
Osteoporosis in Men and Women: An Update on Diagnosis and Management for Fracture Prevention: Part 2

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Disclosures

Advisory Board:
Astellas
Speakers Bureau:
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Pharmacologic Therapy

Level of risk and the choice of agents

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Risk Stratification and Treatment Decisions

- > **Low risk**
 - No prior fracture, and T-score ≥ -1 and FRAX $< 20\%$ MOF, $< 3\%$ Hip
 - Non-pharmacologic treatment. No pharmacologic treatment needed
- > **Moderate risk**
 - No prior fracture and T-score between -1 and -2.5 and FRAX probabilities $< 20\%$ MOF, $< 3\%$ Hip
 - Some may benefit from sequential antiresorptive monotherapy especially those with BMD close to -2.5
 - Estrogen in early menopause
 - Raloxifene in 50's to 60's
 - Bisphosphonates mid/late 60's

Camacho PM, Finkel SM, et al. American Association of Clinical Endocrinologists/American College of Endocrinology Clinical Practice Guidelines For The Diagnosis and Treatment of Post Menopausal Osteoporosis- 2020 Update. endocrine Practice. 2020;26:5-6.

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Osteoporotic Patients: Level of Risk and Choice of Pharmacologic Agent

- High Risk** (not meeting previous criteria but diagnosed with osteoporosis):
- > Postmenopausal women or men over age 50 with a prior hip or spine fracture
 - > Postmenopausal women or men over 50 with a BMD T-score of -2.5 or lower at the hip or spine
 - > Postmenopausal women or men over 50 with T-score between -1 and -2.5 at the femoral neck, total hip, or spine if:
 - 10 year probability (from FRAX) of hip fracture is $\geq 3\%$
 - 10 year probability of a major osteoporosis-related fracture is $\geq 20\%$

Camacho PM, Finkel SM, et al. American Association of Clinical Endocrinologists/American College of Endocrinology Clinical Practice Guidelines For The Diagnosis and Treatment of Post Menopausal Osteoporosis- 2020 Update. endocrine Practice. 2020;26:5-6.

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Risk Stratification and Treatment Decisions

- High risk**
- > Older single prior fracture (> 2 years earlier) or T-score -2.5 or T-score -1 to -2.5 with FRAX $\geq 20\%$ MOF or $\geq 3\%$ Hip
- Goal: Improve BMD to T-score > -2.5 and reduce fracture risk
- Younger women may benefit from estrogen/raloxifene especially if spine T-score is low and hip is > -2.5
 - Usually bisphosphonates or denosumab
 - Anabolic agents are appropriate for some

Camacho PM, Finkel SM, et al. American Association of Clinical Endocrinologists/American College of Endocrinology Clinical Practice Guidelines For The Diagnosis and Treatment of Post Menopausal Osteoporosis- 2020 Update. endocrine Practice. 2020;26:5-6.

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Osteoporotic Patients: Level of Risk and Choice of Pharmacologic Agent

Very High Risk:

- > Recent fracture (within the last 12 months)
- > Fractures while on approved drug therapy, multiple fractures, fractures while on drugs causing skeletal harm (i.e. glucocorticoids)
- > Very low T-score (e.g. less than -3.0)
- > High risk for falls or history of injurious falls
- > Very high fracture probability by FRAX
 - Major osteoporotic fracture >30%
 - Hip fracture >4.5%

Cannata PM, Poth SM, et al. American Association of Clinical Endocrinologists/American College of Endocrinology Clinical Practice Guidelines For The Diagnosis and Treatment of Postmenopausal Osteoporosis- 2020 Update. Endocrine Practice, 2020;26:5-6.

