

Osteoporosis, a major health problem

Three million people suffer from osteoporosis in Spain

Even though better drugs have been developed, only one of every ten people diagnosed receive treatment.

Only 10% of the people affected by osteoporosis receive treatment

ALTHOUGH BETTER DRUGS ARE AVAILABLE TO ABATE THE REDUCTION OF BONE DENSITY, THERE IS ALSO A SERIOUS LACK OF DIAGNOSTIC EQUIPMENT, WITH ONLY 25% OF THE AVAILABLE EQUIPMENT BEING IN PUBLIC HEALTH CARE

Maybe because of its capacity to endure the passing of time without disintegrating like other tissue types, we perceive the skeleton as the strongest and most resistant structure in our body. However, even the skeleton weakens with age due to menopause-induced hormone changes, genetic factors, or certain lifestyle habits. When the bones become porous they can break like glass and force a person to be bed bound or bend her back forever due to the vertebrae being crushed.

Two million Spanish women and 750,000 men suffer from osteoporosis, this is one of every three women between 60 and 70 years of age and two thirds of those older than 80. However, only 10% of those affected receives treatment. At least partially, this is due to the fact that the patient can not always be subjected to a test certifying that the bones are becoming increasingly weak and it is necessary to act from a pharmacological point of view and also act in respect to lifestyle habits.

Densitometry is the diagnostic technique used to quantify the bone mineral mass. This technique is considered the most accurate method in osteoporosis, but, “unfortunately, it is applied too late in many cases, where the osteoporotic fracture has already taken place”, says José Manuel Quesada, responsible for the Mineral Metabolism Unit in Cordoba’s Reina Sofía Hospital.

DEFICIENCIES

In Spain, there are about eight densitometers per million people. Using a soccer analogy, we could say that our team is in the middle of the league table, behind other countries like France, Germany, Austria, Italy or Portugal. “There is a serious lack of these instruments, -adds Quesada- and in some provinces there is not even a single one”. With this backdrop, “the fact that 75% of the available densitometers belong to the private medicine sector, does not contribute to an improvement in the diagnosis rates” explains Rafael Herrero, general coordinator of the Spanish Osteoporosis and Metabolic Bone Diseases Foundation (Fhoemo).

It is enough to read any of the studies carried out by Fhoemo in different Spanish towns, to understand the importance of osteoporosis as pathology. As an example, from the 2,765 women living in Leganés (Madrid), who, in May 2003 were subjected to a fast ultrasound test to detect the disease, one fourth was suffering from osteoporosis and nearly 30% presented signs of osteopenia - precursor of the disease-, but only 3.5% had been previously subjected to a densitometer test. Similar results were found in women of other municipalities in different parts of Spain.

This is a very prevalent and under-diagnosed disease, which, combined with an ageing population, is a difficult situation for a health care system with insufficient resources. The direct costs of the 33,000 hip fractures produced in Spain exceed 225 million euros, while a whole-body densitometer costs about 60,000 euros.

“In the Autonomous Community of Valencia, the only one with an Osteoporosis Prevention and Control Plan, the waiting time for a bone density test is around one year in some areas, even though we are in a privileged position and we are acquiring more densitometers” says Juan José García Borrás, director of the Rheumatology Service in the Hospital de la Fe in Valencia.

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“Without a precise diagnostic, no specialist will prescribe a treatment until a hip fracture occurs or until it becomes evident on the X-ray images, by which time 30% of the bone has already been lost”, adds Mr. Borrás.

Once the bone deficiency has been detected, the pharmacological treatment - complemented with calcium and vitamin D administration - is oriented towards stopping the progress of bone destruction. On the one hand, estrogen modulators are used to substitute the hormones no longer segregated by the ovaries at the time of the climacteric, but without the vascular or tumour risk associated with hormone substitution therapy by some studies. But the family of drugs with the strongest therapeutic action on osteoporosis is the bisphosphonates (etidronate, alendronate, risedronate). “They stop the progress of bone destruction and even stimulate the formation of new bone. Administration is very comfortable - one pill a week - but we will soon be provided with 3-monthly injectable doses” explains Luis Del Río, responsible for the Densitometry Unit of the University Institute Dexeus in Barcelona.

NEWS FOR 2005

“During the course of this year, Spain will give the parathormone (PTH) the green light. This is the same hormone that is produced in the parathyroid gland and is involved in the phosphorus-calcium metabolism and vitamin D metabolism. It seems paradoxical that a patient subjected to elevated PTH levels the bone would loose minerals. Nonetheless, administering this hormone cyclically generates good quality bone. In any case, these are expensive drugs and are only indicated for patients with advanced osteoporosis” affirms Del Rio.

