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## Practice Patterns in the Treatment of Male Osteoporosis

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To the Editor:

Osteoporosis in men has recently been recognized as a significant public health issue; yet, it remains undertreated, leaving men vulnerable to early death and disability. Current guidelines by the Endocrine Society recommend treatment for men at high risk for fracture, including those with osteopenia (T-score between  $-1.0$  and  $-2.5$ ) and a Fracture Risk Assessment Tool (FRAX) score  $\geq 3\%$  for a hip fracture or  $\geq 20\%$  for any fracture (1). However, little is known about physician practice patterns regarding osteoporosis treatment in men.

We surveyed 600 physician members of the Endocrine Society, American Academy of Family Practice and American Geriatrics Society, using the modified Dillman method of survey administration (2). In addition to providing information on type and frequency of osteoporosis medication used, respondents were asked to indicate scenarios for which they were likely to initiate treatment for osteoporosis in their male patients.

Of the 566 response-eligible physicians, 359 (63%) completed the survey. Overall, 36% of the respondents were primary care physicians, 32% were endocrinologists and 32% were geriatricians. Most respondents had  $> 20$  years of practice experience (52%). Practice settings included private practice (51%), community-based academic affiliate (31%) and academic tertiary care center (18%). Three fourths of the respondents reported that they often to almost always prescribed bisphosphonates for treatment of osteoporosis in men (75%). Other medications used included denosumab (15%), recombinant human parathyroid hormone (2%), nasal calcitonin (1%) and raloxifene (1%). When presented with clinical scenarios, 76% of respondents reported that they would treat a male patient with a recent non-traumatic fracture and 71% a male patient on prolonged steroids. While the majority of respondents reported that they would treat a male patient aged  $\geq 50$  years with osteoporosis diagnosed by a T score  $-2.8$  at the femoral neck (87%), only 37% reported they would treat a male patient aged  $\geq 50$  years with osteopenia and a high FRAX score (T score  $-1.7$  at the femoral neck and FRAX score  $\geq 3.2\%$  for hip fracture). Responses were similar among specialties, except for the latter scenario. Table 1 shows that in multivariable analyses,

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primary care physicians and geriatricians were less likely to initiate treatment in this latter scenario compared to endocrinologists (odds ratio (OR) 0.40, 95% confidence interval (CI) 0.21-0.74; OR 0.31, 95% CI 0.17-0.59, respectively). Additionally, physicians with >20 years in practice were less likely to initiate treatment for the same scenario (OR 0.36, 95% CI 0.19-0.70).

Despite current guidelines on treatment of male osteoporosis (1), we found that only one-third of physicians would treat a man with osteopenia at high risk for fractures based on their FRAX score. Data from the Rotterdam study (N=7,806) showed that only 21% of non-vertebral fractures in men 55 years occurred at a T score below -2.5 (3). Other studies have also highlighted that a high burden of subsequent fracture exists in older men with normal bone mineral density and osteopenia, which can lead to excess mortality if left untreated (4, 5). Therefore, determining treatment primarily based on T-scores may provide an incomplete evaluation of the actual fracture risk, and predispose at-risk older men to insufficient treatment. Our findings emphasize the need for continued efforts to increase awareness of osteoporosis in men, reduce undertreatment and improve patient care.

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**Table 1.**

Physician characteristics associated with initiation of osteoporosis treatment for a man aged 50 years-old (T score  $-1.7$ , 3.2% risk for hip fracture by FRAX score)

Physician Characteristics	Physicians who would Initiate Treatment	
	N (%)	OR (95% CI)
Specialty		
Endocrinology	63 (55)	Ref
Primary Care	34 (27)	0.40 (0.21 – 0.74)
Geriatrics	35 (31)	0.31 (0.17 – 0.59)
Practice Setting		
Tertiary Academic	29 (46)	Ref
Private Practice	56 (32)	0.70 (0.36 – 1.37)
Community-Based Affiliate	41 (39)	0.99 (0.49 – 2.00)
Years in Practice		
0-10	38 (57)	Ref
11-20	42 (41)	0.58 (0.29 – 1.16)
>20	53 (29)	0.36 (0.19 – 0.70)
Percent Patients who are Male		
0-25%	15 (34)	Ref
26-50%	100 (39)	1.14 (0.54 – 2.37)
>50%	18 (35)	1.14 (0.45 – 2.90)
Read Guidelines		
No	47 (29)	Ref
Yes	87 (45)	1.55 (0.92 – 2.62)

Abbreviations: OR = odds ratio, CI = confidence interval