Up-to-date guidelines for the prevention and treatment of osteoporosis

Osteoporosis is a common skeletal disease marked by low bone strength and increased risk of fracture and has been recognized as a major public health concern.

National Osteoporosis Foundation (NOF) is a not-for-profit US-based organization focused on improving patient access to high quality skeletal health care which released a long-awaited update of its clinical practice guidelines on February 21, 2008. Also, on the same day, a companion online fracture risk assessment calculator (FRAX™) from the World Health Organization (WHO) was launched for public use.

The new NOF Guidelines

The NOF's Clinician's Guide to Prevention and Treatment of Osteoporosis has been formulated to serve as a reference for healthcare providers on the prevention, diagnosis, and treatment of osteoporosis. It furnishes an information on the epidemiology of osteoporosis, consequences of osteoporotic fractures, and evaluation of patients at risk for fracture. For the determination of treatment thresholds, recommendations or pharmacologic treatment are based in part on the US adaptations of the WHO 10-year fracture probability model and algorithms are used. These are based on cost-effectiveness in populations of patients and should be used together with other considerations in making treatment decisions for individual patients. But it requires a careful scrutiny to evaluate its clinical utility as the revised NOF guide represents a new paradigm for the management of osteoporosis. The new concept is of assessing the fracture probability using a combination of bone mineral density (BMD) and validated clinical risk factors and expressing fracture risk as 10-year probability of fracture.

Advantages of the new guidelines:

The main benefits inculcates better allocation of limited healthcare resources toward patients at higher risk for fracture and most likely to benefit from therapy. Risk factors are used systematically and are scientifically weighted. The expression of fracture risk as 10-year probability of fracture is an augmentation over relative risk; this should result in treatment being more likely to be given to older patients, who are at high risk of fracture but, whose BMD is above the -2.5 threshold, and less likely to be offered to younger patients whose fracture risk is lower. The new guidelines also address treatment in non-caucasians and in men.

Pitfalls of the new guidelines:

The new guidelines could have eliminated the use of T-scores and the category of osteopenia, but that this was not the case. Nevertheless, the T-score threshold for the treatment of postmenopausal women without additional risk factors has been lowered from -2.0 to -2.5; this number may be more relevant, but could cause confusion as to whether patients formerly treated should still be treated. The ppoint worth noting is that there is no evidence for reduction of fracture risk in treated patients with T-scores more preferably than -1.5, some of whom would now be treated.

Pitfalls of FRAX

The application of FRAX™ sometimes results in values for 10-year probability that are counterintuitive and inconsistent with some of the treatment recommendations. Not all risk factors are uncomplicated. The previous fractures are not clearly defined and could comprise fracture sites not related to osteoporosis, like fingers and toes. Also, secondary causes of osteoporosis are not explained well. The fracture risk
related to corticosteroid use does not consider dose or duration of treatment. Finally, some patients with arthritis establish that they have rheumatoid arthritis, although, in fact, it may be a different type of arthritis.

It must be acknowledged that not all risk factors are considered, so the calculated fracture risk may be less than the clear risk. The range of error for 10-year fracture risk is not clearly defined. A clear intervention threshold range (eg, above xx% fracture risk treatment should be strongly considered; between yy% and xx%, treatment should be considered based on individual patient circumstances) may be relevant. As per the FRAX™ model, it is possible for patients with normal T-scores (-1.0 or better) to be recognized as candidates for treatment even though drugs approved for osteoporosis treatment have not been shown to reduce fracture risk in patients with T-scores better than -1.5.

Also, the calculated fracture risk may rise and fall immediately with very minor changes in the variables within the same population. As fracture probability depends in part on life expectancy, 10-year risk reduces from age 80 to 85 and from 85 to 90 and this could lead to treatment not being suggested for elderly patients for whom fractures are likely in the next 5 years.

Hence, it was culminated that FRAX and the new NOF guidelines depicts advances in the care of osteoporosis, but more could be done to enhance their usefulness in patient management. It is responsibility of the healthcare providers, regulators, and payers that they must clearly understand the limitations and benefits of these tools. They must also recognize that good clinical judgment should be the ultimate determinant of treatment. It is expected that further refinements to FRAX™ and subsequent updates of the NOF guide will ameliorate their clinical utility.

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