UHN Toronto General Toronto Western Princess Margaret Toronto Rehab

being Bone Health in HIV+ Aging Women

Bone Health of Aging HIV Infected Women

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Introduction

- The HIV population is aging and the focus in care is shifted to the prevention and management of comorbidity
- Osteoporosis is higher in those with HIV relative to the general population and increase with age
- HIV contributes to low bone mineral density (BMD) through viral, immune, inflammatory and treatment related effects
- Greater losses in BMD have been reported in patients receiving tenofovir disoproxil fumarate (TDF)
- The data on bone health in aging HIV infected women is limited

Methods

- We assessed baseline bone health and risk factors for osteoporosis or osteopenia in peri-menopausal women participating in a switch study of tenofovir disoproxil fumarate (TDF) to tenofovir alafenamide fumarate (TAF) in Canada and Italy.

- The study was prematurely terminated due to the COVID pandemic after 34 women were enrolled

Results

Table 1: Baseline characteristics and demographics

Variable	n=34
Age, years	
Median	51.0 (47.0, 53.0)
Country of birth, n (%)	
Canada	7 (20.6)
Italy	7 (20.6)
Other	20 (58.5)
Race, n (%)	
Black	20 (58.8)
Caucasian	13 (38.2)
Other	1 (2.9)
Smoking history, n (%)	
Unknown	1
Never	23 (69.7)
Current	4 (12.1)
Past	6 (18.2)
Alcohol use, n (%)	
Never	15 (44.1)
Current	18 (52.9)
Previous	1 (2.9)
Illicit drug use, n (%)	
Never	27 (79.4)
Current	4 (11.8)
Previous	3 (8.8)

Table 2: Factors impacting bone health

Variable	n=34
Exercise frequency, n (%)	
More than once/day	2 (5.9)
Daily	6 (17.6)
4-6 times/week	8 (23.5)
2-3/week	8 (23.5)
Weekly	2 (5.9)
1-3/month	0 (0.0)
Rarely	8 (23.5)
Prior Fracture, n (%)	7 (20.6)
Steroid use, n (%)	
Current	4 (11.8)
Never	26 (76.5)
Previous	4 (11.8)
Current calcium use, n (%)	5 (14.7)
Current vitamin D use, n (%)	20 (58.8)
BMI	
Median (IQR)	26.4 (24.2, 29.6)

Table 3: Antiretroviral History

Variable	n=34
Years since HIV diagnosis	
Median (IQR)	16.5 (14.0, 23.0)
Year since first ARV	
Median (IQR)	14.0 (11.0, 20.0)
CD4 nadir count	
Median (IQR)	168.0 (84.0, 300.0)
CD4 count, cells/mm3	
Median (IQR)	570.5 (475.0, 735.0)
ARV regimen at screening, n (%)	
PI/R	7 (20.4%)
NNRTI	13 (38.2%)
Integrase Inhibitor	11 (32.4%)
>1 class	3 (8.7%)
Duration on TDF (years)	
Mean	8.6

Results

Table 4: Falls and Frailty

Variable	n=34
Number of times fallen in the past 6 months, n (%)	
Unknown	1
0	26 (78.8)
1	4 (12.1)
2	1 (3.0)
3	2 (6.1)
Short physical performance battery (SPPB) total score, n (%)	
0-6 (Low Performance)	0 (0.0)
7-9 (Intermediate Performance)	8 (23.5)
10-12 (High Performance)	26 (76.5)

Table 5: Baseline Bone Mineral Density

Variable	n=33
Lumbar spine BMD (Z-score) Median (IQR)	-0.6 (-1.8, 0.1)
Total hip BMD (Z-score) Median (IQR)	-0.1 (-0.5, 0.3)
Femoral neck BMD (Z-score) Median (IQR)	-0.5 (-1.0, 0.2)
Lumbar spine BMD (T-score) Median (IQR)	-1.2 (-2.7, -0.6)
Total hip BMD (T-score) Median (IQR)	-0.4 (-1.0, -0.1)
Femoral neck BMD (T-score) Median (IQR)	-1.1 (-1.6, -0.4)

20% met criteria for osteoporosis (7/34)

Table 6: Fracture risk based on FRAX

Variable	n=34
10-Y probability- Major osteoporotic fracture (%) Median (IQR)	4.4 (2.7, 5.0)
10-Y probability -- Hip Fracture (%) Median (IQR)	0.2 (0.1, 0.5)

Conclusions

- Many women have multiple risk factors for poor bone health
- The median BMD was only slightly below normal in the majority of our participants although 20% met criteria for osteoporosis
- Although performance measures were in the intermediate to high range, falls were not uncommon
- Fracture risk was low
- Aging HIV infected women should have regular monitoring for reversible factors for poor bone health