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Choosing a Pharmacologic Agent

Approved agents with efficacy to reduce hip, nonvertebral and spine fractures as initial therapy:

- > High fracture risk:
 - Alendronate, risendronate, zoledronate, denosumab appropriate
- > Very high fracture risk:
 - Abaloparatide, denosumab, romosozumab, teriparatide, and zoledronic acid
 - And consider for patients who are unable to tolerate oral therapy

Cannata PM, Poth SM, et al. American Association of Clinical Endocrinologists/American College of Endocrinology Clinical Practice Guidelines For The Diagnosis and Treatment of Postmenopausal Osteoporosis- 2020 Update. Endocrine Practice, 2020;26:5-6.

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Anabolic Agents and Treatment Sequence in Appropriate Patients

- > Recent trials have changed the thinking on when to use anabolic agents:
 - Not a drug of "last resort"
 - After multiple fractures
 - Failure of other medications
- > The three anabolic agents (teriparatide, abaloparatide and romosozumab) reduce non-vertebral and vertebral fractures faster and to a greater extent than potent antiresorptive agents

Cosman F. Anabolic Therapy and Optimal Treatment Sequences for Patients With Osteoporosis at High Risk for Fracture. Endocrine Practice, Accepted for Publication, 2020

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Anabolic Agents and Treatment Sequence in Appropriate Patients

- > Sequence of drug therapy matters
 - Bone density accrual is maximized when the anabolic agent is given first and followed with antiresorptive therapy
 - Total hip score is considered the best measurement for future fracture risk
 - Obtaining a greater hip BMD is a treatment goal for high risk osteoporosis patients

Cosman F. Anabolic Therapy and Optimal Treatment Sequences for Patients With Osteoporosis at High Risk for Fracture. Endocrine Practice, Accepted for Publication, 2020

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Anabolic Agents and Treatment Sequence in Appropriate Patients

Identifying appropriate patients for anabolic therapy:

- > Patients with prior fractures
- > Patients who present with very low BMD (T-score below -3.0) even in the absence of prior fracture
 - Especially with other risk factors such as advanced age, high fall risk, physical or cognitive disability

Cosman F. Anabolic Therapy and Optimal Treatment Sequences for Patients With Osteoporosis at High Risk for Fracture. Endocrine Practice, Accepted for Publication, 2020

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Initiating Pharmacologic Therapy: Case Examples

Fracture risk	Case example	Initial treatment consideration
Moderate	65-year-old female, lumbar spine T score -2.2, femoral neck T score -1.2	Raloxifene (especially if patient is interested in breast cancer prevention) or a bisphosphonate
High	70-year-old female, femoral neck T score -2.7, history of hip fracture in parent	Bisphosphonate if no significant renal dysfunction (oral if tolerated or IV infusion) or denosumab
High	85-year-old female, lumbar spine T score -3.3, femoral neck T score -1.7, FRAX score: major osteoporotic fracture 10-year risk: 15%; hip fracture 10-year risk: 3.9%	Bisphosphonate if no significant renal dysfunction (oral if tolerated or IV infusion) or denosumab
Very high	78-year-old female, femoral neck T score -3.1, vertebral compression fracture diagnosed on x-ray	Consider sequencing with teriparatide, abaloparatide, or romosozumab initially and follow with a maintenance antiresorptive drug

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Monitoring Pharmacologic Treatment

- > Repeat DXA every 1 to 2 years until findings are stable
- > The 1/3 radius may be considered as an alternate site when the lumbar spine/hip are not evaluable
- > Continue to follow every 1 to 2 years depending on the clinical circumstances
- > Bone turnover markers may be used to assess patient compliance and efficacy of therapy.

Canache PM, Poth SM, et al. American Association of Clinical Endocrinologists/American College of Endocrinology Clinical Practice Guidelines For The Diagnosis and Treatment of Post Menopausal Osteoporosis- 2020 Update, endocrine Practice, 2020;26:5-6.

