

Table 1

An overview of the medications currently used in the UK to treat postmenopausal osteoporosis (not exhaustive)²¹

Medication	Mode of action	Vertebral fracture protection	Non-vertebral fracture protection	Hip fracture protection	Dose
Alendronate	Inhibits osteoclast-mediated bone resorption	A	A	A	70 mg orally, once weekly
Risedronate	Inhibits osteoclast-mediated bone resorption	A	A	A	35 mg orally, once weekly
Ibandronate	Inhibits osteoclast-mediated bone resorption	A	A*	NAE	150 mg once monthly, orally, OR by IV injection, 3 mg every 3 months
Zoledronic acid	Inhibits osteoclast-mediated bone resorption	A	A	A	5 mg IV once yearly
Calcitriol	Inhibits bone resorption	A	NAE	NAE	0.25 µg orally, twice daily
Denosumab	Fully humanised monoclonal antibody against RANKL	A	A	A	60 mg SC every 6 months
Hormone replacement therapy	Maintains good levels of sex hormones with bone effects	A	A	A	0.625 mg oestrogen ± 2.5 mg progesterone daily, orally
Raloxifene	Selective oestrogen receptor modulator; inhibits bone resorption	A	NAE	NAE	60 mg once daily, orally
Teriparatide	Recombinant human PTH 1-34 (anabolic bone effect, activates osteoblasts)	A	A	NAE	20 µg/day SC

A = grade A recommendation (evidence-based)

* = in subsets of patients only (post-hoc analysis)

NAE = not adequately evaluated

GI = gastrointestinal

RANKL = Receptor activator of nuclear factor kappa-B ligand

The choice of agent should be determined by the spectrum of antifracture effect, side effects, and cost.

Thus, alendronate and risedronate are treatments of choice for postmenopausal women with osteoporosis, in the absence of contraindications

Duration of treatment	Most common side effects	Precautions and contraindications
3-5 years Treatment review at 5 years (FRAX, BMD)	Upper GI symptoms Bowel disturbance Headaches Musculoskeletal (MSK) pain	Hypocalcaemia Severe renal impairment (eGFR < 35 ml/min/1.73m ²) Abnormalities of the oesophagus that delay oesophageal emptying Inability to stand/sit upright for 30-60 minutes
3-5 years Treatment review at 5 years (FRAX, BMD)	Upper GI symptoms Bowel disturbance Headaches MSK pain	Caution in any upper GI disorders If vitamin D deficiency, replace this before initiation of treatment Advise baseline and regular dental check ups, and good oral hygiene Advise patients to report dental symptoms (pain, swelling, or dental mobility) promptly All dental work should be completed before treatment initiation
3-5 years Treatment review at 5 years (FRAX, BMD)	Upper GI symptoms Bowel disturbance Headaches MSK pain	
3-5 years Treatment review at 3 years (FRAX, BMD)	Acute phase reaction, usually only after first infusion	Caution in patients with atrial fibrillation Contraindicated in patients with severe renal impairment (eGFR < 35 ml/min/1.73m ²) Check baseline creatinine and monitor regularly for patients at risk
No consensus Review treatment regularly, and monitor for changes in risk of fractures	Hypercalcaemia-related side effects (loss of appetite, nausea/sickness, headaches, drowsiness, feeling weak) Allergic reactions	Hypercalcaemia Metastatic calcification Monitor serum calcium and creatinine at 1, 3, 6 months, then 6-monthly
Current recommendation of 10 years Rapid bone loss with subsequent fractures may occur following cessation of treatment	Skin infections (predominantly cellulitis) Hypocalcaemia (ensure patient is compliant with calcium and vitamin D supplements)	Avoid invasive dental procedures Monitor calcium levels prior to each dose of denosumab, and 2 weeks after the initial denosumab dose in patients at risk of hypocalcaemia (severe renal impairment) Check calcium levels at any time if symptoms of hypocalcaemia are reported
No consensus Review treatment regularly, and monitor for changes in risk of fractures	Bloating Breast tenderness or swelling Oedema Nausea Leg cramps Headaches GI symptoms Vaginal bleeding	Restrict use to younger postmenopausal women who are at risk of fracture and also have postmenopausal symptoms
No consensus Review treatment regularly, and monitor for changes in risk of fractures	Leg cramps Oedema Vasomotor symptoms	Contraindicated in women with history of venous thromboembolism, history of stroke or risk factors for stroke
Maximum 24 months Due to its very high cost, in the UK this treatment is restricted to postmenopausal women with a T-score of -3.5 or lower, AND at least 3 vertebral fractures	Headaches Nausea Dizziness Postural hypotension Slight and transient elevation in serum calcium levels	Contraindicated in patients with: -Hypercalcaemia -Metabolic bone diseases other than osteoporosis -Severe renal impairment -Previous radiation to the skeleton or malignant disease affecting the skeleton Caution in moderate renal impairment