fracture Patients

Shumaila Sarfani, BA, Tyson Scrabeck, BS, Ann E. Kearns, MD, PhD, Richard A. Berger, MD, PhD, Sanjeev Kakar, MD, MBA

Purpose To assess the quality of an initiative to improve the diagnosis and management of osteoporosis in patients over 50 years of age with distal radius fractures (DRF).

Methods A retrospective review was conducted to determine the baseline percentage of individuals undergoing osteoporosis screening after DRF. Thereafter, a study was implemented in which DRF patients who were not being treated for osteoporosis or had not recently undergone screening were offered a dual-energy x-ray absorptiometry scan and referral to endocrinology at the initial hand surgery clinic visit. Patients who declined participation were contacted by a patient educator to discuss the benefits of screening and address their concerns. Those who then wanted to receive an osteoporosis evaluation were scheduled for bone scanning and endocrinology consultation.

Results During the baseline period, 7 patients (15%) were screened, and 41 (85%) were not screened. During the active phase of the initiative, 82 patients over 50 years of age were treated for a DRF at our institution. A total of 44 patients were identified for potential osteoporosis screening, and 35 patients met inclusion criteria. Of these, 19 (54%) agreed to screening after the initial orthopedic evaluation, and 16 declined. After speaking to a patient educator, 9 of these 16 patients agreed to screening. Of the remaining 7 patients, 4 again declined screening and 3 were unavailable by telephone. Overall, 80% of patients who were identified in the initiative agreed to osteoporosis screening after the combination of recommendation during hand surgery clinic visit and patient education by telephone, and 64% were diagnosed with osteoporosis/osteopenia as a result of completing screening.

Conclusions An integrated model of care among orthopedic surgeons, patient educators, and endocrinologists substantially increased screening for osteoporosis after DRF. *(J Hand Surg Am. 2014;39(4):664–669. Copyright © 2014 by the American Society for Surgery of the Hand. All rights reserved.)*

Type of study/level of evidence Prognostic II.

Key words Distal radius fracture, osteoporosis fragility.

OSTEOPOROTIC FRAGILITY FRACTURES are a major public health concern,[1–3] with an estimated 2.1 million fractures per year, a figure that exceeds the annual incidence of breast cancer, myocardial infarction, and stroke combined.[3,4] Because of this, in 2004, the United States (US) Surgeon General called for medical practitioners to "act in regard to the recognition, prevention and treatment" of osteoporosis and reduce the number of fragility fractures that result from a fall from standing height or less, indicating

From the Department of Orthopedics, Mayo Clinic, Rochester, MN.

Received for publication June 25, 2013; accepted in revised form January 14, 2014.

No benefits in any form have been received or will be received related directly or indirectly to the subject of this article.

Corresponding author: Sanjeev Kakar, MD, MBA, Department of Orthopedics, Mayo Clinic, 200 First Street SW, Rochester, MN 55905; e-mail: kakar.sanjeev@mayo.edu.

0363-5023/14/3904-0009$36.00/0
http://dx.doi.org/10.1016/j.jhsa.2014.01.009

pathology greater than that caused by the mechanism of injury itself.[5] In response, the American Orthopaedic Association launched its Own the Bone initiative in 2009.[3,4] This is a US national quality improvement program encouraging orthopedic surgeons and medical specialists to target patients over 50 years of age with fragility fractures and implement secondary fracture prevention measures. Despite the tools and technology available for diagnosing osteoporosis, only 20% of individuals with a fragility fracture are entered into a screening program.[1] Once screened, only 20% received needed pharmacological therapy that could markedly reduce morbidity, mortality, and an estimated 17 billion dollars in health care spending annually.[1,6]

Declining bone mineral density is a risk factor in 70% to 80% of individuals who sustain low-energy distal radius fractures (DRF).[7,8] These patients have a 3.3-fold increase in sustaining future wrist fractures, a 5-fold increase in vertebral fractures, and 1.9-fold increase in hip fractures.[9–12] Distal radius fractures are the most common symptomatic fracture related to osteoporosis and occur 10 to 20 years before potentially more debilitating hip or vertebral fractures.[13–15] The hand surgery clinic may therefore be a valuable point of intervention for osteoporosis screening.[6] Nevertheless, evaluation of osteoporosis is not a part of routine follow-up care in the hand surgery clinic setting; only 5% to 20% of patients receive subsequent medical consultation or osteoporosis pharmacotherapy.[9]

The purpose of this study was to assess the efficacy of implementing an osteoporosis screening program aimed at patients with DRF in our hand surgery clinic. We measured the impact of intervention by the hand surgical team in the clinic and of telephone contact by a patient educator on the rates of osteoporosis screening of patients with DRF.

MATERIALS AND METHODS

Retrospective review of baseline data

After we obtained institutional review board approval, we conducted a retrospective review to establish baseline data of screening for osteoporosis before implementing the quality initiative over a 4-month period (September 2010 to December 2010). A total of 69 patients over 50 years of age with DRF were seen in the hand clinic. Information regarding whether these patients were subsequently screened for osteoporosis was reviewed using the same inclusion and exclusion criteria that were used during implementation of the quality program: Patients over 50 years of age who were receiving follow-up care for DRF at our institution were included. Patients due to receive follow-up orthopedic care at other institutions were not included. The date of dual-energy x-ray absorptiometry (DXA) scan was compared with the date of DRF to determine whether patients were screened before DRF, after DRF, or not at all. In addition, patients who were already receiving osteoporosis medication were considered to have been screened before the fracture and were not considered for DXA.

Implementation of quality initiative

We considered 82 patients over 50 years of age, who presented to the hand surgery clinic with a DRF over a 4-month period (September 2011 to December 2011), as meeting inclusion criteria for consideration of osteoporosis screening. This was based on guidelines set by the US Surgeon General and the National Osteoporosis Foundation.[5] Patients 50 years of age and younger, those who had undergone osteoporosis screening by DXA within the past 2 years, those already receiving osteoporosis medication, and those who were due to receive the remainder of their orthopedic care at other institutions were not offered osteoporosis screening. Table 1 provides a summary of counts and demographics. Ages ranged from 51 to 92 years. All consultants, fellows, residents, and allied health staff within the hand department were educated about the initiative, including the inclusion–exclusion criteria and the capture process. This took the form of a teaching session with these members and a weekly e-mail to reinforce the purpose of the study. Nursing staff, cast room personnel, and the treating medical team coordinated the screening of clinic outpatients. Upon meeting inclusion criteria, patient medical records were highlighted as potential osteoporosis screening candidates for the consulting team. At 6-week follow-up, patients who were identified as meeting the screening criteria were educated about the aims of the initiative and were offered screening for osteoporosis by their hand surgeon. This was composed of a DXA scan for bone mineral density assessment and follow-up in the endocrinology clinic. Therefore, all screening and referrals for DXA scan were done by orthopedic clinic staff; evaluation and implementation of treatment were left to the discretion of the endocrinologist. For concerns of impairing fracture healing,[16] any osteoporosis medication was started when the hand surgeon had deemed the fracture to have clinically united, which was on average 6 weeks after fracture.