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Self assessment test: correct answers

Myths, stories and legends about calcium and vitamin D

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1. The mandatory calcium losses are:
d. Urine and feces about 1,000 mg daily
Compulsory calcium losses are estimated at about 1,000 mg daily, of which around 200 mg is due to calciuria and the remaining 800 mg due to fecal losses, due to calcium contained in pancreatic juices and calcium ingested and not absorbed.

2. A woman after menopause is advised to ingest daily:
d. 1,500 mg of calcium
In menopause, daily calcium recommendations have been estimated at 1,500 mg daily by the National Health Institute (NIH).

3. The Spanish paradox of vitamin D comes to say:
d. All of the above is false
The Spanish vitamin D paradox refers to the fact that vitamin D levels, measured by its reserve metabolite, calcidiol. They are higher in the Nordic countries than in Spain, which is because, in these countries, given the few hours of sunshine in the autumn and winter months, their food is fortified with vitamin D, while in Spain, by cultural reasons, we take little advantage of the hours of sun we have.

4. Which of the following foods has a higher calcium content in milligrams per 100 g of edible portion:
d. Cured Manchego cheese
100 g of cured Manchego cheese provide 1,200 mg of calcium, while none of the other options included in the question reach 200 mg.

5. What is the prevalence of hypovitaminosis D in medical students of the University of Las Palmas de Gran Canaria? (25HCC values below 30 ng/mL):
d. 61%
Medical students at the University of Las Palmas de Gran Canaria should theoretically have optimal levels of vitamin D, since they have sun all year round, are young and generally healthy and have knowledge of the physiology of vitamin D. Although there is sunshine available to them, however, they do not take advantage of it, for lifestyle reasons.

Recommendations of scientific societies on the calcium and vitamin D supplementation in osteoporosis

Gómez de Tejada Romero MJ, Sosa Henríquez M

1. For the National Osteoporosis Society (NOS) of the United Kingdom, vitamin D deficiency occurs when serum levels of 25 hydroxyvitamin D25 (OH)D are lower than:
d. 10 ng/mL
In these guidelines, the British, establish as vitamin D deficiency serum levels of 25(OH)D below 10 ng/ml (30 nmol/l), and, recognizing that there is no consensus on this, they do support the majority in favor of considering as inappropriate values those that are between 20 and 30 ng/ml (at least in some populations).

2. For the American Association of Clinical Endocrinologists/American College of Endocrinology, patients over 50 must maintain a daily calcium intake of at least:
d. 1,500 mg
For the American Association of Clinical Endocrinologists/American College of Endocrinology, patients should be advised to maintain an adequate calcium intake of 1,200 mg/day for women over 50, which if not achieved by diet should be supplemented with supplements.

3. For the Spanish Society of Bone Research and Mineral Metabolism (SEIOMM), patients with osteoporosis should receive a daily intake of calcium and vitamin D from:
d. None of the above
For the Spanish Society of Bone Research and Mineral Metabolism (SEIOMM), patients with osteoporosis should receive a contribution of 1,000-1,200 mg/day of calcium and 800 IU/day of vitamin D, so that, if these figures are not achieved with the diet, supplements must be added.

4. For the Endocrine Society, adults over 50 years of age must reach serum values of 25(OH)D higher than:
a. 30 ng/mL
The Endocrine Society recommends that those over 50 years of age raise blood levels of 25(OH)D above 30 ng/ml. At least 1,500-2,000 IU of vitamin D supplement may be required. In this regard, they also recommend use vitamin D2 or D3.

5. One of the following recommendations of the (SEEN) on vitamin D is false:
d. Systematic supplementation is recommended in all adults under 50 years of age to obtain improvement in bone health
There are no data supporting this recommendation.

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Self assessment test: correct answers

The role of calcium and vitamin D in the prevention and treatment of osteoporosis

Martínez-Laguna D

1. Regarding the effect of supplementation on muscle with vitamin D alone compared to calcium and vitamin D, indicate the answer:
a. Improves muscle strength
A systematic review suggests a low but significant positive effect of supplementation on muscle strength, but not on muscle mass or power. No differences were observed between the use of vitamin D supplements compared to vitamin D supplements with calcium.

