

Exploring Disparities in Screening and Treatment for Osteoporosis

in Patients with Hip Fractures

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Background

- Osteoporosis is a common skeletal disease resulting in porous bones with decreased density and increased fragility
- Physiological, lifestyle and demographic factors increase an individual's chances in developing osteoporosis [1,2,3,4]
- Diagnosed by a reduction in BMD on dual energy X-ray absorptiometry (DEXA) [2]
- Recommend BMD screening in women 65 years and old and postmenopausal women younger than 65 years with increased risk [5]
- Treatment includes bisphosphonates, hormones, vitamin D, and calcium
- Study aims to identify demographic factors and disparities regarding screening and treating osteoporosis prior to hip fracture to improve physicians' knowledge of these disparities

Methods

- 3,100 hip fracture female patients listed in the Research Action for Health Network (REACHnet) database from 2010 to 2017
- Each patient selected had hip fracture codes, a BMI status, and race/ethnicity listed
- Covariates were analyzed to identify factors that increased or decreased likelihood of screening and receiving bisphosphonates

Variable Name	All (3100)	Screened (917)	Not-Screened (2183)	P-value
Race/Ethnicity				0.603
Black	271 (8.7)	73 (8)	198 (9.1)	
Hispanic	99 (3.2)	29 (3.2)	70 (3.2)	
White	2730 (88.1)	815 (88.9)	1915 (87.7)	
BMI <30	2643 (85.3)	766 (83.5)	1877 (86)	0.684
BMI30+	457 (14.7)	151 (16.5)	306 (14)	
Smoking	996 (32.1)	247 (26.9)	749 (34.3)	<.001
Alcohol Dependence	64 (2.1)	19 (2.1)	45 (2.1)	1.0
Bisphosphonates	372 (12)	265 (28.9)	107 (4.9)	<.001
Vitamin D	200 (6.5)	58 (6.3)	142 (6.5)	0.916
Calcium	178 (5.7)	50 (5.5)	128 (5.9)	0.716
Age	73.6 (10.67)	70.19 (9.44)	75.04 (10.83)	<.001
CCI	3.01 (2.98)	3.85 (3.28)	2.66 (2.77)	<.001

Table 1: Summary of study cohort population

Bone Mineral Density (BMD) Screening

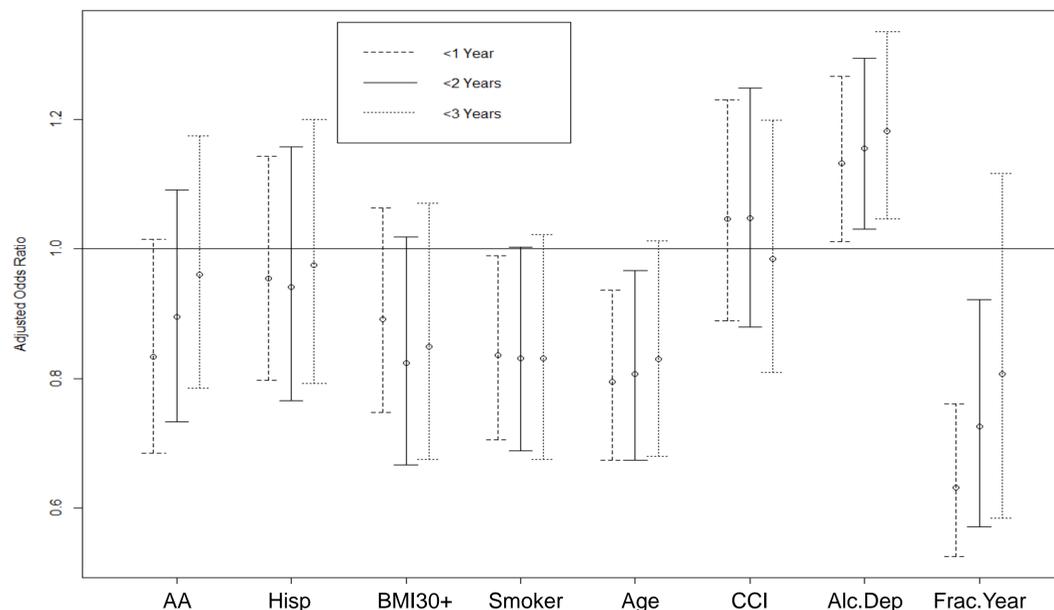


Figure 1: Odds ratios from logistic regression within 1, 2, 3 years before screening. Only consider patients (screened and non-screened) with follow up greater than each investigated time period.

