(PBL) Osteoporosis and Osteopenia Prevention and Treatment: Allaying the Fear Factor

Robin Cornell Creamer, DO, FAAFP
Justin Hess, PT, DPT

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Robin Cornell Creamer, DO, FAAFP

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Dr. Creamer earned her medical degree from the Chicago College of Osteopathic Medicine, Downers Grove, Illinois, and completed her family medicine residency and geriatric medicine fellowship at AdventHealth (previously Florida Hospital) in Winter Park, Florida. Dr. Creamer has been practicing and teaching family medicine for 25 years. Following her passion for osteoporosis prevention, she leads a National Osteoporosis Foundation (NOF) support group called Central Florida Healthy Bones and has earned her NOF Fracture Liaison Service Certificate. She believes one of family medicine’s critical challenges is to motivate patients to be as physically active as possible.
Justin Hess, PT, DPT

Physical therapist, AdventHealth Sports Medicine and Rehabilitation, Winter Park

Hess is a board-certified physical therapist who specializes in orthopedic rehabilitation at the outpatient AdventHealth Sports Medicine and Rehabilitation clinic in Winter Park. He earned his doctorate in physical therapy from the University of Central Florida in Orlando. He treats an eclectic caseload of direct access, post-operative, geriatric, and pediatric musculoskeletal and neuromuscular cases. Hess completed advanced continuing education in the treatment and management of osteoporosis. He lectures on running pathologies, sport injuries, and osteoporosis, as well as mentoring students as a clinical instructor. He is seeking candidacy in Orthopaedic Clinical Specialist certification from the American Board of Physical Therapy Specialties.

Learning Objectives

1. Practice applying new knowledge and skills gained from Osteoporosis and Osteopenia Prevention and Treatment sessions, through collaborative learning with peers and expert faculty.

2. Identify strategies that foster optimal management of osteoporosis/osteopenia within the context of professional practice.

3. Formulate an action plan to implement practice changes, aimed at improving patient care.
Associated Sessions

• Osteoporosis and Osteopenia Prevention and Treatment: Allaying the Fear Factor

Audience Engagement System

Step 1

Step 2

Step 3
Problem Based Learning Outline

• Review osteoporosis educational resources for prevention and treatment of osteoporosis
• Apply formal fracture risk assessment tools for screening and the FRAX tool for risk assessment for treatment of low bone mass patients.
• Practice spine safe posture and exercise recommendations for bone health and fall prevention.
• Discuss methods to address fears regarding osteoporosis medications

Educational Resources

– FRAX: http://www.shef.ac.uk/FRAX or APP
– National Bone Health Alliance: www.nbha.org
– National Institute of Health (NIH); http://www.niams.nih.gov
– Mayo Clinic Shared Decision-Making National Resource Center https://osteoporosisdecisionaid.mayoclinic.org
– University New Mexico. Telementoring Bone Health TeleECHO Clinic. http://www.ofnm.org/project-echo
– AAFP http://familydoctor.org
Allaying the Fear of Osteoporosis

• Starting in childhood
• 2 year peak bone mineral accrual period in adolescence
• Importance of impact sports
• Caution: similar BMD values between swimmers and sedentary controls

DXA Screening Recommendations

• USPSTF 2018:
  – All women ≥ 65 y (B rec.)
  – Younger postmenopausal women at increased risk as determined by a formal clinical risk assessment tool. (B rec.)
  – Men: Evidence is insufficient to recommend screening in men to prevent osteoporotic fractures. (I statement)
    • Note: NOF recommends screening men ≥ 70 y and younger men with risk factors, ie: fracture after 50 y, steroids, et al.
• NCQA HEDIS measure: Number of women ≥ 65 who report ever having a BMD test.
Updated FRAX “Increased” Risk
65 y WF w/o major risk factors in U.S.
8.4% MOF (BMI 28.8) instead of 9.3% (BMI 25)

Risk Assessment Tools in addition to FRAX (1 of 2)

