

Inpatient Administration of IV Bisphosphonate Therapy for Treatment of Osteoporosis in Elderly Hip Fracture Patients – A Quality Improvement Initiative

Naomi Turner¹, Marissa Mizumi Song Mayeda, Yee-Cheen Doung, Darin M Friess², Kathleen Drago

¹OHSU, ²Oregon Health & Science University

INTRODUCTION: The purpose of our quality improvement (QI) initiative was to increase our institution's rate of initiating osteoporosis treatment by developing and implementing an inpatient protocol facilitating appropriate osteoporosis diagnosis and prompting administration of a one-time intravenous zoledronate infusion for elderly patients admitted for hip fracture surgery.

METHODS: We used a model for scholarly quality improvement with iterative Plan-Do-Study-Act (PDSA) cycles to design and implement our QI initiative. Patients ≥ 50 who presented to our institution with a low-energy hip fracture and received surgical treatment were considered potential candidates for inpatient IV bisphosphonate therapy. For our preliminary PDSA cycle, we created a protocol prompting admitting services to order IV zoledronate on postoperative day two. An iterative PDSA cycle involved the orthopaedic department placing osteoporosis diagnosis and treatment recommendations in consult and postop progress notes. For data review, we identified patients using CPT and ICD codes. We assessed the primary outcome measure of inpatient IV zoledronate administration and a secondary outcome measure of diagnosis of osteoporosis during hospital stay.

RESULTS:

During the 5 months prior to initiation of our protocol, of 37 elderly patients admitted to our institution with a hip fracture, 29 were eligible for bisphosphonate therapy. Only 3/29 (10%) patients were confirmed to have been appropriately treated for osteoporosis after hip fracture in either the inpatient or outpatient setting, and no patients received inpatient IV zoledronate. Of the 37 hip fracture patients, only 14 were diagnosed with osteoporosis during their hospital admission (38.8%).

In the 18 months since implementation of our protocol, the rate of inpatient bisphosphonate prescription at our institution has steadily improved. In our most current quarter of chart review, 24 patients were admitted to our institution with a hip fracture. Eleven of 13 eligible patients received inpatient IV zoledronate (85%). Of these 23 hip fracture patients, 21 were given a diagnosis of osteoporosis during admission (91%).

DISCUSSION AND CONCLUSION: Despite AAOS guidelines, osteoporosis continues to be under-diagnosed and inadequately treated. After implementation of our QI protocol, we increased the rate of inpatient osteoporosis treatment with IV zoledronate for elderly hip fracture patients admitted to our institution from 0 to 85%. Our protocol design could be considered by other institutions to further improve the rate of appropriate osteoporosis diagnosis and treatment in the setting of admission for hip fracture.