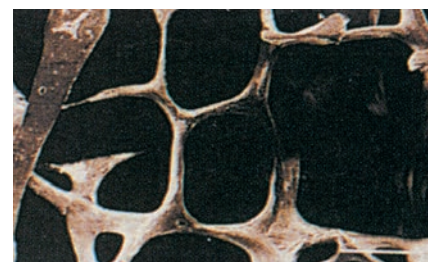
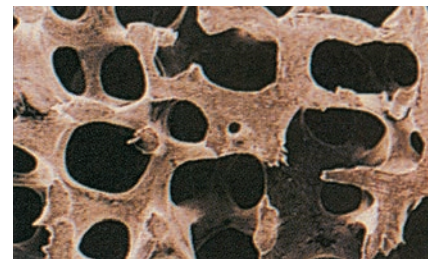


Test your knowledge

Osteoporosis is a common condition that affects the lives of many Australians. The option of therapy makes it imperative that people with the condition who require treatment be identified. Do you manage patients with osteoporosis appropriately?

The multiple choice questions in this quiz may have more than one answer.

- Which of the following are risk factors for the development of osteoporosis?
 - secondary amenorrhoea in adolescent girls and in women
 - a family history of osteoporosis
 - obesity
 - a very slight build
 - cigarette smoking
- Which of the following are true of calcium intake and the risk of developing osteoporosis?
 - a low calcium intake in a woman under 40 years of age does not affect her risk of postmenopausal osteoporosis
 - an adolescent female should have a calcium intake of at least 1000 mg per day
 - a pregnant or breastfeeding woman should have a calcium intake of at least 1500 mg per day
 - a low calcium intake is a risk factor in people with established osteoporosis only
 - a low calcium intake is not an independent risk factor for osteoporosis – it only increases the risk if a patient has a number of other risk factors
- Several diseases are associated with osteoporosis. In patients with which of the following should you consider a bone density measurement?
 - coeliac disease
 - Cushing's syndrome
 - hypothyroidism
 - diabetes
 - thyrotoxicosis
- Which of the following cause iatrogenic osteoporosis?
 - thyroxine used in inappropriately high doses
 - prednisolone
 - inhaled glucocorticoids
 - the oral contraceptive pill
 - heparin
- Women have a much higher incidence of osteoporosis than men, which was reflected in the PBS listing for some years. Which of the following are true of osteoporosis in men?
 - men with long term hypogonadism are at increased risk of osteoporosis
 - men with coeliac disease are at increased risk of osteoporosis
 - older men are at increased risk because, on average, men develop osteoporosis 10 to 15 years later than women
 - men only develop osteoporosis if they are being treated with prednisolone
 - men only develop osteoporosis if they have a coexistent illness
- Which of the following are caused by osteoporosis?
 - generalised bone pain
 - loss of height as a result of wedge fractures of the vertebrae
 - progressive bowing of the legs
 - an increase in head circumference
 - an absence of any symptoms
- Bone mineral density is expressed in T and Z scores. What does a Z score of -1 represent?
 - a doubled risk of fracture compared with age- and sex-matched controls
 - a bone mineral density of 50%
 - a minimal increase in the risk of fracture
 - an insignificant variation from normal
 - nothing except a need to assess the Z score over time because it is only significant if there is a drop in a two-year period
- Which of the following have been shown to improve bone density over time in women with osteoporosis?
 - hormone replacement therapy preparations
 - alendronate
 - raloxifene (a selective oestrogen receptor modulator)
 - parathyroid hormone
 - pamidronate.



Figures 1a to c. Scanning electron micrographs of cancellous bone. a (top). Normal bone. b (middle). Osteoporotic bone. c (bottom). The trabeculae in osteoporotic bone become thinner and may break.

Reference

- Eastell R. Treatment of postmenopausal osteoporosis. *N Engl J Med* 1998; 338(11): 736-746.

Answers appear on page 125

Clinical quiz answers

(to questions on page 101)

1. a, b, d, e

Identified risk factors for osteoporosis include a very slight build, a family history of osteoporosis, and cigarette smoking. Secondary amenorrhoea caused by a variety of medical conditions (including anorexia nervosa and excessive exercise) is also a risk factor.

2. b, c

Dietary calcium intake throughout life has an effect on the risk of developing postmenopausal osteoporosis.

3. a, b, e

Coeliac disease is strongly associated with osteoporosis because of malabsorption of dietary calcium over many years – it is therefore appropriate to perform a bone density measurement at the time when coeliac disease is diagnosed in adults (particularly middle-aged adults) and to follow progress after they commence a gluten-free diet. Cushing's syndrome causes osteoporosis as a result of glucocorticoid excess. Thyrotoxicosis is also associated with osteoporosis.

4. a, b, c, e

A number of medications can cause osteoporosis over time. The most widely recognised are glucocorticoids, both oral and inhaled. Inappropriate replacement with thyroxine and the anticoagulants heparin and warfarin can reduce bone density. Phenytoin is another culprit.

5. a, b, c

The incidence of osteoporosis in men peaks 10 to 15 years after postmenopausal women. Men who have suffered from coeliac disease or hypogonadism are more likely to develop osteoporosis at a younger age. Men can suffer osteoporosis without having any other illness.

6. b, e

Osteoporosis causes no symptoms unless fractures occur. Paget's disease causes an increase in head circumference and bowing of the legs. Generalised bone pain is not a symptom of osteoporosis.

7. a

Z scores indicate the likelihood of fracture. A Z score of -1 indicates that the patient's risk of fracture is twice that of her age- and sex-matched peers.

8. a, b, c, d, e

All of the medications listed improve bone density over time and reduce the risk of fracture, which is regarded as the most important endpoint in the treatment of osteoporosis.