Fragile Fracture Care Management Program

By Maggie Che, MD
Bruce Ettinger, MD
Jennifer Johnston, MPH
Alice Pressman, MS
Judy Liang, PharmD

Introduction

Previous osteoporotic fracture is a strong risk factor for recurrent fracture, both in men and in women,[1-7] yet only one in five patients receive osteoporosis intervention after sustaining a fracture.[8] In 2003, implementation of a new HEDIS measure assessing health plan performance on postfracture care reflected national recognition of the importance and magnitude of this issue. The HEDIS measure assesses the percentage of women 67 years of age and older who receive either a bone mineral density (BMD) test or a prescription for an osteoporosis drug within six months after sustaining a fracture.

Data available from the Kaiser Permanente Northern California Region (KPNC) in 1999 showed a need to improve our postfracture care. Only 6% of women and <1% of men had received bone densitometry testing after an osteoporotic fracture of the hip, spine, wrist, or humerus. Similarly low percentages were found for initiation of osteoporosis medication for women (7%) and men (2%) (BE, unpublished data, 1999).

The Fragile Fracture Care Management (FFCM) Program was a year-long pilot project implemented in July 2003 at the KP Vacaville Medical Center. The goal of the project was to evaluate efficacy of a care management program in increasing the rate of BMD testing and initiation of osteoporosis medication among women and men who have had a fragility fracture of the wrist, hip, spine, or humerus.

Methods and Key Components of the Program

The design of the FFCM program attempted to satisfy four primary goals: 1) to alert the Primary Care Physician (PCP) of a fracture event; 2) to shift follow-up care to a specially trained Care Manager when appropriate; 3) to use information technology—specifically, an application developed by Pharmacy Analytic Services (PAS) and modeled on the Cholesterol Care Management system—to track and to improve patient flow; and 4) to implement risk assessment models that would weigh multiple individual risk factors in addition to BMD test results to determine future fracture risk and to qualify patients for osteoporosis treatment.

PCP Alert

Notifying the PCP about a fracture event was a critical component of the FFCM program. Each PCP retained oversight and management of his or her patient's postfracture care. For patients who require further evaluation (eg, because of abnormal laboratory results) or elect not to enroll in the FFCM program, notification and linkage back to the PCP also may improve osteoporosis intervention outcomes. Notification was achieved by sending a letter advising the PCP that his or her patient had suffered a fracture and asking for PCP approval to offer the patient enrollment in the FFCM study.

The FFCM Care Manager

The Fragile Fracture Care Manager (CM) role was staffed with a 0.3-FTE Ambulatory Care Pharmacist. The CM practiced under supervision of the FFCM Physician Champion and under a strict protocol. The CM completed patient risk assessment, provided patient education and counseling (through the Telephone Appointment Visit), and prescribed osteoporosis medication as appropriate. The CM role was supported by a 0.5-FTE Program Assistant (PA), who sent and received patient and PCP letters and managed data collection, computer entry of the risk questionnaire responses, and phone recruitment of patients.

Information Technology Application for Care Management

The capacity for processing a large patient caseload using only minimal staffing was made possible by use of a case management software application developed by Pharmacy Analytic Service (PAS). This FFCM application allowed automation of many key program activities, including identification of fracture patients,

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Maggie Che, MD, Department of Medicine, Vallejo Medical Center. E-mail: maggie.che@kp.org.
Bruce Ettinger, MD, KP Division of Research. E-mail: bruce.ettinger@kp.org.
Jennifer Johnston, MPH, The Permanente Federation, Oakland, California. E-mail: jennifer.johnston@kp.org.
Alice Pressman, MS, KP Division of Research. E-mail: alice.pressman@kp.org.
Judy Liang, PharmD, Department of Pharmacy, Vallejo Medical Center. E-mail: judy.liang@kp.org.

generation of personalized letters to PCPs and their patients, tracking of test results, calculation of individualized risk scores, and creation of a database and record of patients who have sustained a fracture.

Future Fracture Risk Assessment and Treatment Protocol

Individualized risk assessment was considered a critical component of the FFCM program. Intervention that initiates osteoporosis medication solely on the basis of BMD scores might not accurately assess a patient's risk of future fracture.

For women aged 55 through 79 years, we used a risk assessment model developed by Bruce Ettinger, MD (of the KP Division of Research), to estimate the patient's five-year risk of fracture in the spine and hip (BE, unpublished data, 2004). Cutoff points for initiating drug intervention were a five-year fracture risk of 5% for hip fracture (number needed to treat (NNT) = 60) and a five-year fracture risk of 8% for spine fracture (NNT = 30). For patients aged 70 years and older, we used a risk score developed by Black and colleagues[9] that calculated fracture score from the patient risk questionnaire data. Under that system, cutoff points for initiating drug intervention were a fracture score of 8 (if BMD was measured) or a fracture score of 5 (if BMD was not measured). For women aged 70 through 79 years, we calculated both fracture scores; if either score met criteria for treatment, the patient would be offered osteoporosis medication.

