REV BRAS REUMATOL. 2017;xxx(xx):xxx–xxx

SOCIEDADE BRASILEIRA DE REUMATOLOGIA

REVISTA BRASILEIRA DE REUMATOLOGIA

www.reumatologia.com.br

Original article

# Brazilian guidelines for the diagnosis and treatment of postmenopausal osteoporosis

*Sebastião Cézar Radominski*[a,*], *Wanderley Bernardo*[b], *Ana Patrícia de Paula*[c], *Ben-Hur Albergaria*[d], *Caio Moreira*[e], *Cesar Eduardo Fernandes*[f], *Charlles H.M. Castro*[g], *Cristiano Augusto de Freitas Zerbini*[h], *Diogo S. Domiciano*[i], *Laura M.C. Mendonça*[j], *Luciano de Melo Pompei*[f], *Mailze Campos Bezerra*[k], *Marco Antônio R. Loures*[l], *Maria Celeste Osório Wender*[m], *Marise Lazaretti-Castro*[g], *Rosa M.R. Pereira*[i], *Sergio Setsuo Maeda*[g], *Vera Lúcia Szenjenfeld*[g], *Victoria Z.C. Borba*[a]

[a] *Universidade Federal do Paraná (UFPR), Curitiba, PR, Brazil*
[b] *Associação Médica Brasileira (AMB), Projeto Diretrizes, São Paulo, SP, Brazil*
[c] *Hospital Regional da Asa Norte (HRAN), Brasília, DF, Brazil*
[d] *Universidade Federal do Espírito Santo (UFES), Vitória, ES, Brazil*
[e] *Universidade Federal de Minas Gerais (UFMG), Belo Horizonte, MG, Brazil*
[f] *Faculdade de Medicina do ABC (FMABC), Santo André, SP, Brazil*
[g] *Universidade Federal de São Paulo (UNIFESP), São Paulo, SP, Brazil*
[h] *Centro Paulista de Investigação Clínica (CEPIC), São Paulo, SP, Brazil*
[i] *Universidade de São Paulo (USP), São Paulo, SP, Brazil*
[j] *Universidade Federal do Rio de Janeiro (UFRJ), Rio de Janeiro, RJ, Brazil*
[k] *Hospital Geral de Fortaleza (HGF), Fortaleza, CE, Brazil*
[l] *Universidade Estadual de Maringá (UEM), Maringá, PR, Brazil*
[m] *Universidade Federal do Rio Grande do Sul (UFRGS), Porto Alegre, RS, Brazil*

ARTICLE INFO

*Article history:*
Received 8 November 2016
Accepted 24 May 2017
Available online xxx

*Keywords:*
Osteoporosis
Woman
Menopause
Guidelines
Diagnosis
Therapy

ABSTRACT

Osteoporosis is the leading cause of fractures in the population older than 50 years. This silent disease affects primarily postmenopausal women and the elderly, and the morbidity and mortality rates are high. The main goal of treating osteoporosis is the prevention of fractures. The identification of populations at risk through early diagnosis and treatment is essential. The last Brazilian guideline for the treatment of postmenopausal osteoporosis was elaborated in 2002. Since then, new strategies for diagnosis and risk stratification have been developed, and drugs with novel action mechanisms have been added to the therapeutic arsenal. The Osteoporosis and Osteometabolic Diseases Committee of the Brazilian Society of Rheumatology, in conjunction with the Brazilian Medical Association and other Societies, has developed this update of the guidelines for the treatment of postmenopausal osteoporosis according to the best scientific evidence available. This update is intended for

* *Corresponding author.*
E-mail: rbr@uol.com.br (S.C. Radominski).
http://dx.doi.org/10.1016/j.rbre.2017.07.001


Please cite this article in press as: Radominski SC, et al. Brazilian guidelines for the diagnosis and treatment of postmenopausal osteoporosis. Rev Bras Reumatol. 2017. http://dx.doi.org/10.1016/j.rbre.2017.07.001

professionals in many medical and health specialties involved in the treatment of osteoporosis, for physicians in general and for health-related organizations.