<table>
<thead>
<tr>
<th>Tool</th>
<th>Risk Factors</th>
<th>Scoring</th>
<th>Threshold for Increased Risk</th>
</tr>
</thead>
</table>
| OST (Osteoporosis Self-Assessment Tool) | Weight (kg) 
Age (y)                     | kg- y   | < 10                         |
| ORAI (Osteoporosis Risk Assessment Instrument) | Age, y ≥ 75 y 
65-74 
55-64 
45-54 
Wt, kg < 60 kg 
60-69 
≥ 70 
No current estrogen use | 15  
9  
5  
0  
9  
3  
0  
2 | ≥ 9

www.shef.ac.uk/FRAX
Used with Permission from International Osteoporosis Foundation
### Risk Assessment Tools in addition to FRAX (2 of 2)

<table>
<thead>
<tr>
<th>Tool</th>
<th>Risk Factors</th>
<th>Scoring</th>
<th>Threshold for Increased Risk</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>OSIRIS</strong> (Osteoporosis Index of Risk)</td>
<td>Age, y</td>
<td>-0.2 x age</td>
<td>&lt; 1</td>
</tr>
<tr>
<td></td>
<td>Weight, Kg</td>
<td>0.2 x kg</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Current estrogen use</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Prior low-impact fracture</td>
<td>-2</td>
<td></td>
</tr>
<tr>
<td><strong>SCORE</strong> (Simple Calculated Osteoporosis Risk Estimation)</td>
<td>Non-black race</td>
<td>5</td>
<td>≥ 6</td>
</tr>
<tr>
<td></td>
<td>Rheumatoid arthritis</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Prior non-traumatic rib/wrist/hip fx after age 45</td>
<td>4 for each (max 12)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Never used estrogen</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Age, y</td>
<td>3 x 1st digit of age</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Wt, lb</td>
<td>-1 x (lbs / 10)</td>
<td></td>
</tr>
</tbody>
</table>

### PBL Exercise #1
Using Formal Decision Tools, do you recommend DXA screening? Use FRAX and one other tool.

Mary, 59 yo white female. No known personal fracture
BMI 19.6 (wt 107#; Ht 62”). Height loss of 1.75”
PMHx- OCD
Meds- fluvoxetine (SSRI)
Social- hx tobacco age 17-27; no etoh
Family Hx- maternal hip fracture age 78
### Risk Assessment Tools in addition to FRAX (1 of 2)

<table>
<thead>
<tr>
<th>Tool</th>
<th>Risk Factors</th>
<th>Scoring</th>
<th>Threshold for Increased Risk</th>
<th>Mary: 59 y 48.5 kg</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>OST</strong> (Osteoporosis Self-Assessment Tool)</td>
<td>Weight (kg) Age (y)</td>
<td>kg·y</td>
<td>&lt; 10</td>
<td>-10.5 (yes) weight &lt; 69 kg or 151#</td>
</tr>
<tr>
<td><strong>ORAI</strong> (Osteoporosis Risk Assessment Instrument)</td>
<td>Age, y ≥ 75 y 65-74 55-64 45-54</td>
<td>15</td>
<td>≥ 9</td>
<td>-5</td>
</tr>
<tr>
<td>Wt, kg &lt; 60 kg 60-69 ≥ 70</td>
<td>9</td>
<td>5</td>
<td></td>
<td>-9</td>
</tr>
<tr>
<td>No current estrogen use</td>
<td>3</td>
<td>0</td>
<td></td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td></td>
<td></td>
<td>14 total (yes)</td>
</tr>
<tr>
<td>Tool</td>
<td>Risk Factors</td>
<td>Scoring</td>
<td>Threshold ↑ Risk</td>
<td>Mary: 59 y 48.5kg/107#</td>
</tr>
<tr>
<td>------------------------------</td>
<td>--------------------------------------------------</td>
<td>-------------------------------</td>
<td>-----------------</td>
<td>------------------------</td>
</tr>
<tr>
<td>OSIRIS (Osteoporosis Index of Risk)</td>
<td>Age, y  Weight, Kg  Current estrogen use  Prior low-impact fracture</td>
<td>-0.2 x age  0.2 x kg  2  -2</td>
<td>&lt; 1</td>
<td>- 11.8  9.7  2  0  -0.1 (yes)</td>
</tr>
<tr>
<td>SCORE (Simple Calculated Osteoporosis Risk Estimation)</td>
<td>Non-black race  Rheumatoid arthritis  Prior non-traumatic rib/wrist/hip fx &gt;45yr  Never used estrogen  Age, y  Wt, lb</td>
<td>5  4  4 for each (max 12)  1  3 x1st digit of age  -1 x (lbs / 10)</td>
<td>≥ 6</td>
<td>5  0  0  1  15  -10.7 (10.3 yes)</td>
</tr>
</tbody>
</table>

