Medication Treatment Options for Osteoporosis

Report created for:

Alice Carroll

Feb 17, 2022

Generated by:

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Patient Details:

Alice Carroll

DOB: 12/14/1940

Age: 81

Sex: Female

Height: 65in
(last updated: 12/13/2021)

Weight: 165lbs
(last updated: 12/13/2021)

Osteoporotic fracture risk: High fracture risk (e.g. diagnosed with osteoporosis but are not at very high fracture risk)
(last updated: 02/17/2022)

Post-menopause: Yes
(last updated: 02/17/2022)

On hemodialysis: No
(last updated: 12/13/2021)

Kidney Function - eGFR (ml/min): 45
(last updated: 12/13/2021)

Liver Impairment (Child-Pugh Scale): Mild liver disease (Child Pugh A)
(last updated: 12/13/2021)

Hypercalcemia: No
(last updated: 12/14/2021)

Breastfeeding: No
(last updated: 12/14/2021)

Pregnant: No
(last updated: 12/14/2021)

History or symptoms/signs of cerebrovascular disease (e.g. stroke, TIA): No
(last updated: 12/14/2021)

Condition

This report contains personalized medication treatment options for Osteoporosis. The medications and doses listed below are based on the patient information listed in the left margin of this report. The TreatGx algorithm for Osteoporosis includes pharmacotherapy options for adults with a diagnosis of osteoporosis. .

Known Allergies and Reactions

No known medication allergies (last updated Feb 17, 2022)

Preferred Therapy Options

Bisphosphonate OR Denosumab

For patients at high risk of osteoporotic fracture taking oral bisphosphonates, consider a bisphosphonate holiday after 5 years of treatment if fracture risk is no longer high (such as when the T score is greater than -2.5, or the patient has remained fracture free), but continue treatment up to an additional 5 years if fracture risk remains high. For zoledronate, consider a bisphosphonate holiday after 3 years in high-risk patients or until fracture risk is no longer high (per AACE 2020).

Zoledronic Acid (Bisphosphonate, Antiresorptive Agent) $

Dose: 5 mg IV once yearly

Profile: Reduction of fracture risk: Vertebral, Nonvertebral, Hip (per AACE 2020 for postmenopausal osteoporosis)

Brands: Reclast, generics

If denosumab therapy is discontinued, patients should be transitioned to another antiresorptive. A holiday is not recommended for non-bisphosphonate antiresorptive drugs. Switching from denosumab to a currently available anabolic agent is associated with loss of hip BMD and is not recommended. (per AACE 2020).

Denosumab (RANK Ligand Inhibitor, Antiresorptive Agent) $$$$

Dose: 60 mg SC every 6 months

Profile: Reduction of fracture risk: Vertebral, Nonvertebral, Hip (per AACE 2020 for postmenopausal osteoporosis)

Brands: Prolia

No clinical data available for patients with liver impairment (as per product monograph)

Calcium and/or Vitamin D3 supplementation should be recommended if dietary intake is insufficient. Per Endocrine Society 2020: in postmenopausal women with low BMD and at high risk of fractures with osteoporosis, calcium and vitamin D are suggested as an adjunct to osteoporosis therapies. If no other medication options can be tolerated, daily calcium and vitamin D supplementation are recommended to prevent hip fractures.

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Woman of childbearing age not using adequate contraception: No
(last updated: 12/14/2021)

Delayed esophageal emptying: Yes
(last updated: 02/17/2022)

Inability to stand or sit upright for at least 30-60 minutes: No
(last updated: 12/14/2021)

Hypocalcemia: No
(last updated: 12/14/2021)

Venous thromboembolism (current or past): No
(last updated: 12/14/2021)

Recent myocardial infarction: No
(last updated: 12/14/2021)

Increased risk of osteosarcoma (including Paget's disease, unexplained elevations of alkaline phosphatase, pediatric and young adult patients with open epiphyses, bone metastases or skeletal malignancies, hereditary disorders predisposing to osteosarcoma, or prior external beam or implant radiation therapy involving the skeleton): No
(last updated: 12/14/2021)