## Diretrizes brasileiras para o diagnóstico e tratamento da osteoporose em mulheres na pós-menopausa

RESUMO

A osteoporose é a principal causa de fraturas na população acima de 50 anos. É uma doença silenciosa que afeta especialmente as mulheres na pós-menopausa e idosos e tem elevada taxa de morbimortalidade. O principal objetivo do tratamento da osteoporose é a prevenção das fraturas. A identificação dessa população de risco através do diagnóstico e tratamento precoces é de fundamental importância. A última diretriz brasileira para tratamento da osteoporose em mulheres na pós-menopausa foi elaborada em 2002. Desde então foram desenvolvidas novas estratégias de diagnóstico da osteoporose, bem como fármacos com novos mecanismos de ação foram adicionados ao arsenal terapêutico. A Comissão de Osteoporose e Doenças Osteometabólicas da Sociedade Brasileira de Reumatologia em conjunto com a Associação Médica Brasileira e sociedades afins desenvolveu esta atualização da diretriz do tratamento da osteoporose em mulheres na pós-menopausa de acordo com as melhores evidências científicas disponíveis. Esta atualização é destinada aos profissionais das várias especialidades médicas e da área da saúde envolvidos no tratamento da osteoporose, médicos em geral e organizações relacionadas à saúde.



*Palavras-chave:*
Osteoporose
Mulher
Menopausa
Diretrizes
Diagnóstico
Terapia

## Introduction

Osteoporosis is a disease characterized by bone fragility and changes in bone microarchitecture, and the primary clinical outcome is the occurrence of low-impact[1D] fractures. Osteoporosis affects more than 200 million people worldwide.[2D]

In the United States, more than 2 million osteoporosis-related fractures occur annually, particularly in women (70%), and the rates of morbidity and mortality are high. In addition, the annual overhead costs of addressing the outcomes exceed USD 25 billion.[3C]

Osteoporosis fractures occur more frequently in the vertebrae, distal radius, and proximal femur. These fractures cause pain, physical incapacity, and deformities, impair quality of life, and reduce life expectancy. Hip fractures are the most severe and increase the mortality rate by 12–20% within 2 years of fracture. More than 50% of individuals who survive a hip fracture cannot live independently, and many of them need to live in institutionalized centers.[4D]

Low bone mineral density (BMD), especially in the femoral neck, is a strong predictor of fractures. The risk of fracture increases 2–3 times with each reduction of one standard deviation in the BMD. In addition to low BMD, it is important to identify the clinical risk factors for osteoporosis and fractures because these factors help evaluate the absolute risk of fracture on an individual basis and select the patients who are eligible for treatment.[5C]

Several epidemiological studies published in the past decade have highlighted the importance of risk factors for osteoporosis and fractures in Brazil.[6A,7A,8A] The last Brazilian guideline on the treatment of postmenopausal osteoporosis was published in 2002.[9D]

## Risk factors for postmenopausal osteoporosis and fractures

Osteoporosis does not present specific clinical manifestations until the occurrence of the first fracture. Therefore, a detailed medical history and physical examination should be performed in all patients to identify factors that may contribute to the bone mass loss, to evaluate predictive factors for future fractures, and to discard secondary causes of osteoporosis. Some risk factors may be reversed.[10D]

The most important risk factors associated with postmenopausal osteoporosis and fractures are age, being female, Caucasian or Asian ethnicity, previous individual and family history of fractures, low BMD of the femoral neck, low body mass index, and use of a prednisone dose $\geq$5.0 mg/day for more than 3 months, in addition to environmental factors, including smoking, abusive intake of alcohol ($\geq$3 units per day), physical inactivity, and low dietary calcium intake.[11D]

Because of the high prevalence of secondary causes of osteoporosis, many of which are subclinical, a minimum laboratory evaluation, including complete blood count, calcium, phosphorus, alkaline phosphatase, thyroid function, dosing of serum 25 (OH) vitamin D, 24-h calciuria, simple lateral radiographs of the thoracic and lumbar spine, and measurement of the BMD of the lumbar spine and proximal femur are recommended for all patients before starting any treatment. Other specific tests should be conducted only in patients

Please cite this article in press as: Radominski SC, et al. Brazilian guidelines for the diagnosis and treatment of postmenopausal osteoporosis. Rev Bras Reumatol. 2017. http://dx.doi.org/10.1016/j.rbre.2017.07.001