Prolia
(Denosumab) - Amgen

THERAPEUTIC CLASS
IgG2 monoclonal antibody

DEA CLASS
RX

INDICATIONS
Treatment of postmenopausal women with osteoporosis or to increase bone mass in men with osteoporosis at high risk for fracture (eg, history of osteoporotic fracture, multiple risk factors for fracture) or patients who have failed or are intolerant to other available osteoporosis therapy.
Treatment to increase bone mass in women at high risk for fracture receiving adjuvant aromatase inhibitor therapy for breast cancer. Treatment to increase bone mass in men at high risk for fracture receiving androgen deprivation therapy for nonmetastatic prostate cancer.

ADULT DOSAGE
Adults: 60mg as a single SQ inj once every 6 months. If a dose is missed, administer as soon as patient is available and schedule inj every 6 months from date of last inj. All patients should receive Ca^{2+} 1000mg daily and at least 400 IU vitamin D daily.

HOW SUPPLIED
Inj: 60mg/mL [prefilled syringe, vial]

CONTRAINDICATIONS
Hypocalcemia, pregnancy.

WARNINGS/PRECAUTIONS
Should be administered by a healthcare professional. Do not give with other drugs that contain the same active ingredient (eg, Xgeva). Hypersensitivity, including anaphylaxis, reported; d/c further use and initiate appropriate therapy if an anaphylactic or other clinically significant allergic reaction occurs. Hypocalcemia may be exacerbated; correct preexisting hypocalcemia prior to initiating therapy. Monitor Ca^{2+} and mineral levels (phosphorus [P] and Mg^{2+}) in patients predisposed to hypocalcemia and disturbances of mineral metabolism (eg, history of hypoparathyroidism, thyroid/parathyroid surgery, malabsorption syndromes, excision of the small intestine, severe renal impairment [CrCl <30mL/min] or receiving dialysis). Marked elevations of serum parathyroid hormone (PTH) may develop in patients with severe renal impairment or receiving dialysis. Osteonecrosis of the jaw (ONJ) may occur; perform routine oral exam prior to initiation of treatment. Consider a dental examination with appropriate preventive dentistry prior to treatment in patients with risk factors for ONJ (eg, invasive dental procedures, diagnosis of cancer, concomitant therapies [eg, chemotherapy, corticosteroids], poor oral hygiene, comorbid disorders [eg, periodontal and/or other preexisting dental disease, anemia, coagulopathy, infection, ill-fitting dentures]). Atypical low-energy or low-trauma fractures of the femoral shaft reported; evaluate patients with thigh/groin pain to rule out an incomplete femur fracture and consider interruption of therapy. Endocarditis and serious skin, abdomen, urinary tract, and ear infections leading to hospitalization reported. Increased risk for serious infections in patients with an impaired immune system. Epidermal and dermal adverse events may occur; consider discontinuing therapy if severe symptoms develop. Severe and occasionally incapacitating bone, joint, and/or muscle pain reported: consider discontinuing use if severe symptoms develop. Significant suppression of bone remodeling as evidenced by markers of bone turnover and bone histomorphometry reported. Potential for fetal exposure to denosumab when a man treated with denosumab has unprotected sexual intercourse with a pregnant partner.

ADVERSE REACTIONS
Back pain, anemia, vertigo, upper abdominal pain, peripheral edema, cystitis, upper respiratory tract infection, pneumonia, hypercholesterolemia, pain in extremity, musculoskeletal pain, bone pain, sciatica, arthralgia, nasopharyngitis.

DRUG INTERACTIONS
Immunosuppressant agents may increase the risk of serious infections.

PREGNANCY
Category X, not for use in nursing.

MECHANISM OF ACTION
IgG2 monoclonal antibody; binds to receptor activator of nuclear factor kappa-B ligand (RANKL) and prevents RANKL from activating its receptor, RANK, on the surface of osteoclasts and their precursors, thereby decreasing bone resorption and increasing bone mass and strength in both cortical and trabecular bone.

PHARMACOKINETICS
Absorption: (60mg SQ, after fasting) C_{max}=6.75mcg/mL, T_{max}=10 days (median), AUC_{0-16 weeks}=316mcg•day/mL. Elimination: T_{1/2}=25.4 days.

ASSESSMENT
Assess for drug hypersensitivity, preexisting hypocalcemia, history of hypoparathyroidism, thyroid/parathyroid surgery, malabsorption syndromes, excision of the small intestine, renal impairment, impairment of the immune system, risk factors for ONJ, pregnancy/nursing status, and possible drug interactions. Consider performing a dental examination with appropriate preventive dentistry in patients with risk factors for ONJ.

**MONITORING**
Monitor for signs/symptoms of hypocalcemia, infections, hypersensitivity, dermatological reactions, serum PTH elevation, ONJ, atypical femoral fractures, delayed fracture healing, musculoskeletal pain, and other adverse reactions. Monitor Ca\(^{2+}\) and mineral levels (P and Mg\(^{2+}\)) in patients predisposed to hypocalcemia and disturbances of mineral metabolism.

**PATIENT COUNSELING**
Counsel not to take with other drugs with the same active ingredient. Inform about the importance of maintaining Ca\(^{2+}\) levels with adequate Ca\(^{2+}\) and vitamin D supplementation. Advise to seek prompt medical attention if signs/symptoms of hypocalcemia, infections, dermatological reactions, or hypersensitivity reactions develop. Advise to maintain good oral hygiene during treatment and to inform dentist prior to dental procedures of current treatment. Instruct to inform physician or dentist if patient experiences persistent pain and/or slow healing of the mouth or jaw after dental surgery. Advise to report new or unusual thigh, hip, or groin pain. Inform that severe bone, joint, and/or muscle pain reported during therapy; instruct to report development of severe symptoms. Counsel the potential fetal exposure when a man treated with therapy has unprotected sexual intercourse with a pregnant partner. Inform that therapy should not be used if pregnant or nursing. Counsel to adhere to proper schedule of administration.

**ADMINISTRATION/STORAGE**
*Administration:* SQ route. Administer in the upper arm/thigh or abdomen. Refer to PI for preparation and administration instructions. Avoid vigorous shaking. *Storage:* 2-8°C (36-46°F). Do not freeze. Prior to administration, may allow to reach room temperature (≤25°C [77°F]). Use within 14 days. Protect from direct light and heat.