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How to Determine if Treatment is Successful

- > Stable or increasing bone mineral density
- > No evidence of new fractures or vertebral fracture progression
- > One new fracture may not necessarily be evidence of treatment failure
- > Consider two or more fragility fractures as evidence of treatment failure

Canache PM, Poth SM, et al. American Association of Clinical Endocrinologists/American College of Endocrinology Clinical Practice Guidelines For The Diagnosis and Treatment of Post Menopausal Osteoporosis- 2020 Update, endocrine Practice, 2020;26:5-6.

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Length of Treatment

- > Abaloparatide and teriparatide treatment is 2 years
 - Follow with a bisphosphonate or denosumab
- > Romosozumab is 1 year and follow with a drug intended for long term use
- > Oral bisphosphonate
 - Consider drug holiday after 5 years if fracture risk is no longer high
 - Such as T- score is greater than -2.5
 - No fractures
 - Continue up to 10 years if fracture risk remains high

Canache PM, Poth SM, et al. American Association of Clinical Endocrinologists/American College of Endocrinology Clinical Practice Guidelines For The Diagnosis and Treatment of Post Menopausal Osteoporosis- 2020 Update, endocrine Practice, 2020;26:5-6.

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Length of Treatment

- > Oral therapy
 - Consider a drug holiday after 6 to 10 years of stability in patients with very high fracture risk
- > IV infusion with zoledronic acid
 - Consider a drug holiday after 3 years in high-risk patients or until fracture risk is no longer high
 - Continue up to 6 years in very-high risk patients

Canache PM, Poth SM, et al. American Association of Clinical Endocrinologists/American College of Endocrinology Clinical Practice Guidelines For The Diagnosis and Treatment of Post Menopausal Osteoporosis- 2020 Update, endocrine Practice, 2020;26:5-6.

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Drug Holiday

- > End is based on individual patient circumstances such:
 - An increase in fracture risk
 - Decrease in bone mineral density
 - Increase in bone turnover markers
- > NEVER START A DRUG HOLIDAY WITH NON-BISPHOSPHONATE ANTIRESORPTIVE DRUGS
- > If denosumab is discontinued, patient should be transitioned to another antiresorptive

Canache PM, Poth SM, et al. American Association of Clinical Endocrinologists/American College of Endocrinology Clinical Practice Guidelines For The Diagnosis and Treatment of Post Menopausal Osteoporosis- 2020 Update, endocrine Practice, 2020;26:5-6.

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Addressing Recent Controversies in the Treatment of Osteoporosis

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Addressing Recent Controversies

- > Long term use of bisphosphonate therapy
- > Bisphosphonate therapy and the occurrence of fractures of the subtrochanteric or diaphyseal femur
- > Osteonecrosis of the jaw (ONJ)

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Bisphosphonates

- > Concerning adverse effects:
 - Osteonecrosis of the jaw
 - Risk 1:1,000 to 1:263,000
 - Not associated with treatment duration
 - Potential risk factors include poor oral hygiene, glucocorticoid therapy, and chemotherapy
 - Atypical femur fractures
 - Risk increases with longer therapy duration
 - Subtrochanteric and diaphyseal femoral fractures
- > Bisphosphonates accumulate in the bone, so drug holidays are recommended to reduce long-term risk

McClung M, et al. Am J Med. 2013;126(1):13-20.

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Addressing Recent Controversies

- > Treatment decisions require risk and benefit discussions
- > What was acceptable risk previously, may no longer be acceptable
- > If disease state risk is high: *fracture*
 - Risk of rare complications may be outweighed

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Drug Holiday Recommendations

Risk level for fracture	Initiate drug holiday	Therapy during holiday	Length of holiday
High risk	After 5 y of stability on oral treatment or after 3 y with intravenous zoledronic acid	None	Individualize to patient risk
Very high risk and remains at high risk	After 10 y of oral therapy or after 6 y for intravenous zoledronic acid	Consider teriparatide	Individualize to patient risk

Cummings SR, et al. American Association of Clinical Endocrinologists/American College of Endocrinology Clinical Practice Guidelines for The Diagnosis and Treatment of Postmenopausal Osteoporosis: 2002 Update. Endocrine Practice. 2002;8:28-54.