**PBL#1 ANSWER**
Mary meets criteria to screen by FRAX (MOF>8.4) and all formal tests.

Mary’s BMD testing DXA T score results:
- Lumbar Spine (LS) -1.5
- Left femoral neck (LFN) -2.7; Left total hip (LTH) -2.1
- Right femoral neck (RFN) -2.6; Right total hip (RTH) -2.1

Meets definition of osteoporosis by BMD
Current Diagnosis of Osteoporosis

1. Bone Mineral Density as defined by WHO or
2. Fragility fracture of hip or spine

<table>
<thead>
<tr>
<th>T-score</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Normal</td>
<td>Equal to -1.0 or higher</td>
</tr>
<tr>
<td>Low Bone Mass (Osteopenia)</td>
<td>Between -1.0 and -2.5</td>
</tr>
<tr>
<td>Osteoporosis</td>
<td>Equal to -2.5 or lower</td>
</tr>
<tr>
<td>Severe Osteoporosis</td>
<td>Equal to -2.5 or lower with fracture</td>
</tr>
</tbody>
</table>


NOF Guidelines for Treatment

<table>
<thead>
<tr>
<th>Factor</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fracture</td>
<td>Hip or Spine</td>
</tr>
<tr>
<td>T-score (DXA)</td>
<td>T-score ≤ -2.5 at spine, hip or femoral neck</td>
</tr>
<tr>
<td>FRAX (osteopenia, low bone mass) T score</td>
<td>10-year probability of a major fracture (MOF) ≥ 20%</td>
</tr>
<tr>
<td></td>
<td>10-year probability of a hip fracture ≥ 3%</td>
</tr>
</tbody>
</table>

National Osteoporosis Foundation’s
Clinician’s Guide to the Prevention and Treatment of Osteoporosis. 2015
What other imaging information might be helpful in determining her risk?

Remember she has lost 1.7” of height, up to 1.5” is normal.

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**NOF Recommendation for Vertebral Fracture Imaging Assessment (VFA)**

**Consider Vertebral Imaging tests for the following:**

<table>
<thead>
<tr>
<th>Category</th>
<th>Criteria</th>
</tr>
</thead>
<tbody>
<tr>
<td>Women ≥ 70 y and Men ≥ 80 y, if BMD T-score spine, total hip or femoral neck is &lt; -1.0.</td>
<td></td>
</tr>
<tr>
<td>Women 65-69 y and men 70-79 y, if BMD T-score spine, total hip or femoral neck is &lt; -1.5</td>
<td></td>
</tr>
<tr>
<td>Postmenopausal women and men age 50 and older with specific risk factors:</td>
<td></td>
</tr>
<tr>
<td>• Low trauma fracture ≥ 50 y</td>
<td></td>
</tr>
<tr>
<td>• Historical height loss ≥ 1.5 inches (4 cm)</td>
<td></td>
</tr>
<tr>
<td>• Interval height loss ≥ 0.8 inches (2 cm)</td>
<td></td>
</tr>
<tr>
<td>• Glucocorticoid use</td>
<td></td>
</tr>
</tbody>
</table>

