Journal of Osteoporosis & Physical Activity

Edgington et al., J Osteopor Phys Act 2016, 4:3
DOI: 10.4172/2329-9509.1000182

Commentary Open Access

The Orthopedic Surgeon's Role in the Care of Fragility Fractures

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Received date: June 09, 2016; **Accepted date:** September 01, 2016; **Publication date:** September 06, 2016

Commentary

Osteoporosis currently affects over twelve million Americans with another forty million affected by osteopenia or low bone mass [1]. Low bone mineral density has long been known to increase the risk of fragility fracture defined as "any fracture caused by injury that would be insufficient to fracture a normal bone", typically occurring in the hip, vertebrae, wrist, and proximal humerus [2]. The annual incidence of fragility fractures is estimated at two million, with projections of an almost 50% increase in fractures and associated costs by 2025 [3]. At an incidence of two million new fractures per year this problem supersedes the combined incidence of heart attacks, stroke, and breast cancer [4]. After myocardial infarction, studies show beta blockers are initiated in approximately 85% of patients [5]. In contrast, anti-osteoporosis treatments following fragility fracture are only initiated in 19% and 10% of privately insured women and men, respectively [6]. Bawa et al. showed that initiating anti-osteoporotic treatment after fragility fracture leads decreased risk of subsequent fracture by 40% within three years [7]. Within the United States, the cost of subsequent fractures is significant to commercial insurances and Medicare with estimates as high as $834 million and $1.13 billion, respectively [8]. The substantial osteoporosis-related health and economic impact on society has led to a heightened call for intervention at all levels of care. As the providers who care for these patients at the time of fracture, the onus is on orthopedic surgeons to help coordinate effective diagnostic and treatment strategies.

Some propose a lack of clarity between primary care physicians and orthopedists about the responsibility to evaluate and prescribe anti-osteoporotic treatment. There is general consensus that chronic problems like diabetes, hypertension, and hyperlipidemia fall under the jurisdiction of a primary care physician. Similarly, when a sentinel event like a fracture occurs, treatment of the fracture is typically performed by orthopaedists. There is less clarity in regards to the physician responsible for treating underlying osteoporosis after a fracture. Based on results published by Simonelli, many primary care physicians agree that treatment of osteoporosis falls into their jurisdiction [9]. However, multiple studies also show that primary care physicians do not feel comfortable prescribing anti-osteoporosis medications given some uncertainties regarding interactions and when to initiate treatment [10,11]. Further research shows that within the subset of orthopedists who feel their role should include some form of diagnostics and treatment of osteoporosis following fracture, greater than half were uncomfortable prescribing pharmacologic treatments [10]. Furthermore, many orthopaedic surgeons feel more comfortable participating in the initiation rather than the management of osteoporosis-related care. This data confirms the apparent lack of clarity about provider responsibility, but also exposes the universal hesitancy to treat due to concerns of drug interactions, long term care, medication side effect profile, and proper work up for secondary causes of osteoporosis [10-13]. The complexity of medical management of anti-osteoporotic medications would likely fare better under the supervision of a primary care physician or specialized osteoporotic clinic.

As the data shows, the existing patchwork of bone health providers, including orthopedic surgeons, primary care physicians, and endocrinologists, is not working. In fact, based on data published by Balasubramanian and colleagues, rates of post-fracture diagnostic tests and initiation of anti-osteoporosis treatment may actually be declining [6]. Gardner and colleagues described patient education regarding osteoporosis, fall prevention, and a list of questions to ask their primary care physicians as an effective method for improving rates of treatment initiation [14]. However, even after intervention, a minority of patients received treatment during the study period. Another system proposed to bridge the gap between acute, fracture-related care and subsequent diagnosis and treatment of underlying bone disease is the Fracture Liaison Service (FLS). The FLS was designed through the American Orthopaedic Association's "Own the Bone" initiative and creates a framework for identifying patients who are at high risk for subsequent fractures due to poor bone quality and initiating appropriate diagnostic and treatment modalities. This model consists of a team of specialized mid-level providers and nurses working under an orthopedic surgeon. Compared to established models for osteoporosis treatment following a fracture, including referral letters to primary care physicians or endocrinologists, the FLS system results in higher rates of diagnosis and treatment among this patient population [15]. In addition, the FLS is also cost-effective by reducing secondary fracture rates and increasing quality-adjusted life years [16]. This system is creating a new paradigm for post-fracture care and shifting responsibility to the orthopedic surgeon.

Orthopedic surgeons will always remain a critical part of the osteoporosis care pathway, providing acute fracture-related treatment and potentially initiating secondary prevention for subsequent fractures. Literature supports intervention following the sentinel event of a fragility fracture however results continue to be suboptimal [17]. Our proposed solution is a more clearly defined role for the orthopedic surgeon as well as other healthcare providers. Orthopaedic surgeons remain primarily responsible for identifying and treating fractures in the acute period. In addition, surgeons should take the lead in bridging the gap between acute, fracture-related care and chronic, preventative care related to osteoporosis. Specialized osteoporosis services, such as Fracture Liaison Services, represent a promising solution in the post-fracture care period and may assist orthopaedic surgeons in bridging this care gap. In the current climate of value-based healthcare, the ability of a surgeon to coordinate these efforts and produce cost-effective improved outcomes will be further emphasized. Large organizations such as "Own the Bone" and the "National Osteoporosis Foundation" will continue to be the driving force behind this movement.

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