



Updating article

For the first fracture to be the last



Bernardo Stolnicki^{a,*}, Lindomar Guimarães Oliveira^{a,b}

^a Osteometabolic Diseases Sector, Orthopedics Service, Hospital Federal de Ipanema, Rio de Janeiro, RJ, Brazil

^b Department of Orthopedics and Traumatology, Hospital das Clínicas, Universidade Federal de Goiás, Goiânia, GO, Brazil

ARTICLE INFO

Article history:

Received 30 March 2015

Accepted 31 March 2015

Available online 1 February 2016

Keywords:

Osteoporosis

Fractures, bone

Osteoporotic fractures

Palavras-chave:

Osteoporose

Fraturas ósseas

Fraturas por osteoporose

ABSTRACT

Increased longevity has made progression in the number of fractures increasingly significant. Because hip fractures give rise to high morbidity and mortality rates and have high treatment costs, their occurrence is the most important marker of effectiveness in relation to osteoporosis treatment. In countries and systems that, especially over the last decade, have been investing in the prevention of osteoporosis and its consequences, the number of hip fractures has been decreasing. What these countries have in common is secondary prevention of fractures, i.e. to avoid subsequent fractures. Given that half of the patients who present hip fractures have had a previous fracture and that the treatments available have proven to be extremely efficient for decreasing subsequent fractures, a good proportion of hip fractures are preventable. It is within this scenario that orthopedists play a leading role.

© 2016 Sociedade Brasileira de Ortopedia e Traumatologia. Published by Elsevier Editora Ltda. All rights reserved.

Para que a primeira fratura seja a última

RESUMO

O aumento da longevidade faz com que a progressão do número de fraturas seja cada vez mais expressiva. A ocorrência da fratura do quadril, pela sua alta taxa de mortalidade e morbidade e pelo alto custo de tratamento, é o mais importante marcador da efetividade no tratamento da osteoporose. Em países e sistemas que, especialmente na última década, vêm investindo na prevenção da osteoporose e de suas consequências, o número de fraturas do quadril vem diminuindo. O que eles têm em comum é a prevenção secundária de fraturas, ou seja, evitar a fratura seguinte. Visto que metade dos pacientes que tiveram uma fratura do quadril teve uma fratura prévia e que os tratamentos disponíveis provaram ser extremamente eficientes para diminuir fraturas subsequentes, boa parte das fraturas de quadril é evitável. É nesse cenário que o ortopedista desempenha um papel preponderante.

© 2016 Sociedade Brasileira de Ortopedia e Traumatologia. Publicado por Elsevier Editora Ltda. Todos os direitos reservados.

* Corresponding author.

E-mail: stolnick@hotmail.com (B. Stolnicki).

<http://dx.doi.org/10.1016/j.rboe.2016.01.005>

2255-4971/© 2016 Sociedade Brasileira de Ortopedia e Traumatologia. Published by Elsevier Editora Ltda. All rights reserved.

Introduction

Osteoporosis is defined as a bone disease characterized by impairment of bone resistance, which predisposes toward increased risk of fractures.^{1,2}

Fractures due to bone fragility are the greatest clinical expression of this disease.

Fractures due to fragility are defined by the World Health Organization as “fractures caused by trauma that would be insufficient to fracture normal bone and which results from reduced resistance to compression or torsion”.³

From a clinical point of view, these fractures can be defined as resulting from minimal trauma, such as falling from a standing position or less than this, or by unidentified trauma. Fractures due to fragility typically include vertebral, proximal femoral (hip), distal radial and proximal humeral fractures.⁴

Fractures due to fragility are the strongest indicator or a risk of future fractures. Patients who have had a fracture at any site present approximately twice the risk of having a fracture in the future, in comparison with individuals who have never had such injuries. Patients with fractures due to low-energy trauma to the wrist, hip, proximal humerus or ankle present a risk of future fractures that is almost four times greater. Patients with a vertebral fracture will have new vertebral fractures within the next three years, and many will have them within the first of these years.⁵⁻⁷

Patients with vertebral fractures present a risk of having similar injuries in the future that is almost five times higher, and a risk of having hip fractures and other non-vertebral fractures that is twice as high. Patients who suffer wrist fractures present a relative risk of having hip fractures in the future that is almost twice as high.⁵⁻⁷