T8 vertebral Compression fracture
Universal Recommendations for Bone Health Regardless of Bone Density

- Advise adequate dietary calcium intake, supplement if diet is insufficient
- Advise adequate Vitamin D intake, supplement if diet is insufficient
- Avoid Tobacco and excess alcohol
- Recommend exercise program for strength, posture and balance
- Fall Prevention

USPSTF 2018 Recommendation: Vit D, Calcium, or Combined Supplementation for the Primary Prevention of Fractures in Community-Dwelling Adults

1. Asymptomatic men and premenopausal women: Current evidence is insufficient to assess the balance of the benefits and harms of Vit D and calcium supplementation, alone or combined. (I statement)
2. Postmenopausal women: Current evidence is insufficient to assess the balance of benefits and harms of daily supplementation with doses greater than 400 IU of vit D and greater than 1000 mg of calcium. (I statement)
2. Postmenopausal women: Advises against daily supplementation with 400 IU or less of vitamin D and 1000 mg or less of calcium. (D recommendation)
3. These recommendations do not apply to persons with a history of osteoporotic fractures, increased risk for falls, or a diagnosis of osteoporosis or vitamin D deficiency.
Institute of Medicine: Dietary Reference Intakes for Calcium and Vitamin D - 2011

<table>
<thead>
<tr>
<th>YEARS</th>
<th>CALCIUM (mg/d)</th>
<th>VITAMIN D (IU/d)</th>
</tr>
</thead>
<tbody>
<tr>
<td>19-50 y M/F</td>
<td>1,000</td>
<td>600</td>
</tr>
<tr>
<td>51-70 y Males</td>
<td>1,000</td>
<td>600</td>
</tr>
<tr>
<td>51-70 y Females</td>
<td>1,200</td>
<td>600</td>
</tr>
<tr>
<td>&gt;70 y M/F</td>
<td>1,200</td>
<td>800</td>
</tr>
</tbody>
</table>

Physical Therapy for Bone Health
Allaying the Fear of Fracture and the Fear of Falling

• Physical Therapy
  • Medicare accepts Physical Therapy  ICD 10 diagnosis code of Osteopenia (M85.80) or Osteoporosis (M81.0)
  • 1-3 sessions usually all that is needed for osteopenia to review posture and exercise routine.
  • Rx: Osteoporosis/ Osteopenia: Physical Therapy to evaluate, treat and instruct in spine safe posture and exercise to optimize strength and balance. Minimize fall risk.
  • VCF- decreases risk of subsequent VCF’s
Physical Therapy for Spine Safety & Bone Health

- Exercise
  - Resistance training
  - Aerobic
  - Impact
- Posture – ADLs and exercise
  - including yoga and pilates
- Gait & Balance Training – Fall prevention
  - Tai Chi

Posture

• 20-40% of older adults with hyperkyphosis, or at least a 40 degree curve of thoracic spine
• Slower gait, impaired balance, increased postural sway = increased risk for fall
  – Physical therapy consisting of back extensor strengthening can reduce curve by an average of 7 degrees

Bansal et. al
Watson et. al

Practicing Posture & ADLs

• Spinal extension
• Scapular retraction
• Seated posture and screen time
Safe Movement for Spinal Protection

Let's Move for Posture
Let's Move for Posture

Too Fit To Fracture Recommendations

For preventing bone loss and falls, recommend a combination of:
- Strength training for major muscle groups ≥ 2x/week
- Balance challenges daily
- Moderate-to-vigorous aerobic physical activity ≥ 150 min/week, or 20-30 min per day

To reduce spine loads, recommend:
- Exercises for back extensor muscles daily
- Spine sparing strategies – hip hinge for bending, step-to-turn instead of twisting, holding loads close to body

