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Osteoporosis and Sarcopenia 2 (2016) 1–12

http://www.elsevier.com/locate/afos

Review article

A summary of the Malaysian Clinical Guidance on the management of postmenopausal and male osteoporosis, 2015☆

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Received 2 February 2016; revised 15 February 2016; accepted 16 February 2016
Available online 21 March 2016

Abstract

Aim: This Clinical Guidance is aimed to help practitioners assess, diagnose and manage their patients with osteoporosis (OP), using the best available evidence.
Methods: A literature search using PubMed (MEDLINE) and The Cochrane Library identified all relevant articles on OP and its assessment, diagnosis and treatment, from 2011, to update from the 2012 edition. The studies were assessed and the level of evidence assigned. For each statement, studies with the highest level of evidence were used to frame the recommendation.
Results: This article summarizes the diagnostic and treatment pathways for postmenopausal and male OP, while addressing the risk-benefit ratio for OP treatment. Recognising the limitation of only depending on bone mineral density in assessing fracture risk, a move to assess 10 year fracture risk using tools such as FRAX, is recommended as a guide to decision-making on when to start treatment. A re-evaluation was done of the position of calcium supplementation and on the importance of vitamin D. There has been concern about the potential adverse effects of the long-term usage of bisphosphonates, which have been discussed fully. Algorithms for the management of postmenopausal and male OP have been updated.
Conclusions: Adequate intake of calcium (1000 mg from both diet and supplements) and vitamin D (800 IU) daily remain important adjuncts in the treatment of OP. However, in confirmed OP, pharmacological therapy with anti-resorptives is the mainstay of treatment in both men and postmenopausal women. Patients need to be regularly assessed while on medication and treatment adjusted as appropriate.

Keywords: Bisphosphonates; Calcium; Guidelines; Malaysia; Osteoporosis

☆ The Malaysian Osteoporosis Society Committee Working Group for the Clinical Guidance on the Management of Osteoporosis, 2015.

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Peer review under responsibility of The Korean Society of Osteoporosis.

http://dx.doi.org/10.1016/j.afos.2016.02.004

1. Introduction

Osteoporosis (OP) is a systemic skeletal disease characterised by low bone mass and micro-architectural deterioration of bone tissue, with a consequent increase in bone fragility and susceptibility to fracture [1]. Epidemiological studies have estimated that there would be an exponential increase in the incidence of osteoporotic fractures in Asia, so that by 2050, 50% of all hip fractures would occur in this region [2]. In Malaysia, in 1997, the incidence of hip fracture among individuals above 50 years of age was 90 per 100,000 population [3]. The incidence increased with age; in the 50–54 year olds, the incidence was 10 per 100,000, rising to 510 per 100,000 in those over 75 years old [3]. Malaysia still has a predominantly young population, with only 5.5% (~1.6 million) of its estimated 30 million populace above the age of 65 years. However, the life expectancy of Malaysians is increasing; it is 77.4 years for women and 72.5 years for men. With this ageing population, the burden of OP is expected to continue to rise in Malaysia.

The Malaysian Osteoporosis Society (MOS) had previously published Clinical Practice Guidelines in the Management of OP in 2001, 2006 and 2012, which aimed at providing a framework to assist doctors in the diagnosis and management of osteoporosis without restricting the physician's individual judgement. Following the 2012 edition, there were further data and studies, in the controversial area of calcium supplementation, bisphosphonate side effects (atypical femoral fractures and osteonecrosis of the jaw), and the place of hormone replacement therapy and strontium in the OP therapeutic armamentarium. Although other guidelines are available, this guidance was written in the context of a developing country such as Malaysia, taking into account the healthcare resources available locally. This guidance provides a review of the therapeutic agents available for the treatment of osteoporosis, with the aim of reducing fracture, and its accompanying morbidity and mortality.

2. Methods

The previous Clinical Practice Guidelines published in 2012 was used as the baseline. To update the document, a systematic review and literature search by the members of the Working Group, using PubMed (MEDLINE) and The Cochrane Library, identified all relevant articles on OP and its assessment, diagnosis and treatment, from 2011 to 2015. The date 2011 rather than 2012 was chosen so that all studies published just before and after the last guidelines would be reviewed and none inadvertently overlooked. The studies were assessed and graded with the levels of evidence as used by the National Guideline Clearinghouse, Agency for Healthcare Research and Quality, U.S. Department of Health & Human Services, USA [4] (Appendix 1). For each statement, studies with the highest levels of evidence were used to frame the statements. The grade of recommendation was taken from the Scottish Intercollegiate Guidelines Network grading system [5] (Appendix 1).

Table 1
Risk Factors for Osteoporosis and Fracture [Adapted from reference 6]

Non-modifiable	Modifiable
1. Advancing age	1. Low calcium and/or vitamin D intake
2. Ethnic group (Oriental & Caucasian)	2. Sedentary lifestyle
3. Female gender	3. Cigarette smoking
4. Premature menopause (<45 years) including surgical menopause	4. Alcohol intake of more than 3 units daily
	5. Caffeine intake of more than 330 mg daily (more than 3 cups daily)
5. Family history of osteoporosis or fracture in first degree relative	6. Low body weight (BMI < 19 kg/m^2)
	7. Estrogen deficiency
6. Personal history of fracture as an adult	8. Frequent falls

3. Results and discussion

3.1. The diagnosis of OP

The traditional risk factors, as shown in Table 1 (adapted from Ref. [6]), are still useful in identifying subjects at risk of OP and fracture (case finding) *(Grade C, Level IV)*. The Osteoporosis Self-Assessment Tool for Asians (OSTA) is a simple table based on age and weight that can identify women who may be at high risk of OP who then may require a bone mineral density (BMD) measurement [7] *(Grade B, Level III)*. The best method of assessing BMD is using dual-energy x-ray absorptiometry (DXA) at the lumbar spine and hip. General screening of the population is not recommended; the exceptions being women over the age of 65 and men over the age of

Table 2
Indications for BMD Measurement[a]

1. All women aged 65 and above and men aged 70 and above [8]
2. Presence of strong risk factors
Estrogen deficiency
- Premature menopause (<45 years of age) including surgical menopause
- Prolonged secondary amenorrhoea
- Hypogonadism

Glucocorticoid therapy
Maternal family history of hip fracture
Low body mass index (<19 kg/m^2)
Other conditions associated with osteoporosis
- Anorexia nervosa
- Malabsorption
- Hyperparathyroidism
- Hyperthyroidism
- Prolonged immobilisation
- Cushing's syndrome
- Post-bariatric surgical bypass
- Drugs (e.g. aromatase inhibitors, GnRH agonists)

3. Radiological osteopenia and/or vertebral deformity
4. Previous low trauma fractures of hip, spine and/or wrist
5. Loss of height, thoracic kyphosis
6. Low weight for age (OSTA[b]) for postmenopausal women [7] (Appendix 2)

[a] BMD should only be measured in subjects who are willing to consider available interventions.
[b] OSTA = Osteoporosis Self-assessment Tool for Asians.