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Effective Patient Management in the Primary Care Setting

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Effective Patient Management in the Primary Care Setting

Patients may need in depth counseling on why treatment is recommended:

- > Patients may not be compliant to treatment regimens if they do not understand the risk of something (low bone mass) and increased fracture risk, when they don't feel symptoms
- > Based on a patient's level of education, they may require more detail on their BMD, FRAX or treatment recommendations

THIS REQUIRES TIME!

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Osteoporosis and Fracture Prevention in the Primary Care Setting

- Patients need to participate in shared decision making regarding starting pharmacologic therapy as treatment or for preventative care for significant 10 year fracture risk
 - **Patients need to understand the idea of risk and benefit when they decide whether they will take medication**
-

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Educational Gaps and Opportunities

- > Current guidelines for who to screen
 - Decreased reimbursement by Medicare for bone densitometry
 - Underscreening of women and men and low rate of Medicare coverage
 - > Current guidelines for who to treat:
 - Identification of patients who are untreated after a hip or spine fracture
 - Identification of patients who have not had appropriate BMD testing
 - Utilization of FRAX to identify osteoporotic patients who are not yet osteoporotic by T- score
-

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Educational Gaps and Opportunities

- > Keeping up with controversies and options for changing medication, drug holiday and continuation of rank ligand inhibitor
 - > Consideration of anabolic agents in appropriate patients and setting up a referral source if the clinician is not comfortable initiating the treatment
 - > Having dialogue with specialists when indicated for consultation on appropriate therapy with chronic kidney disease and other conditions
 - > The need for individualization of treatment plan includes the need to avoid overtreatment
-

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Potential Missed Opportunities!

- > BMD testing in women 65 and older
 - > BMD testing in men 70 and older
 - > Treatment of men and women at high 10 year fracture risk by FRAX who are not yet osteoporotic
 - > Vertebral or hip fracture history
 - > Women on aromatase inhibitor therapy
 - > Men on androgen-deprivation therapy for prostate cancer
 - > Men and women on glucocorticoid therapy
-

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Summary

- > Osteoporosis is under diagnosed and preventative care is under utilized
 - > Current practice requires dialogue between patient and practitioner in regards to individual risk and risk and benefits of therapeutic options
 - > Treatment strategies must be individualized to obtain greater compliance to therapy
 - > Practitioners will need to stay current while treatment recommendations continue to be reviewed and possibly changed
-

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Cases: **Very** high risk for fracture

BMD
FRAX
The Art of Managing Osteoporosis and Fracture Prevention!

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Case #1

76 yo Caucasian female: menopause at age 55. 64 inches tall, 170 lbs. hypertensive, hyperlipidemia, type 2 DM.

10/7/21 BMD: right and left hip: -2.0 and -3.2
right and left femoral neck: -3.0 and -4.0
Change from BMD: 10/14/15

LS 2.9%, left femoral neck -20.3%, right femoral neck -10.4%

FRAX: Major osteoporotic fracture: 35.8%
Hip: 19.9%

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Case #1

- > What is her fracture risk?
- > What is the patient's desire for treatment
- > What is the patient's insurance coverage?
- > What are the important medical history questions?
- > What labs would you draw?
- > How would you treat this patient?
- > Would you refer this patient?