Resistance Training: LIFTMOR Trial

- **101 women** (mean 65 y.o/63 kg; LS/FN T-score 0.0-3.9; 43.6% osteopenic, 56.4% osteoporotic)
- **8-month, twice/weekly 30min exercise sessions**
- NWB (Low-intensity exercise): Walking, stretches, forward raise, shrugs, lunges with max weight of 3kg dumbbells
- WB (High-intensity exercise): Deadlift, overhead press, back squat, jumping chin ups with drop landings

Learnings from LIFTMOR Trial

- Almost 10% more increase in BMD of lumbar spine & femoral neck with high-intensity exercise
- Encourage compound movements (squats, step ups, bench press, impact exercise)
- Machines, dumbbells, bands for resistance
- One adverse event of more than 2,600 exercise sessions (back sprain)

... because 90% fractures are from a fall

USPSTF Recommendations 2018
Fall prevention in community-dwelling ≥ 65 y

- Exercise intervention to prevent falls (B recommendation)
- Multifactorial interventions to prevent falls (C recommendation)
  – medications, medical conditions, environmental hazards
  – ie: CDC STEADI Program
- Vitamin D supplementation not recommended
  – (D recommendation)

❖ These apply to community-dwelling adults NOT known to have osteoporosis or Vitamin D insufficiency or deficiency.
(Allaying the) Fear of Falling

- Significant risk factor for future falls
  - 41.7% (n= 640) with FoF had ≥ 1 more fall within the next 24 months
- Stiffening strategy used, reduced RoM, lower amplitude of gait, higher postural sway
- Previous fall results in 3x risk of falling again within the next 12 months compared to non-fallers

Lavedán et. Al
Martins et. Al

Falls and Balance Training

- 1 in 3 adults 65+ years of age and 1 in 2 adults over 80 fall per year.
- Physical therapy consisting of strength and balance training: Improvement of 0.9-1.4 m/s gait speed, reduced FES –I up to 15 months
- Significantly reduce fall concerns and risk for subsequent falls

Halvarsson et. Al
Liu-Ambrose et. Al
Falls and Balance Training

• Strengthening and balance exercises reduce fall rate by 32% and fall risk by 22% versus controls (n = 4,739, systematic review/meta-analysis of 26 studies)
• Posture-challenging exercises, such as Tai Chi
• Tai ji quan balance training more effective than conventional exercise (falls reduced by 31% compared to conventional exercise group)

The Physician Quick Screen

• Screening tools: referral to PT, strengthening or wellness program, or Tai chi?
  Single leg stance 30”, TUG,
  5x sit to stand, gait speed, posture
The Timed Up and Go (TUG) Test

Purpose: To assess mobility.

Equipment: A stopwatch

Directions: Patients wear their regular footwear and can use a walking aid if needed. Begin by having the patient sit back in a standard arm chair and identify a line 3 meters or 10 feet away on the floor.

Instructions to the patient:
- When I say "Go," I want you to:
  1. Stand up from the chair
  2. Walk to the line on the floor at your normal pace
  3. Turn
  4. Walk back to the chair at your normal pace
  5. Sit down again

On the word "Go" begin timing. Stop timing after patient has sat back down and reclined.

Time: ________ seconds

An older adult who takes ≥12 seconds to complete the TUG test is at high risk for falling.

Observe the patient's postural stability, gait, stride length, and sway. Cues to alert: Slow tentative pace, Loss of balance, Short strides, Little or no arm swing, Stooping self on wall, Shuffling, En bloc turning, Not using assistive device properly.

Notes:

For relevant articles, go to: www.cdc.gov/injury/STEADI

The 4-Stage Balance Test

Purpose: To assess static balance

Equipment: A stopwatch

Directions: There are four progressively more challenging positions. Patients should not use an assistive device (cane or walker) and keep their eyes open.

Describe and demonstrate each position. Stand next to the patient, hold his/her arm and help them assume the correct foot position. When the patient is steady, let go, but remain ready to catch the patient if he/she loses their balance.

