Nurses need to be aware of when to refer a patient for specialist treatment

Osteoporosis: the clinical nurse specialist role

Osteoporosis is a condition in which bones become fragile and can break. It affects up to three million people in the UK, and one in two women and one in five men over the age of 50 will break a bone, predominantly due to poor bone health (National Osteoporosis Society, 2014).

Bones have many functions, such as working in conjunction with muscle structures to aid movement, and are involved in the production of blood cells. They have thicker outer shells, known as cortical bone, and contain strong mesh-like scaffolding called trabecular bone.

Peak bone production occurs up to around 35 years of age, and gradually declines as part of the ageing process. Many lifestyle factors and pre-existing medical conditions can predispose people to osteoporosis, such as poor dietary intake, smoking history, alcohol use, diabetes, gastrointestinal absorption issues, conditions that affect mobility (and reduce the possibility of doing weight-bearing exercise), long-term use of oral steroids and a family history of osteoporosis or hip fracture.

Osteoporosis causes micro-architectural changes to bone structure and reduces its strength. Bones become increasingly fragile and more susceptible to fracture, resulting in pain, disability and increased mortality. Fractures that occur due to reduced bone strength are described as fragility fractures. Often, the first clinical presentation of osteoporosis comes after an acute low-trauma fracture, the most common of which are:

- Neck of femur fractures: these tend to occur after a fall and usually require surgery. Long-term physical and social effects can be significant – some patients will need social care and do not return to pre-fracture functionality;
- Colles (wrist) fractures: these often occur post-menopause after a simple fall. Healthy bone should withstand an outstretched hand breaking a fall;
- Vertebral fractures: these are generally stable, often occur in the lumbar or thoracic areas and do not usually involve the spinal cord or result in paralysis/loss of sensation.

With osteoporosis, these bones become compressed – sometimes referred to as crush, collapse or wedge fractures, depending on the effect on the vertebra. Back pain is the most common symptom. Although some patients remain asymptomatic, they often report a loss of height, and kyphosis/scoliosis of the spine is often observed.

Patient outcomes can be significantly improved by timely diagnosis. Investigations include blood screening for a complete biochemical picture and to rule out potential secondary causes for fractures, such as myeloma or coeliac disease. A dual-energy X-ray absorptiometry scan will accurately assess bone mineral density and whether the patient is osteoporotic.

Intervention can then be planned. There are several primary and secondary preventative steps including:

- Maintaining a healthy body mass index;
- Regular weight-bearing exercise, such as walking;
- A balanced diet including fruit, cheese, vegetables, oily fish, milk, yoghurt;
- Avoiding alcohol and tobacco use;
- Safe daily exposure to sunlight to maximise vitamin D levels – exposing skin on the forearms to sunlight without sunscreen for around 15 minutes per day (avoiding the mid-day sun between 11am and 3pm).

Treatment options to strengthen bones and cut the risk of more fractures, include:

- Calcium and vitamin D supplements;
- Oral bisphosphonates – alendronate, ibandronate;
- Intravenous zoledronate infusions;
- Injectable treatments – denosumab, teriparatide (NOS, 2016), NT

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When to contact the nurse specialist

To refer a patient with a history of:

- Low-trauma fractures without a diagnosis of osteoporosis
- Non-specific mid or low back pain
- Risk factors, eg poor diet, excess alcohol, smoking, long-term steroid use

To discuss:

- How to manage patients with a significant falls/fracture history
- How to manage patients who disclose a family history of osteoporosis and/or hip fracture who may not have been investigated or treated for osteoporosis
- Current/emerging treatments, including side-effects and contraindications, eg the risk factors of bisphosphonate therapies for those with existing medical conditions
- How to manage patients who have risk factors or a family history of the condition and want to take preventative measures against it

Guidance and resources

- National Osteoporosis Society is a UK charity that provides information and advice for patients and professionals: www.nos.org.uk
- NHS Choices provides a useful summary of osteoporosis diagnosis, prevention and treatment: Bit.ly/OsteoporosisNHSChoices
- A brief overview of osteoporosis: Bit.ly/AgeUKOsteoporosis
- British Dietetic Association’s dietary advice to improve bone health: Bit.ly/BDAosteoporosis

References


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