

Thoughts on the Management of Osteoporosis

Last few years have seen a lot of change in the understanding of osteoporosis. From what was given as just a few paragraphs in the text books it is now finding a lot of importance in the literature. The whole world is seeing a sea change. Both the diagnostic as well as the therapeutic avenues widening with much clearer guidelines on doing what investigation and giving which medication. The literature is adding to the knowledge year after year, specially the last three years have been very delineating.

Diagnosis of osteoporosis now is not just based on osteopenia seen on the X-ray film. Authentic tests using nothing less than Dual Energy X-ray Absorptiometry (DEXA) scanning with clear guidelines on when to do the test are now available. It is recommended that DEXA scanning should be done to measure bone mineral density (BMD) for all above 60 years irrespective of the risk factors for the causation of osteoporosis and earlier if one or more of the risk factors for the causation of osteoporosis are present. It has been seen in practice that many practitioners start medications other than calcium and vitamin D even when the BMD is rated as normal. If the t-scores (compares the patient's BMD to that of healthy young adult) is within -1 standard deviation of a young adult (SD), it is considered normal; when the scores are between -1 to -2.5 SD, it indicates osteopenia and when the scores are below -2.5 SD it is called osteoporosis. Osteoporosis is considered severe if there are added fragility fracture(s) with BMD scores below -2.5 SD. BMD should be measured atleast at two sites to make a diagnosis. BMD results may be fallacious due to sclerosis of the bones following healing of the fractures or added osteophytosis due to degenerative changes. One word of caution, however, the standards of the peak bone density in the young adult have to be evolved in the local settings and should not be just copied from the western figures, since the measurements are relative to a population and cannot be accepted universally. Since BMD measurements have become rampant it has been found that hardly any laboratory doing this testing has developed standards based on local population. This fact must be kept in the mind and those having some say or control over labs doing DEXA scanning should be promoted to develop the standards for the normal population so that the measurements become more authentic. It need not be emphasized too strongly that in the diagnosis of osteoporosis one should rule out other conditions that may cause osteoporosis secondarily. Diagnosing osteoporosis involves ruling out other illnesses. Clear guidelines on the management of osteoporosis in

children are not available.

Role of calcium and vitamin D has been through certain controversies too. Most studies do advocate adequate calcium and vitamin D supplements, both for prevention and treatment of osteoporosis. In addition, one should always keep in mind the amount of dietary calcium one is taking to calculate the actual requirement rather than giving supplements only. In our practice it has been found that higher intake of calcium supplements leads to higher incidence of urinary stones compared to moderate intake of calcium supplements in addition to reinforced dietary regimen to include adequate dietary calcium. Calcium taken as citrate can be taken independent of meals and is absorbed better compared to the carbonate salts. Besides, care should be taken to see how much of elemental calcium is available in a preparation. Most preparations would contain added vitamin D. Vitamin D in its multivitamin form is considered better for out patients use rather than the active form specifically calcitriol, which is not considered a benign drug though used rather indiscriminately.

The treatment of osteoporosis has been revolutionized after it was found in the Women's Health Initiative (WHI) multi-centric trial that hormonal replacement therapy (HRT), which used to be the gold standard for the management of osteoporosis in women, caused more harms than the benefits. The trial, after it was stopped without completion due to serious side effects, initially advocated that the risks of HRT should be discussed with the patients on which it was likely to be started, but later it was announced that HRT no longer remains to be the treatment of choice or the gold standard for management of osteoporosis. However, there is a limited role of HRT in patients having had premature menopause or hysterectomy. In post menopausal women Raloxifene (Selective Estrogen Receptor Modulator, SERM) is the drug of choice. The recommended dose of Raloxifene was also modified from 120 mg per day to 60 mg per day, since it was found that 60 mg gives adequate protection. In osteoporosis in men and in secondary osteoporosis (say due to steroids) the drug of choice remains to be Bisphosphonates. Etidronate now is no longer considered worth considering in the armamentarium to treat osteoporosis. Alendronate is freely available in India and is being used widely. The recommended dose is 10 mg per day, though initially 5 mg per day for prevention and 10 mg per day for treatment of osteoporosis was advocated. But gradually, for prevention, its use has been limited and doubted by