If the patient can hold a position for 10 seconds without moving his/her feet or needing support, go on to the next position. If not, stop the test.

Instructions to the patient: I'm going to show you four positions. Try to stand in each position for 10 seconds. You can hold your arms out or move your body to help keep your balance but don't move your feet. Hold this position until I tell you to stop.

For each stage, say "Ready, begin" and begin timing. After 10 seconds, say "Step."

See next page for detailed patient instructions and illustrations of the four positions.

Instructions to the patient:
1. Stand with your feet side by side. Time: ________ seconds
2. Place the instep of one foot so it is touching the big toe of the other foot. Time: ________ seconds
3. Place one foot in front of the other, heel touching toe. Time: ________ seconds
4. Stand on one foot. Time: ________ seconds

An older adult who cannot hold the same stance for at least 10 seconds is at increased risk of falling.

Notes:

For relevant articles, go to: www.cdc.gov/injury/STEADI
Case Mary: High Risk Fracture

- Non-pharmacologic recommendations optimized
- Review ACP pharmacologic treatment guidelines
AAFP Endorsed 2017 - ACP Guideline Update:
Treatment of Low Bone Density or Osteoporosis to Prevent Fractures in Men and Women

1. Treat with alendronate, risedronate, zoledronic acid or denosumab to reduce the risk for hip and vertebral fractures in women who have known osteoporosis (grade: strong rec; high-quality evidence)

2. Treat osteoporotic women with pharmacological therapy for 5 years. (Grade: weak rec; low-quality evidence)

3. Treat with bisphosphonates to reduce the risk for vertebral fracture in men who have clinically recognized osteoporosis. (Grade: weak rec; low-quality evidence)

AAFP Endorsed 2017 - ACP recommendations continued:

4. Against bone density monitoring during the 5-yr period pharmacologic treatment period for osteoporosis in women. (Grade: weak rec; low quality evidence).

5. Against using menopausal estrogen therapy or menopausal estrogen plus progestogen therapy or raloxifene for the treatment of osteoporosis in women. (Grade: strong rec; mod-quality evidence).

6. Treat osteopenic women 65 yrs age and older who are at a high risk for fracture based on a discussion of pt preferences, fracture risk profile, and benefits, harms, and costs of medications. (Grade: weak rec.; low-quality evidence)
PBL Exercise #2: Allaying Fears regarding Medication side effects:
Advise alendronate weekly, but patient states her dentist advises his patients against taking osteoporosis medications.
How do you discuss risks of medications?
What Shared Decision Aid Tools do you use?

Mayo Shared Decision Aid
https://osteoporosisdecisionaid.mayoclinic.org

Used with permission from Victor Montori, M.D., Mayo Clinic
Point of care statements to help Allay the Fear of Medications

- For every 100,000 women taking a bisphosphonate, fewer than three will have osteonecrosis of the jaw and one will have an atypical femur fracture, but 2,000 will have avoided an osteoporotic fracture.

Benefits and Risks

Motor Vehicle Accidents
- Wearing seat belts reduces the risk of serious crash-related injuries and deaths by about 50%

Osteoporosis
- Treatment with bisphosphonates reduces the risk of fractures by about 50%

There are about 2.3 million adults treated in ERs each year for injuries from MVAs and about 2 million osteoporotic fractures each year. The risk of seat belt injuries and serious side effects from osteoporosis treatment is very small in proportion to the benefits. Data from multiple sources.