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Case #1

Country: US (Caucasian) Name/ID: About the risk factors

Questionnaire:

1. Age (between 40 and 90 years) or Date of Birth: 76 Y, M, D:
2. Sex: Male ☐ Female ☒
3. Weight (kg): 77.1
4. Height (cm): 162.6
5. Previous Fracture: ☐ No ☐ Yes
6. Parent Fractured Hip: ☐ No ☐ Yes
7. Current Smoking: ☐ No ☐ Yes
8. Glucocorticoids: ☐ No ☐ Yes
9. Rheumatoid arthritis: ☐ No ☐ Yes
10. Secondary osteoporosis: ☐ No ☐ Yes
11. Alcohol 3 or more units/day: ☐ No ☐ Yes
12. Femoral neck BMD (g/cm²): 0.477 T-score: -4.0
BMD: 29.2 The ten year probability of fracture (%)
Major osteoporotic: 35.8
Hip Fracture: 19.9
If you have a TBS value, click here: Adjust with TBS

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Case #2

82 yo woman
LS: normal with -0.9
Hip: Moderate low bone mass (Osteopenia) -2.0

Patient has never been treated with pharmacologic therapy. She denies problem with swallowing, GERD or known esophagus problem. She has mild CKD and is being followed by a nephrologist.

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Would you treat this patient? What would you prescribe?

Country: US (Caucasian) Name/ID: About the risk factors

Questionnaire:

1. Age (between 40 and 90 years) or Date of Birth: 76 Y, M, D:
2. Sex: Male ☐ Female ☒
3. Weight (kg): 68
4. Height (cm): 165
5. Previous Fracture: ☐ No ☐ Yes
6. Parent Fractured Hip: ☐ No ☐ Yes
7. Current Smoking: ☐ No ☐ Yes
8. Glucocorticoids: ☐ No ☐ Yes
9. Rheumatoid arthritis: ☐ No ☐ Yes
10. Secondary osteoporosis: ☐ No ☐ Yes
11. Alcohol 3 or more units/day: ☐ No ☐ Yes
12. Femoral neck BMD (g/cm²): 0.608 T-score: -2.1
BMD: 25.0 The ten year probability of fracture (%)
Major osteoporotic: 17
Hip Fracture: 8.4
If you have a TBS value, click here: Adjust with TBS

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Case #3

76 yo Caucasian female, menopause at 51. Hypertension, type 2 DM, hyperlipidemia. GERD. Normal kidney function. 12/6/22 T-score right and left hip: 0.5 and 0.2. Right and left femoral neck -0.6 and -0.3. Forearm: -3.7. Has completed 2 infusions of zoledronic acid and last one was one year ago.

Change from previous BMD: 9/17/20 Forearm: -3.0

What will you recommend that the patient does at this time?

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Case #4

80 yr old Caucasian patient presents for a 1st visit. History of hypertension and hyperlipidemia

- > She states that she took a pill for osteoporosis for a few years and then was switched to denosumab. After 7 years on the drug, she developed a severe blistering skin rash. Saw 2 dermatologists and had 2 skin biopsies that were reported as non-specific inflammatory change.
- > She was advised to stop the denosumab and has not taken any osteoporosis therapy for the last 2 years.
- > She never smoked. No history of hip fracture in parent. No history of adult fracture. Not diabetic. Walks regularly for exercise
- > Reports adult height loss of 2 inches

Height: 4'8
Weight: 100 pounds

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Case #4

BMD:

T-scores: LS -3.6

Left femoral neck: -3.4

Total hip: -2.1

Change from previous: LS -14.6%

Total hip: -2.4%

FRAX: Major Osteoporotic Fracture: 27%

Hip: 12%

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Case #4

How would you manage this patient?

Questions:

- > What pharmacologic therapy would you recommend?
- > What about patient counseling regarding choices?
- > Will you consider denosumab and would the patient take it?
- > What are the risks and benefits of options?
- > What did the patient prefer and why?

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Case #5

67 yr old has her 1st bone density test. She reports menopause at age 48. On medication for hypertension and hyperlipidemia. No history of adult fracture, no hip fracture in parent, never smoked, occasional glass of wine. Exercises regularly

BMD:

Right and left total hip: -2.9 and -2.8

Femoral neck: -3.1 and -3.5

LS -1.2

FRAX:

Major Osteoporotic Fracture: 23.1%

Hip Fracture: 9.3%

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Case #5

How would you manage this patient?