most. Many practitioners have been found using 35 mg per week though 70 mg per week gives better results. Even though a daily dose of 10 mg per day is considered better and already a weekly dose of 70 mg is a compromise, 35 mg per week does not seem to show adequate response in most studies. The difficulty with the daily dose being the compliance of the patient, that reduces down keeping in view the way this drug needs to be taken in the morning on empty stomach while asking the patient to avoid lying down in bed and be upright for about 45 minutes after ingesting the medicine. In most studies, including our experience at our institution, the gastric tolerability of bisphosphonates is quite acceptable, provided it has been explained and emphasized to the patient adequately. Some practitioners have been found to ignore this precaution and it was found that patients, who were bedridden and not allowed to sit, were given this medication leading to more chances of reflux esophagitis and epigastric discomfort. In bed-ridden patients one should also consider increase in demineralization resulting in hypercalciuria thereby increasing the risk of urinary stones. The question is whether we should give Alendronate in bed ridden patients; it seems impracticable. In any case, if literature is searched, giving more calcium and vitamin D given during prolonged bed rest is counterproductive. Injectable bisphosphonates (Pamidronate) is less potent compared to Alendronate, it is popular with doctors treating bony secondaries. Care should also be taken that giving calcium around the dose of Alendronate retards its absorption, so calcium should be staggered to another meal. Painful vertebral fractures are best treated with intra-nasal spray of Calcitonin. It is rather expensive, but pain reduces dramatically, therefore, in Indian conditions, has a place provided the patient can afford it. Tetany following Calcitonin usage has been reported if the patient does not take adequate calcium supplements, therefore, it should be ensured. Flavones are also coming up but their role is yet to be established firmly. Injectable Parathormone may be considered the drug of choice of the future, but painful injections, cost and availability are hindrances for their usage in India. Perhaps we could wait for the nasal spray being developed. If the cost remains prohibitive, it might remain only a fashionable drug used by a select few patients.

How long to treat osteoporosis remains to be a changing scene. Initially, it was advocated that one should treat for about 2 years. The changes in the bone mineral density and the markers to check the bone turnover rate suggested that in six months to one year after the initiation of the treatment with bisphosphonates there is no further increase in the BMD. Besides, it was found that bisphosphonates stay in the bones for years, suggesting perhaps they are not required to be given for years together. But when treatment was stopped the studies further showed that it was worthwhile continuing the treatment for a longer period since BMD started to reduce after a while. Keeping that in mind, it is suggested that BMD should be done at the beginning, before starting the therapy and repeated initially after six months of starting therapy and then yearly. When the BMD returns to the normal range, the therapy may be continued for another six months and then stopped and preventive measures should be continued. If the BMD falls below the critical level, one should not hesitate in restarting the drug therapy.

Of course, it should be stressed to the patients to follow a good dietary and exercise schedule as well as precautions to prevent falls and thus fractures. No drug guarantees non-occurrence of fractures. Only the chance of occurrence of fractures reduces. If these facts are well understood by the treating doctors as well as the patients, confidence of the patients in following their treatment and that of the doctors in continuing to treat remains. Making the patient cent percent free of the risk fractures due to osteoporosis may not be possible despite the best treatment available on date, this needs to be understood by all.

Boom in the electronic entertainment systems, specially television, video games and computer games has attracted children to remain indoors. Lack of parks for children to play and safety concerns are also factors making children be confined to their homes and thus reducing their engagement in exercise in general which is one of the most important factors in achieving adequate BMD, peak of which occurs around 25 years of age. The consequences of this change are likely to be seen when this population ages. It, therefore, becomes very important to promote outdoor games in children, specially high impact exercises to prevent osteoporosis in the years to come.

Dr U Singh
Editor