2. Of the reference studies with the different drugs, in which a greater amount of vitamin D was indicated, it was with the drug and (acronym):
d. None of the above
The reference study in which a greater amount of vitamin D has been indicated, always in the form of cholecalciferol, was the Fracture Prevention Trial with Teriparatide, in which up to 1,200 IU of vitamin D.

3. In the reference study with zoledronate, we can affirm that it is true:
d. All of the above is true
In a study conducted on 153 women with postmenopausal osteoporosis who were to receive a first dose of zoledronate, it was observed that the levels of 25 - OH - vitamin D were lower in those who presented an acute phase reaction, so that those with 25 - OH - vitamin D levels <30 ng/ml presented 4.2 times the risk of presenting this reaction.

4. In the treatment of osteoporosis the administration of calcium and vitamin D is advised, since:
d. All of the above is true
It is advisable to correct the levels of calcium and vitamin D, preferably through diet or the use of supplements, in patients with osteoporosis who are going to receive an antiresorptive or osteoforming drug. It is a cost-effective intervention. In addition, the correction of vitamin D levels can be associated with a decrease in the risk of falls, and therefore with a lower risk of osteoporotic fractures.

5. Regarding the physiology of calcium and vitamin D, indicate the correct answer:
d. All of the above is true
The maximum bone mass is acquired by 30 years of age and depends on genetic and environmental factors, including calcium intake. Once the bone mass peak is achieved, it is necessary to maintain a minimum calcium intake to avoid bone loss. Vitamin D is responsible for maintaining calcium and phosphorus homeostasis, favoring its reabsorption at the renal and intestinal level. Its deficit is associated with an alteration of bone mineralization, causing rickets in children and osteomalacia in adults.

Role of calcium and vitamin D in the treatment of hip fracture patients

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1. The most serious osteoporotic fracture is:
d. None of the above
The most serious osteoporotic fracture is the fracture of the proximal limb of the femur, also known as a hip fracture, due to its morbidity and its not negligible mortality.

2. The prevalence of vitamin D deficiency, defined as (serum levels of 25OHD <20 ng/ml) is very high in patients suffering from a hip fracture, reaching figures in Spain between:
d. 67-91%
The prevalence of hypovitaminosis D (serum levels of 25OHD <20 ng/ml) is very high in patients suffering from a hip fracture, reaching, for example, 36% in Finland, 40-68% in the United Kingdom, between 50-78% in the US, between 62-90% in Japan and between 67-91% in Spain.

3. The presence of a fracture implies an increased risk of fracture in subsequent years. In the specific case of the hip fracture, the incidence of refracture can reach:
b. 10%
The presence of a fracture implies an increased risk of fracture in subsequent years. On the other hand, the risk of fracture is especially important if the fracture is recent. In the specific case of hip fracture, the incidence of refracture can reach up to 10% during the first years.

4. In randomized studies it has been proven that the administration of vitamin D produces:
d. All of the above is true
Harwood et al. They observed that oral or parenteral vitamin D reduced the risk of falls after one year of presenting a hip fracture. Mak et al. They found that a single dose of cholecalciferol load (250,000 IU) followed by 800 IU daily, reduced the risk of falls compared to the isolated daily dose in 218 patients (77% women) followed for 26 weeks. Bishoff - Ferrari et al. They observed that the administration of high doses of vitamin D 2,000 IU/day to patients discharged after suffering a hip fracture reduced the rate of readmissions during the first year by up to 40%.

5. Point out the answer that seems false:
d. Pharmacological supplementation is preferable
Although there is no evidence of its effectiveness when administered in isolation, it is considered that calcium and vitamin D should be prescribed to every patient with osteoporosis, especially if they have suffered a fragility fracture. In our usual clinical practice, it is advisable that patients with hip fractures receive an adequate intake of vitamin D (daily dose between 800-1,000 IU), in addition to an appropriate amount of calcium (between 1,000-1,200 mg/day), this Last preferably with the diet.