Treatment with Bisphosphonates

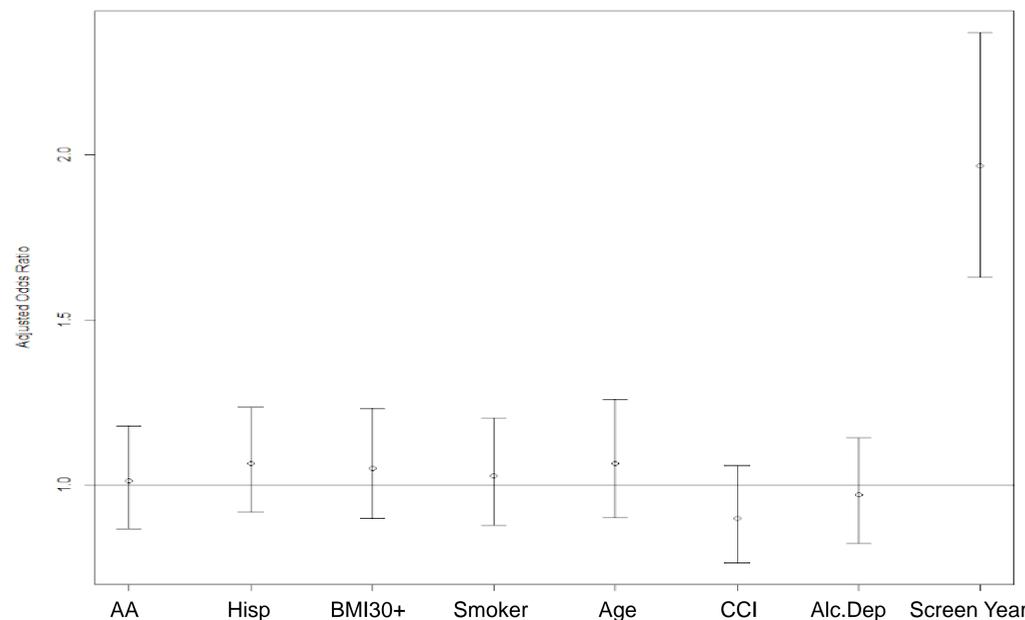


Figure 2: Adjusted Odds Ratios and 95% confidence intervals for predicting treatment with bisphosphonates for those patients diagnosed with osteoporosis.

Results

- 917 of 3100 patients (29.6%) were screened within three years prior to hip fracture
- More likely to be screened:
 - Higher CCI score*
 - Alcohol (CI):
 - <1 year (CI): 1.13 (1.01-1.27)
 - <2 years (CI): 1.15 (1.03-1.29)
 - <3 years (CI): 1.18 (1.05-1.33)
- Less likely to be screened:
 - Older age
 - <1 year (CI): 0.79 (0.67-0.94)
 - <2 years (CI): 0.81 (0.67-0.97)
 - Smoker
 - <1 year (CI): 0.84 (0.71-0.99)
 - <2 years (CI): 0.83 (0.69-1)
 - Later fracture year
 - <1 year (CI): 0.63 (0.53-0.76)
 - <2 years (CI): 0.73 (0.57-0.92)
- Increased bisphosphonate treatment:
 - Later screening year (CI): 1.97 (1.63-2.37)

*after adjusting for other variables, CCI was not significant

Discussion and Conclusions

- Lack of racial or ethnic differences in screening or treatment indicates possible improvement
 - Higher % of minority population
 - Study is only individuals with hip fracture
 - Clinical assessment tools and research involving underrepresented groups
- Smoker screening disparity: patient nonadherence or physician ordering behaviors
- Optimal screening and treatment is ideal to increase quality of life in patients with osteoporosis
- Future research to determine role of clinical assessment tools with identifying fracture risk and guide treatment decisions
- Assess relationship between insurance status and appropriate screening and treatment

References

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