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## Creaky bones

By DR HEW FEN LEE

OSTEOPOROSIS is a disease in which bones become fragile and weak, making them more likely to break. If not prevented, or left untreated, osteoporosis can progress painlessly until a bone breaks or fractures. These fractures occur typically in the hip, spine, and wrist.

Any bone can be affected, but of special concern are fractures of the hip and spine. A hip fracture almost always requires hospitalisation and major surgery. It can impair a person's ability to walk and may cause prolonged or permanent disability, or even death. Spinal or vertebral fractures also have serious consequences, including loss of height, severe back pain, and deformity.



Osteoporosis can lead to an increased risk of hip and spine fractures. - AFP

In Asia, it is estimated that 50% of women after menopause have osteoporosis and many of them are not aware that they are at an increased risk of developing bone fractures. There are no detailed data available in Malaysia, but there is a trend: osteoporosis is becoming more common. In Hong Kong, over a 20-year period between 1966 and 1985, the hip fracture rate has increased by 2.5-fold in women and 1.7-fold in men. If this is translated to fracture cases in the whole of Asia, we would be expecting between two to three million hip fractures in Asia by the year 2050.

This increase is staggering and will put a huge strain in health systems if this projected figure is realised. (Data are now being collected in Malaysia to ascertain how common osteoporosis fractures are.)

Known risk factors for osteoporosis include old age; small stature or underweight; family history of osteoporosis or osteoporosis-related fracture in a parent or sibling; previous fracture following low-level trauma, especially after age 50; sex hormone deficiency, both in women (e.g. menopause) and men; cigarette smoking; excessive alcohol; low dietary intake or absorption of calcium and vitamin D; sedentary lifestyle or immobility; medications e.g. glucocorticoid medications such as prednisolone, excess thyroid hormone replacement, the blood thinner heparin,

certain anti-epilepsy medications such as phenytoin, etc. and certain diseases that can affect bone, such as endocrine disorders (hyperthyroidism, hyperparathyroidism, Cushing's disease, etc.) and certain forms of arthritis, e.g. rheumatoid arthritis.

Our health system as well as socioeconomic status have improved. This has translated to a longer lifespan for both men and women. Given that osteoporosis increases with age, all elderly people are therefore at an increased risk of suffering from osteoporosis.

Obviously, this risk is higher in certain individuals with certain risk factors, as seen from the list above. This is also not helped by the increasing urbanisation of a large part of our population, leading to a lifestyle that has low levels of physical activity, which not only increases the risk of osteoporosis, but also other lifestyle diseases such as obesity, diabetes, and coronary heart disease.

The major consequence of osteoporosis is fracture. A slight fall or even a cough may cause a fracture of the vertebral spine, which brings about a lot of pain and deformity. Serious cases may lead to difficulty in breathing as the chest will not be able to expand normally due to the deformed spine that causes the body to crouch over.

The most serious fracture is in the hip bone. In order for this to heal, surgery is inevitable. Hip fracture is associated with many complications. By and large, less than 50% of those who have sustained a hip fracture will be able to walk independently.

Osteoporosis causes the bone to be fragile. On falling or minimal trauma, fracture ensues. Therefore, if falls can be prevented, fractures can also be reduced. This should start at home where the environment can be under control. Loose carpets and rugs should be removed to reduce the possibility of slipping. Wet floors should be dried quickly and corridors and rooms should be well lit.

If one has a fracture from low trauma, i.e. fall from a standing height, then there is osteoporosis until proven otherwise. A bone mineral density (BMD) test may be useful not to diagnose osteoporosis, as the fact that the presence of low trauma fracture indicates osteoporosis until proven otherwise, but to determine the extent and severity of osteoporosis and to enable the doctor to assess how effective the treatment is.

For those who have not had a fracture, a simple test that measures BMD in different parts of the body, such as the spine and hip, can help to determine if there is osteoporosis.

Dual energy x-ray absorptiometry (DXA) is the best test currently available to measure BMD. The test is quick and painless. It is similar to having an X-ray taken, but uses much less radiation. DXA is also useful to assess if the treatment has worked and enable the treatment to be maximised.

Ultrasound scan of the heel is not as accurate by comparison. Using it to diagnose osteoporosis and to assess response to treatment is not recommended. Sometimes, blood tests to measure bone turnover markers, which are a measurement of how quickly the bone is being lost, are done. This may be useful to assess the effectiveness of treatment, but not for the diagnosis of osteoporosis on its own.

Lifestyle changes may be the best way of preventing osteoporosis:

- Make sure you are getting enough calcium in your diet
- Make sure you are getting enough vitamin D (between 400-800 IU/day)
- Stop smoking
- Avoid excessive alcohol intake
- Engage in weight-bearing exercises
- Treat underlying medical conditions that can cause osteoporosis
- Minimise or change medications that can cause osteoporosis; never stop taking any medication without speaking to your doctor first
- If you are at high risk for falls, consider using hip protectors, which will help prevent a hip fracture if you fall

However, if osteoporosis is present, the above measures are not enough. There are now many different medications available that are effective to strengthen bones and thus prevent further fractures. It is advisable that you see your doctor to have your treatment tailor-made to minimise the future risk of fracture.

Osteoporosis is predominantly a silent disease until fracture occurs, which is the very event effective treatment wants to prevent. Therefore, diagnosing it early can prevent such painful events and the associated complications. For those who are at risk, lifestyle measures should be implemented to reduce the risk of developing osteoporosis.

*This article is contributed by The Star Health & Ageing Panel, which comprises a group of panellists who are not just opinion leaders in their respective fields of medical expertise, but have wide experience in medical health education for the public. The members of the panel include: Datuk Prof Dr Tan Hui Meng, consultant urologist; Dr Yap Piang Kian, consultant endocrinologist; Datuk Dr Azhari Rosman, consultant cardiologist; A/Prof Dr Philip Poi, consultant geriatrician; Dr Hew Fen Lee, consultant endocrinologist; Prof Dr Low Wah Yun, psychologist; Datuk Dr Nor Ashikin Mokhtar, consultant obstetrician and gynaecologist; Dr Lee Moon Keen, consultant neurologist; Dr Ting Hoon Chin, consultant dermatologist; Prof Khoo Ee Ming, primary care physician; Dr Ng Soo Chin, consultant haematologist. For more information, e-mail [starhealth@thestar.com.my](mailto:starhealth@thestar.com.my). The Star Health & Ageing Advisory Panel provides this information for educational and communication purposes only and it should not be construed as personal medical advice. Information published in this article is not intended to replace, supplant or augment a consultation with a health professional regarding the reader's own medical care. The Star Health & Ageing Advisory Panel disclaims any and all liability for injury or other damages that could result from use of the information obtained from this article.*