Non-estrogen treatments for osteoporosis

Non-estrogen treatments are mainly for women aged over 60 years. There is insufficient information about their long-term use in women with premature ovarian insufficiency, or premature or early menopause. As their effect on the developing fetal skeleton is unknown, especially for agents such as bisphosphonates, which are retained in the body for years, their use should be targeted for women with no fertility goals.

The non-estrogen treatments

- Bisphosphonates (alendronate, risedronate, ibandronic acid, zoledronic acid)
- Denosumab
- Romosozumab
- Selective estrogen receptor modulators (raloxifene and bazedoxifene)
- Parathyroid hormone (teriparatide and abaloparatide)

The availability of these medicines varies worldwide.

Women at risk of osteoporotic fracture who take menopausal hormone (estrogen) therapy usually do not require additional treatment for **osteoporosis**.

Women can take both menopause hormone therapy (MHT) and non-estrogen for osteoporosis together.

Bisphosphonates

- Are analogues of inorganic pyrophosphate
- Inhibit bone resorption
- Can be given orally or intravenously
- Are used to prevent vertebral fractures as well as non-vertebral fractures, including hip fractures (apart from ibandronic acid, which is used for vertebral fractures only)

Drug holidays

Discontinuation of bisphosphonates should be considered after 5 years with alendronate or after 3 years with risedronate or zoledronic acid, but there are concerns in women with secondary osteoporosis who require continued bone protection, such as that induced by glucocorticoids and aromatase inhibitors. Treatment is usually restarted after a drug holiday of 1 to 3 years.

Calcium and vitamin D

Women may be advised to take calcium and vitamin D supplements if there are dietary deficiencies or if they have very little or no sunlight exposure, especially in autumn and winter.

Denosumab

- Is a human monoclonal antibody against RANKL, and inhibits bone resorption
- Is administered as a subcutaneous injection every 6 months
- Is used to prevent vertebral fractures and non-vertebral fractures, including hip fractures

The evidence regarding **stopping denosumab** is limited, but caution is advised, as there may be a 'rebound effect' with regard to fractures.

Parathyroid hormone (PTH)

- Stimulates bone formation.
- Is administered as a daily subcutaneous injection
- Is used to prevent vertebral fractures and non-vertebral fractures
- Is limited to 2 years of use.

Selective estrogen receptor modulators (SERMs)

- Inhibit bone resorption
- Are administered orally daily
- Are used for the prevention of vertebral fractures

There is no limit to the duration of use of SERMs.

Romosozumab

- Is an anti-sclerostin antibody which stimulates bone formation and inhibits bone resorption
- Is administered as a subcutaneous injection twice a month
- Is used to prevent vertebral fractures and non-vertebral fractures, including hip fractures

The use of romosozumab is limited to 12 months.

Further information

EMAS CareOnline 2020 https://emas-online.org/emas-careonline

International Osteoporosis Foundation https://www.osteoporosis.foundation/patients/treatment

Royal Osteoporosis Society https://theros.org.uk/information-and-support/osteoporosis/treatment

Management of osteoporosis and the prevention of fragility fractures https://www.guidelines.co.uk/musculoskeletal-and-joints-/sign-osteoporosis-guideline/252602.article