Repairing of vertebral fractures - the most frequent - using kyphoplasty is becoming increasingly common. In this minimally invasive technique, the displaced vertebrae causing the pain are relocated to their original positions by introducing a small air balloon and subsequently injecting a special cement that maintains the bones in the columns in place.

Less than a month ago, various teams of Catalan physicians investigated the use of stem cells to repair bone fractures obtaining promising results. For García Borrás, this type of discoveries could be useful in the repair of localised fractures and in healthy patients, but not for somebody suffering from osteoporosis, since this is a generalised problem affecting the entire bone system. Contrary to this, according to Quesada, “numerous trials on animals and humans have demonstrated the capacity of adult stem cells - from the bone marrow or even from the blood- to transform themselves into other cell types such as the osteoblasts (bone cells) and our hospital, the Reina Sofía, works on this subject”.

Gloria Encabo, director of the Densitometry Unit of the Valle Hebrón Hospital in Barcelona, insists that all the strategies related to osteoporosis should not centre on densitometers and drugs. “It might be true that the necessary resources have not been made available, but we must insist in the need to prevent the problem on the basis of an adequate diet from the early years, eliminating the risk factors, and with physical exercise. We should not rely on medication only. Moreover, many recent studies reveal that the treatment aimed at recovering the bone reabsorption can, in the long term, lead to alterations of the bone micro-structure. This shows that it is not all totally clear”

In any case, the progression of the disease has disastrous consequences for our elderly. With every unit of bone mass that we lose the risk of fracture is multiplied by two and, when this takes place, the quality of life will never be optimal again.

Practical recommendations

PREVENTING THE DISEASE

We must take care of our skeleton from the early years, since there are very clear risk factors associated with osteoporosis.

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Nutrition. Every day, we lose calcium through our urine and sweat. The bone is the calcium reserve, which means that children need to take 800 mg of this chemical element, adults 1000 mg, and pregnant women and women in the menopause need to take 1200 mg.

Physical exercise. Living a sedentary life has detrimental effects on the bones. It is better to opt for light exercise, such as outdoor walks or exercises recommended by the specialist.

Avoiding falls. In order to prevent an elderly person from suffering from a serious fracture it is convenient to keep the house free from any obstacles which can pose a trip hazard, such as toys, cables, rug corners, etc. Wet or polished floors can cause slips and it might be necessary to install a handrail on the stairs and ensure that the house is properly illuminated.

Bad habits. Apart from a balanced diet, an excess in caffeine, cigarettes or alcohol promote the development of osteoporosis and, in the case of alcohol, also the risk of falls.

[Box left]

Key factors in osteoporosis

With age, the bone decomposition process is faster than the formation process, in regard to both collagen structure and mineral salts.

Healthy bone

Periosteum *Hard cortical bone*

Spongy bone *Osteons*

The bone is composed of units called osteons, which are composed of very tight layers of lamellae.

Bone affected by osteoporosis

Periosteum *Hard cortical bone*

Spongy bone

The density of the bone decreases from 65% to 35%. The central medullar channel grows and spaces are formed between the lamellae of the osteon, thus weakening the bone.

NATURAL TREATMENTS

Varied diet and physical exercise (walk 30-60 minutes daily or aerobic exercise 3 times a week for 30 min)

Calcium intake (1200 mg/day for pre-menopausal women and 1500 mg/day for post-menopausal women)

Frequent ingestion of milk products, such as yogurt, milk or cheese, which are rich in calcium.

RISK FACTORS

These are some of the principal risk factors which can lead to osteoporosis:

Metabolic and dietary

Lactose intolerance

Alcoholism

Calcium deficiency

Hepatic diseases

Caffeine consumption

Smoking

Endocrine factors

Estrogen or androgen

deficiency

Corticoid increase

Drug use

Corticosteroids

Heparin

Antiepileptic drugs

Antacids

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Vitamin D deficiency

Malnutrition
Poor intestinal absorption

Physical activity

Sedentary lifestyle
Prolonged immobilisation

Genetic factors

Feminine sex
White or Asian
Small stature

STATISTICS

150 million people affected worldwide. 2 million women and 750,000 men in Spain

Spain: 170,000 fractures every year. 66,000 spinal, 33,000 hip, 25,000 wrist and 46,000 other types

The direct costs of hip fractures only is in the area of 220 million euros.

[Box right]

Fractures and densitometers in Europe

In Spain, there are 8 instruments for the diagnosis of osteoporosis for every million people, a lower number than neighbouring countries such as France, Germany or Portugal.

Direct hospital costs derived from hip fractures
Total: 4,800 million euros

Number of densitometers per million inhabitants
Average 11.1

Hip fractures per 10,000 inhabitants
Total 485,748

The hospital costs of a hip fracture and those from a prosthesis implant are very high

Number of bone densitometers