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Sunday October 10, 2010

Do men get osteoporosis?

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Brittle bone disease is not only confined to women.

OSTEOPOROSIS (OP) is a condition where bones become thin and fragile, and thus, are more likely to break or fracture.

Typically, OP is associated with women, as during the time of menopause, ladies stop producing oestrogen (which protects against bone loss). This leads to a period of accelerated bone loss for ladies just after menopause.

In contrast, men do not have an abrupt halt of their testosterone production during their lifetime, although there is a gradual age-related reduction in production, leading to the expected gradual age-related loss of bone density.

In addition, testosterone stimulates bone formation. This generally leads to a higher peak bone mass in men compared to women. Therefore, men start off with more bone, and do not have a period of accelerated bone loss mid-life, which means they should end up with a higher bone density when they

are in their 70s and 80s compared with women of the same age. However, even with these two inherent “advantages”, men still can and do get OP.

Although men do not have any specific period of accelerated bone loss in life, they can still end up with osteoporosis in their old age.

How common is OP in men?

In the United States, one in three women over the age of 50 years have OP. In Malaysia, there were 218 hip fractures in women per 100,000 of the population in 1997.

In men, the figures are less but still significant. It is estimated that one in 12 American men over the age of 50 have OP. In Malaysia, the age-adjusted hip fracture rate for men over the age of 50 is 88 per 100,000 of the population. In both sexes, there is an increase in the risk of OP fractures with age, but it occurs about 10 years later in men. Because men are generally older and more frail when they sustain their osteoporotic hip fracture, they have a much greater risk of dying or being permanently disabled following a fracture as compared to women.

Diagnosing OP in men

The initial assessment of whether OP is present in men is similar to that in women. The presence of a low trauma fracture would be highly suggestive of low bone mineral density (BMD). Sometimes, OP is suspected when an X-ray taken shows that the bones look thin, or when there is a history of loss of more than 1.5 inches (3.8cm) in height.

Other risk factors for OP, such as a family history of hip fractures, low body weight, low calcium intake, lack of sunlight exposure (possibly suggestive of vitamin D deficiency), excessive alcohol intake, and use of certain medications should be looked for.

Dual-energy X-ray absorptiometry (DXA) can be used for measurement of BMD in men, as all the major DXA machines have male reference ranges. In the *Malaysian Clinical Practice Guidelines for the Management of Osteoporosis 2006*, it is recommended that all men over the age of 70 be assessed for OP by going for a DXA measurement. In its latest *Clinician Guide* to osteoporosis published in January 2010, the National Osteoporosis Foundation in America also recommends BMD testing in men over the age of 70.

As with women, the World Health Organisation diagnostic criteria for OP can be applied to men. Therefore, using the male reference range, a man can be regarded as having a normal BMD if the T-score (the number of standard deviations a patient’s BMD is above or below the average BMD of the young adult population) is greater than -1, osteoporosis if the T-score is below -2.5, and the values in between as osteopenia.

The increase in the risk of osteoporotic fractures and hip fractures with the reduction in BMD is similar in men as in women. In contrast, the use of heel ultrasounds has not been validated in men, so it should not be used for screening or diagnosis of OP in men.

After making a diagnosis of OP in a man, it is important to investigate for secondary causes of low BMD. Unlike in women, where the majority of women have postmenopausal bone loss leading to OP, between 40% to 60% of men with OP have an underlying cause for their low BMD.

Common secondary causes of osteoporosis in men (adapted from *www.uptodate.com*) include:

- Corticosteroid (“steroid”) treatment
- Hypogonadism (low levels of the male hormone, testosterone, from diseases affecting the production of the hormone, such as delayed puberty, hyperprolactinaemia, anorexia, or from treatment for prostate diseases such as castration and gonadotrophin-releasing hormone agonists)
- Excessive alcohol intake and smoking
- Thyrotoxicosis (overactive thyroid gland activity)
- Gastrointestinal disorders (malabsorption, inflammatory bowel disease, liver cirrhosis)
- Hypercalciuria (excess calcium excreted in the urine)
- Rheumatoid arthritis
- Anti-convulsant drug therapy

In Caucasian populations, use of corticosteroids, hypogonadism and excessive alcohol intake are the most common causes leading to OP in men, accounting for over 50% of cases.

Treatment of OP in men

In general, treatment of OP in men is broadly similar to that in women. Lifestyle measures such as increasing weight-bearing exercises and getting adequate calcium (at least 1,000 mg daily in older men) and vitamin D (400-800IU daily) in the diet are recommended. Any secondary causes of OP should be treated, such as stopping smoking and drinking alcohol, and testosterone replacement therapy if hypogonadism is present.

Men with significantly low BMD may require pharmacological therapy as well. The bisphosphonates (e.g. alendronate, risedronate, and zoledronate) are effective in men, with an efficacy similar to that seen in the female population. Parathyroid hormone (PTH) is another licensed treatment for male OP.

Men can, and do, get OP. Men who have any risk factors mentioned in this article need to see a doctor for further assessment. Like in women, OP in men is potentially preventable and very treatable.

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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. 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.