Underlying hypercalcemic disorder, such as primary hyperparathyroidism: No
(last updated: 12/14/2021)

Hypercalciuria: No
(last updated: 12/14/2021)

Calcium (Supplement) $

Dose: For adults aged 50 years and older, the recommended calcium intake (including diet, plus calcium supplements if necessary when dietary intake is insufficient) is 1,200 mg per day. If requiring more than 600 mg calcium supplement daily, the dose should be divided. (per AACE 2020)

Brands: generics

Vitamin D3 (Supplement) $

Dose: Supplement with vitamin D3 if needed, with a dose of 1000-2000 IU PO once daily typically required to maintain an optimal serum 25(OH)D level. (per AACE 2020)

Maximum Dose: 4000 IU PO per day (safe upper limit in the general population)

Brands: generics

Condition Notes

- **AACE 2020:** American Association of Clinical Endocrinologists/American College of Endocrinology Clinical Practice Guidelines for the Diagnosis and Treatment of Postmenopausal Osteoporosis - 2020 Update Reduction of Fracture Risk Profiles are from AACE 2020, if “No effect demonstrated” is stated the guideline notes, The lack of demonstrable effect at these sites should be considered in the context that the studies may not have been adequately powered. No profile is available for evidence in men due to lack of data and guideline recommendations. Endocrine Society 2020, Management of Osteoporosis in Postmenopausal Women, An Endocrine Society Guideline Update

- **Hormone Replacement Therapy:** Per AACE 2020, recommendations are to use estrogen for the relief of menopausal symptoms in the lowest dose necessary and for the shortest time possible. A progestin should also be used when estrogen is prescribed for a patient with an intact uterus. Estrogen is approved by the FDA for prevention of postmenopausal osteoporosis, but when prescribing solely for this indication, therapy should only be considered for women at significant risk of osteoporosis and for whom non-estrogen medications are not considered to be appropriate. Per Endocrine Society 2020, suggest menopausal hormone therapy in postmenopausal women at high risk of fracture and with specific characteristics (< 60 years or < 10 years past menopause; at low risk of DVT; those in whom bisphosphonates or denosumab are not appropriate; with bothersome vasomotor symptoms or other peri-menopausal symptoms; without contraindications; without prior MI or stroke; without breast cancer; and willing to take menopausal hormone therapy).

- The TreatGx algorithm for Osteoporosis includes treatment options for adults with a diagnosis of osteoporosis, mainly based on treatment guidelines for post-menopausal women. It does not include treatment options for preventative therapy (including glucocorticoid-induced osteoporosis prevention, or prevention of postmenopausal osteoporosis), Paget’s disease, or hypercalcemia of malignancy. This algorithm does not include treatment options related to hormone-replacement therapy for osteoporosis and/or vasomotor menopausal symptoms. All medication options have FDA indications for treatment of osteoporosis in postmenopausal women, and are indicated for use in men with osteoporosis unless noted otherwise

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within drug dosing notes. TreatGx does not recommend treatment options for patients under 18, or who are pregnant or breastfeeding.

Excluded Therapy Options

Alendronate Bisphosphonate, Antiresorptive Agent

Contraindicated due to delayed esophageal emptying

Risedronate Bisphosphonate, Antiresorptive Agent

Contraindicated due to delayed esophageal emptying

Ibandronate (oral) Bisphosphonate, Antiresorptive Agent

Contraindicated due to delayed esophageal emptying

Report Categories

Preferred Therapy Options

Excluded Therapy Options

Important Review Limitations

Medication review warnings, adjustments, and contraindications are based on kidney function, liver function, pharmacogenetics, age, and weight. Kidney impairment stratification is based on eGFR (if product monographs categorize kidney impairment by CrCl, this has been directly converted to eGFR which may not be accurate for all patients). For full dosage information and preferred medication treatment options for each condition, use the TreatGx precision prescribing software.