Questions:

- > Does she require a work-up regarding secondary causes of osteoporosis?
- > What pharmacologic therapy would you recommend?
- > What about patient counseling regarding choices?
- > What are the risks and benefits of options?
- > What did the patient prefer and why?
- > Is she a candidate for anabolic therapy?

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Case #6

78 yr old black woman with dementia who lives with her husband. Has been taking oral bisphosphonate for 2 years. According to her husband, she takes it once a week and waits 30 minutes before eating, drinking, or laying down.

- > Normal kidney function. No history of adult fracture. No hip fracture in parent. No diabetes.

BMD:

Right and left total hip: -2.9 and -3.1

Right and left femoral neck: -2.8 and -3.1

LS: -1.2

FRAX: Major Osteoporotic Fracture: 11.6%

Hip: 4.7%

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Case #6

BMD Change from previous BMD 2 years ago:

- > LS -5.4%
 - > Left Total hip: -10.2%
 - > Right Total hip: -11.4%
-

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Case #6

How would you manage this patient?

Questions:

- > What pharmacologic therapy would you recommend?
 - > What about patient counseling regarding choices?
 - > Will you consider denosumab and would the patient take it?
 - > What are the risks and benefits of options?
 - > What did the patient prefer and why?
-

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Deep Dive

More cases from the trenches

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Just a Reminder: When considering plan...

- > Calcium and Vitamin D
 - > Labs
 - > Upcoming tooth extraction or tooth implant
 - > History of acid reflux
 - > Fall prevention
 - > Kidney function
 - > Mentation
 - > Insurance
 - > Patient's preference
-

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Case #1

59 yo Black female with history of surgical menopause at age 34. Took estrogen for only a few years after surgery. Healthy. No kidney disease. No diabetes or hypertension.

BMD: right and left total hip: -2.4 -3.1
right and left femoral neck: -2.6 -2.9
Lumbar spine: -2.5

Is she osteoporotic?

Is she at high or very high risk of fracture?

What would you suggest for treatment?

What labs would you draw?

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Case #1

> Pt is interested in anabolic therapy after discussion of the option due to her low bone density.

> What are her options?

> What are the logistics in trying to start her on an anabolic agent?

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Case #2

74 yo black female: History per diagnostic center
-hysterectomy at age 30. Relates steroid use of
unspecified duration. History of RA.
BMD: right and left hip: -0.7 and -0.5
right and left femoral neck: -2.4 -1.9
Loss at all levels from previous: 7% and 8.7%

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Information Provided by Testing Center

Country: US (Black) Name/ID: About the risk factors

Questionnaire:

1. Age (between 40 and 90 years) or Date of Birth: Age: [] Yr [] Mo [] D Date of Birth: [] Yr [] Mo [] D

2. Sex: ☐ Male ☒ Female

3. Weight (kg): [78.9]

4. Height (cm): [167.6]

5. Previous Fracture: ☐ No ☒ Yes

6. Parent Fractured Hip: ☐ No ☒ Yes

7. Current Smoking: ☐ No ☒ Yes

8. Glucocorticoids: ☐ No ☒ Yes

9. Rheumatoid arthritis: ☐ No ☒ Yes

10. Secondary osteoporosis: ☐ No ☒ Yes

11. Alcohol 3 or more units/day: ☐ No ☒ Yes

12. Femoral neck BMD (g/cm²): [0.701] T-score: -2.4

13. Femoral neck BMD (g/cm²): [0.701] T-score: -2.4

BMD: 28.1 The ten year probability of fracture (%)

Major osteoporosis: [2.2]

Hip Fracture: [2.2]

Calculate

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Recalculation After Taking History From Patient

Pt denies being on glucocorticoid therapy or having had a fracture.