Because no validated risk scores existed for men, we used BMD T-score below -2.5 as the sole criterion for treatment.

Program Methods

Participant Selection

Men and women aged 55 years and older who suffered a hip, spine, wrist, or humerus fracture between April 2003 and May of 2004 were identified for possible participation in the program. Patients were excluded if they had died, were listed in the Do Not Contact database, were receiving high-dose corticosteroid drugs, had a known medical or bone condition predisposing them to bone loss for secondary reasons, or were already receiving osteoporosis drugs.

Intervention

The program protocol was approved by the KPNC Institutional Review Board in June 2002. A letter was sent to the PCP to explain the program and to ask for consent to enroll the postfracture patient into the FFCM program. Any PCP who did not respond to the letter within two weeks received a reminder telephone call for consent.

If consent was obtained from the PCP, patients were mailed a letter explaining the program and inviting their participation within three months after the fracture event. A patient consent form was included in the mailing. Any patient who did not contact the program staff within three weeks received a recruiting telephone call.

All enrolled subjects had a series of laboratory tests to evaluate complete blood count, serum protein (by electrophoresis), serum calcium level, serum TSH level, serum creatinine level, serum AST (SGOT) level, serum intact parathyroid hormone level, and serum 25-hydroxy vitamin D level. Men additionally had serum testosterone level measured at 8:00 am. Women younger than age 70 years and all men received BMD testing using dual-energy x-ray absorptiometry. Historical risk factors were determined from responses to a mailed questionnaire. These risk factors included low body mass index (BMI), current smoking, mother with hip fracture, sister with hip fracture, and inability to rise from chair without using arms.

Each patient who completed the required testing and had no secondary reasons for bone loss received a Telephone Appointment Visit (TAV) from the CM. At each TAV, the CM validated information from the patient risk questionnaire and reviewed each fracture risk score. Patients qualifying for medication were offered a prescription for an antiresorptive agent. Drug-qualifying and nonqualifying enrollees received recommendations for preventing future fracture. The recommendations included advice on fall prevention, calcium and vitamin D supplementation, and preventive health measures.

Results and Discussion

Although full analysis of the data from the FFCM project will not be available until early 2005, the experience gained from program implementation has yielded several preliminary insights for future intervention in the osteoporosis population who have had a fracture.

Patient Barriers Identified

The patient consent rate for enrollment into the FFCM program was lower than anticipated. This result was in part attributed to the recruitment methodology used. Patients who initially qualified for inclusion and received the consent of their PCP received a letter from an unfamiliar physician (ie, the FFCM physician champion) inviting them to enroll in the FFCM after the fracture event. Rates of patient consent might have been improved by direct referral at time of hospital discharge,

direct referral at a visit to the Orthopedics clinic, or direct referral at a follow-up visit with their PCP. In addition, some patients who returned response cards and consented to enroll were unable to complete the required testing. Especially in the elderly population, a major barrier to completing the study was the difficulty of obtaining transportation to complete BMD and laboratory testing.

More Physician Outreach Needed

Because the original design of the program anticipated that most identified patients would be referred to the CM, the pilot study included no physician education component. However, given that many identified patients either actively or passively failed to enroll in the study, the act of alerting the PCP to the fracture event may itself have constituted an intervention. Any future implementation of the FFCM program should include focused training and education of PCPs regarding postfracture evaluation and management.

Preliminary data from the KPNC Department of Quality and Operation Support (QOS) reflecting performance on the HEDIS quality measure for postfracture care indicate that the rate of BMD testing or initiation of osteoporosis medication in the KP Napa-Solano Service Area during the period from July 2003 through December 2003 was double that of the comparison facilities (KPNC medical centers with known osteoporosis intervention programs were excluded from the comparison group). In addition to the rates of BMD testing and prescription for osteoporosis medication, final analysis of the FFCM program will include assessment of the effects of the PCP alert letter alone (ie, BMD testing and osteoporosis prescription rates among patients identified but not enrolled). Results will be available in 2005.

Conclusions

The FFCM program is one of several KP efforts to address performance on the new HEDIS measure. The Hip At Risk Program (HARP), spearheaded by Richard M Dell, MD, and Steve Schelken, MD, in the KP Southern California Region has been implemented at other KP facilities in the KP Southern California, Hawaii, and Mid-Atlantic Regions. However, improved performance on HEDIS should not be our only goal for ensuring high-quality care for our patients with osteoporosis. Ordering BMD tests and appropriate prescribing of antiresorptive medication represent only one part of the solution. Counseling patients on the importance of lifestyle changes (smoking cessation, alcohol moderation, and exercise), fall prevention, and calcium and vitamin D supplementation are important measures in reducing the debilitating consequences of fragility fractures. As we apply lessons learned from this osteoporosis intervention study, we will continue to make progress in reducing ongoing physician and patient barriers to postfracture care. ❖

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