Secondary fractures occur rapidly after the first fracture. The risk of subsequent fractures seems to be higher just after a fracture, especially in the first year.⁵⁻⁷

Patients who have suffered a hip fracture form a group at higher risk of having fractures in the future. They need to be prioritized for assessment and for starting treatments, so as to avoid other secondary fractures.⁸⁻¹⁰

Contrary to what might be imagined, these patients can benefit greatly from treatment.^{11,12}

Initiatives for avoiding secondary (subsequent) fractures should be offered to all men and women over the age of 50 years who have had fractures due to fragility, since these fractures may precede hip fractures in a cycle in which one fracture leads to another, in a “cascade” of fractures.¹³⁻¹⁵

An initial fracture due to fragility is sufficient for requesting an evaluation that includes measurement of bone mineral density, with evaluation of the risk of fractures, and for starting the treatment if there is no formal contraindication.^{16,17}

Studies with the highest level of evidence have shown that osteoporosis can be treated, thus diminishing the likelihood of fractures in the future.¹⁷

Around 50% of all cases of hip fracture are concentrated in 16% of the postmenopausal female population, with histories of fractures. Therefore, secondary prevention presents an opportunity for intervention in around half of all hip fracture patients.^{18,19}

The impact of fractures due to fragility

In Brazil, the number of people affected by fractures due to fragility reaches 10 million and the expenditure on treating and caring for these cases within the National Health System (SUS) is high. In 2010 alone, around R\$ 81 million was spent within SUS on attending to patients with osteoporosis and who had suffered falls and fractures.²⁰

It has been estimated that the number of hip fractures per year in Brazil, which was around 121,700 in 2010, will reach 160,000 by 2050.^{21,22}

A recent study conducted by the Mayo Clinic showed that between 2000 and 2011, there were 4.9 million hospital admissions due to osteoporotic fractures, 2.9 million due to acute myocardial infarction (AMI), three million due to stroke and 700,000 due to breast cancer. Osteoporotic fractures accounted for more than 40% of the hospital admissions among these four types of admission, and for the length of hospital stay. The hospital cost was greater for osteoporotic fractures (US\$ 5.1 billion) than for AMI (US\$ 4.3 billion), stroke (US\$ 3 billion) or breast cancer (US\$ 0.5 billion).²³

Drug treatments

Drugs for treating osteoporosis can be divided into two groups: (1) inhibitors of bone reabsorption, which work through blocking the action of osteoclasts. These consist of bisphosphonates, selective estrogen receptor modulators (SERMs), calcitonin, estrogen and denosumab and (2) activators of bone formation, which work as anabolic agents, thus increasing bone metabolism, with predominance of bone formation through stimulation of osteoblasts. These comprise parathyroid hormone (PTH), teriparatide (which is similar to PTH), growth hormone (GH) and active metabolites of vitamin D (alfacalcidol and calcitriol).

Strontium ranelate presents a double mode of action, in that it both inhibits reabsorption and stimulates bone formation.

Bisphosphonates reduce occurrences of vertebral and non-vertebral fractures by 40-50%. They are indicated both for women and for men, and in cases of secondary osteoporosis induced through corticoids.^{24,25}

They are available in oral and injectable forms in various frequencies of dosage: daily, weekly, monthly, three-monthly and annual use.

Raloxifene is the SERM most used for preventing and treating osteoporosis. Over a three-year evaluation on women with osteoporosis, there was an increase in bone mineral density in the spine and femoral neck, with a reduction in the risk of vertebral fractures.^{26,27}

Calcitonin is available in as a nasal spray or in subcutaneous form for daily use. It gives rise to a reduction in occurrences of vertebral fractures in 36% of the patients, but without any reduction in hip fractures or any significant change in either bone mineral density or bone metabolism.²⁸

Estrogen replacement therapy is indicated for preventive treatment of osteoporosis. The risks and benefits of this

Download English Version:

<https://daneshyari.com/en/article/2708336>

Download Persian Version:

<https://daneshyari.com/article/2708336>

[Daneshyari.com](https://daneshyari.com)