Country: US (Black) Name/ID: About the risk factors

Questionnaire:

1. Age (between 40 and 90 years) or Date of Birth: Age: [] Yr [] Mo [] D Date of Birth: [] Yr [] Mo [] D

2. Sex: ☐ Male ☒ Female

3. Weight (kg): [78.9]

4. Height (cm): [167.6]

5. Previous Fracture: ☐ No ☒ Yes

6. Parent Fractured Hip: ☐ No ☒ Yes

7. Current Smoking: ☐ No ☒ Yes

8. Glucocorticoids: ☐ No ☒ Yes

9. Rheumatoid arthritis: ☐ No ☒ Yes

10. Secondary osteoporosis: ☐ No ☒ Yes

11. Alcohol 3 or more units/day: ☐ No ☒ Yes

12. Femoral neck BMD (g/cm²): [0.701] T-score: -2.4

13. Femoral neck BMD (g/cm²): [0.701] T-score: -2.4

BMD: 28.1 The ten year probability of fracture (%)

Major osteoporosis: [2.2]

Hip Fracture: [2.2]

Calculate

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Case #3

86 yo black female with hysterectomy at age 57.

BMD: right and left hip: -2.4 -2.3
right and left femoral neck: -2.7 -2.1
What questions would you ask the patient?
Does she need labs?
What would you prescribe?

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Case #4

71 yo white male: Pt has been on oral alendronate for 2 years.

BMD: right and left hip: -2.4 -2.5
right and left femoral neck: -2.9 -2.6
Lumbar spine: -0.6
Values represent a loss of bone mineral density at the right and left hips: 2.7% and 2.4%

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Case #4

> What is his fracture risk?
> What is the patient's desire for treatment
> What is the patient's insurance coverage?
> What are the important medical history questions?
> What labs would you draw?
> How would you treat this patient?
> Would you refer this patient?

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Case #4

- > Serum calcium, PTH, testosterone free and total, TSH, protein electrophoresis: WNL
- > 24 hour urine:
 - Calcium, creatinine, sodium: WNL
 - N-Telopeptide: elevated to 784 (Normal range male: 21 - 83)
- > What does this mean? Pt has been on an anti-resorptive agent for 2 years

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Case #5

72 yo white male with current smoking history and diabetes.
BMD: right and left total hip: -2.1 -3.4
right and left femoral neck: -1.5 -2.2
FRAX: MOF: 13.8 Hip: 6.4

- What labs would you order?
- What are your options for pharmacologic therapy?

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Case #6

79 yo female with menopause at age 53. Pt has never taken any medication for fracture prevention.
BMD: right and left total hip: -3.5 -3.4
right and left femoral neck: -3.5 -3.1
FRAX: MOF: 34% Hip: 16.6

- What are your options for treating this patient?
- What labs would you obtain?

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Case #6

- > What is her fracture risk?
- > What is the patient's desire for treatment?
- > What is the patient's insurance coverage?
- > What are the important medical history questions?
- > What labs would you draw?
- > How would you treat this patient?
- > Would you refer this patient?

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Case # 6

- > What would you discuss regarding sequencing with anabolic therapy?
- > What are the risks and benefits?
- > If pt agrees and she did, what are the logistics?

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Case #7

74 yo black female with surgical menopause at age 49
BMD: Total hip: -2.4 -2.5
Femoral neck: -2.4 -2.3
LS: -0.6
FRAX: MOF: 7.1% Hip: 2.1%

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Case #7

- > What is her fracture risk?
- > What is the patient's desire for treatment?
- > What is the patient's insurance coverage?
- > What are the important medical history questions?
- > What labs would you draw?
- > How would you treat this patient?
- > Would you refer this patient?

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Case #8

78 yo white female with history of surgical menopause at age 37.