Used with permission from Michael Lewiecki, MD
### Medication NNT % NNH

<table>
<thead>
<tr>
<th>Medication</th>
<th>NNT</th>
<th>%</th>
<th>NNH</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bisphosphonates in PMW with prior fractures or very low BMD</td>
<td>1/20 prevent vertebral fracture 1/100 prevent hip fracture</td>
<td>94% saw no benefit after 3 years of treatment 5% avoided a vertebral fracture 1% avoided a hip fracture</td>
<td>A small number were harmed</td>
</tr>
<tr>
<td>BP meds for 5 years to prevent death, MI, stroke</td>
<td>1 in 125 were helped (prevented death) 1 in 67 were helped (prevented stroke) 1 in 100 were helped (prevented heart attack*)</td>
<td>97% saw no benefit 0.8% were no benefit by preventing death 1.5% were helped by preventing stroke 1.0% were helped by preventing heart attack</td>
<td>1 in 10 were harmed (medication side effects, stopping the drug)</td>
</tr>
</tbody>
</table>

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**Case: Mary agrees to Alendronate 70mg weekly**

**Interval Care During Treatment**

- Patients taking medications need to be evaluated **Annually**
  - Calcium, diet, exercise, lifestyle, new meds or chronic diseases
  - Inquire if any thigh or groin pain if on anti-resorptive
  - Exam: height, 2 cm (0.8 in) loss, repeat VFA.
  - Labs: creatinine, calcium, Mg, Vit D

- DXA interval BMD testing during treatment- no RCT
  - ACP recommends against testing during 5 yr treatment.
    - Reduced fractures with treatment even if BMD did not increase
  - NOF: recommends every 2 yrs
  - ISCD: If stable or increased, repeat at 5 years.
  - If BMD decrease ≥ 5%
    - Inquire about non-compliance; assess for secondary causes.
    - If poor absorption, switch to IV bisphosphonate
Reassess for Drug Holiday

• Patients NOT at high fracture risk after 5 y oral BP or 3y IV Bisphosphonate, consider a 2-3 yr drug holiday

• DXA and Vertebral Fracture Assessment (VFA)

• No uniform recommendation regarding duration, decisions need to be individualized

High-risk patients may benefit from extended treatment

• FLEX trial alendronate extended 5 →10 yrs. Continued prevention of vertebral fractures, but no effect on non-vertebral fracture risk.

• The risk of AFF, but not ONJ, clearly increases with BP therapy duration, but such rare events are outweighed by vertebral fracture risk reduction in high-risk patients.

• High-risk patients include:
  – Femoral Neck T score ≤ -2.5
  – Vertebral fractures prior to or during therapy
  – Older women, high FRAX risk

Task Force of the ASBMR. Bone Miner Res. 2016 Jan;31(1)16:-35
Pharmacology

- **Antiresorptive**
  - Bisphosphonates
    - Alendronate
    - Ibandronate
    - Risedronate
    - Zoledronic Acid
  - Denosumab
  - Raloxifene
  - Estrogen
  - Calcitonin

- **Anabolic (Bone Forming)**
  - Teriparatide (PTH 1-34)
  - Abaloparatide (hPTHrP)
  - Rozosumab (Evenity)

Sequencing of Anabolic and Antiresorptive Therapies

- Consider anabolic agents as initial therapy in very high risk women and men who have had OP fracture.
- Anabolic agents shown to have greater BMD gains when used prior to an antiresorptive agent.
- Anabolic response may be blunted for a period of time after bisphosphonate (longer time) or Dmab (shorter time).
- Follow 2 yr anabolic tx with antiresorptive (BP or DMab) to maintain BMD gains.
Coordination of care after a Fracture

• Care coordination after a fracture
  – Solutions: Post-fracture Care Coordination
  – National Bone Health Alliance (NBHA)
    • Fracture Liaison Service (FLS) resources
  – American Orthopedic Assoc.: Own the Bone
  – IOF recognition program: Capture the Fracture

Key Points

• Access osteoporosis educational resources for prevention and treatment of osteoporosis.
• Apply formal fracture risk tools for screening and FRAX tool for risk assessment for treatment.
• Evaluate for risk factors and secondary causes
• Individualize treatment recommendations for patients according to risk and other conditions.
• Allay patients fears of fracturing and falling with Physical Therapy guided exercise for posture, bone strength and fall prevention.
• Allay patients fears of medications through point of care patient information tools.
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Questions
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