BMD: Right and left total hip: -0.2 -0.4
Right and left femoral neck: -1.7 -1.3
LS: 1.4
FRAX: MOF: 20% Hip: 4.6%

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Case #8

- > What is her fracture risk?
- > What is the patient's desire for treatment?
- > What is the patient's insurance coverage?
- > What are the important medical history questions?
- > What labs would you draw?
- > How would you treat this patient?
- > Would you refer this patient?

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Resources

Bone Health and Osteoporosis Foundation

www.bonehealthandosteoporosis.org

North American Menopause Society (NAMS)

www.menopause.org

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TREASURE YOUR BONES AT EVERY AGE!



Photo courtesy of Nancy Rarman

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Bibliography

- > Adler RA, EL-Hajj, et al. Managing osteoporosis in patients on long-term bisphosphonate treatment: report of a task force of the American Society for Bone and Mineral Research. J Bone Miner Res. 2016;31(1):19-35
- > Camacho PM, Petak SM, et al. American Association of Clinical Endocrinologists/American College of Endocrinology Clinical Practice Guidelines For The Diagnosis and Treatment of Post Menopausal Osteoporosis- 2020 Update, endocrine Practice, 2020;26:5-6.
- > Felicia Cosman, M.D., Daria B. Crittenden, M.D., Jonathan D. Adachi, M.D., et al. Romosozumab Treatment in Postmenopausal Women with Osteoporosis, N Engl J Med 2016; 375:1532-1543
- > Cossman F. Anabolic Therapy and Optimal Treatment Sequences for Patients With Osteoporosis at High Risk for Fracture, Endocrine Practice, Accepted for Publication. 2020
- > Curry SJ, Krist AH, Owens DK, et al. Screening for Osteoporosis to Prevent Fractures: US Preventive Services Task Force Recommendation Statement. Jama. 2018;319(24):2521-2531.

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Bibliography

- > Diab D, Watts N. Use of Drug Holidays in Women Taking Bisphosphonates. NAMS Practice Bulletin, Released April 1, 2013.
 - > Edwards BJ. Osteoporosis Risk Calculators. *J Clin Densitom.* 2017;20(3):379-386.
 - > LeBoff MS, Greenspan SL, Insogna KL, Lewiecki EM, Saag KG, Singer AJ, et al. The clinician's guide to prevention and treatment of osteoporosis. *Osteoporos Int.* 2022. Epub 2022/04/29. doi: 10.1007/s00198-021-05900-y. PubMed PMID: 35478046.
 - > Miller P, Hattersley G, Rils B J "Effect of Abaloparatide vs Placebo in New Vertebral Fractures in Postmenopausal Women With Osteoporosis: A Randomized Clinical Trial" *JAMA* 2016;316(7): 722-733. doi:10.1001/jama.2016.11136
-

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Bibliography

- > Nelson, H. D., Haney, E. M., Chou, R., Dana, T., Fu, R., & Bougatsos, C. (2010). Screening for osteoporosis: Systematic review to update the 2002 U.S. Preventive Services Task Force Recommendation. Evidence Synthesis No. 77. *AHRQ Publication No. 10-05145-EF-1*. Rockville, MD: Agency for Healthcare Research and Quality.
 - > NAMS Position Statement. Management of osteoporosis in postmenopausal women: the 2021 position statement of The North American Menopause Society. *Menopause: The Journal of The North American Menopause Society*, Vol. 28, No. 9, pp. 973-997.DOI: 10.1097/GME.0000000000001831. & 2021 by The North American Menopause Society
 - > Siris, E., & Delmas, P. D. (2008). Assessment of 10-year absolute fracture risk: A new paradigm with worldwide application. *Osteoporosis International*, (19)4, 383–384. doi: 10.1007/s00198-008-0564-8
 - > Tymlos [package insert]. St. Waltham, MA: Radius Health; 2017.
 - > World Health Organization Collaborating Center for Metabolic Bone Diseases. (n.d.). "FRAX" tool, online. Retrieved from www.shef.ac.uk/ldrax
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