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Efforts for providing relief from osteoporosis

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World Osteoporosis Day (WOD) is celebrated on October 20 each year, marking a year-long campaign dedicated to raising global awareness of the prevention, diagnosis and treatment of osteoporosis.



With a prevalence of over 50 million cases in India, the study of osteoporosis has increased tremendously, leading to the development of new drugs, each working to restore bone strength.

This condition causes the porous interior of a bone to increase, thus breaking down its structural integrity. While bones require vitamin D and calcium for the development of healthy bones, Indians suffer from severe vitamin D deficiencies which prevent the effective uptake of calcium.

Despite being a country blessed with plentiful sunlight, a major source of vitamin D, India has large instances of insufficient nutrition, lack of Vitamin D rich foods and “highly pigmented skin”, all causing this deficiency. Thus, the great rate of progression of this disease has spurred many researchers to develop new and highly effective drugs.

Those suffering from osteoporosis are generally prescribed certain second line drugs, while newer drugs are being slowing introduced into the medical field. Some of these second line drugs would include denosumab, sold by Dr. Reddy’s Laboratories from Hydrabad, and teriparatide.

Administered in the form of injections, these drugs have proven to increase bone mass density and allow the growth of bone matter similar to that produced under normal circumstances , thus reducing the chances of fracture or any other bone damage.

Teriparatide, in particular, is a hormone that stimulates the growth and strength of bones, thus combatting osteoporosis. Produced by Cadila Pharmaceuticals in Ahmedabad, it aims to decrease the number of fractures a patient with this disease would face. These injections are manufactured in the form of a disposable pens, making it cheaper for the patients to utilise. An easier method of delivery without supervision of a doctor or nurse had persuaded many patients of the effectiveness of this drug. Majority of patients have expressed a concern for difficulties while taking drugs, hence Cadila is working to provide them with a convenient solution.

Further research into this field has led to the emergence of new drugs such as abaloparatide, romosozumab, and calcitonin that can be used as a long term solution. Companies such as US based Radius Health, Inc. and Glenmark based in Mumbai have respectively pioneered the production of these drugs.

In addition to being more effective, these medicines also have a lower rejection rate, making them readily used for the treatment of osteoporosis. For instance, Romosozumab, an antibody, prevents sclerostin, a protein present in the bone cells, from affecting the bone. This in turn, reduces the rate of bone resorption, but rather promotes its formation. Its effects have been seen in numerous men and women, by demonstrating a marked increase in the proteins able to detect nutrition levels which indicate healthier bones.

Calcitonin, on the other hand, is taken through a nasal spray or injection. By stimulating the absorption of calcium in the bones, they are able to reduce the risk of fractures due to a diminishing structure. However, these drugs have a higher cost, making them less common that Alendronate, another newly developed drug.

Apart from these drugs, some patients are administered corticosteroids which prove to be highly effective in some cases. Along with this, one is recommend supplements of calcium and vitamin D, regardless of differences in terms of doses and the time period. However, this method could lead to complications in patients with other risk factors that have been taking these drugs from a longer period of time. In such cases, antiresorptive therapy is also suggested as a means to improve bone structure.

In terms of still developing research, companies such as Glenmark Pharma are focusing on treating menopausal women with osteoporosis. Its recent USFDA approval has allowed the release of Norethindrone Acetate and Ethinyl Estradiol tablets in the drug market. Working to promote these drugs, Glenmark has quickly and efficiently distributed them across India, hoping to treat this disease which arises as a symptom of menopause. Suitable for those with severe to moderate symptoms, these drugs as a way to prevent osteoporosis from occurring in the future.

Similarly, Zydus Cadila in Ahmedabad has developed a new treatment for osteoporosis in women after menopause. Risedronate Sodium delayed-release tablets hope to reduce the rate of bone degradation, thus improving its formation. This will lead to a decreased risk of fracture, and aide females suffering from this condition.

Stemming from herbal medication, Shoolini University’s School of Pharmaceutical Science in Solan is working on developing drugs to help reduce the symptoms of osteoporosis. By discovering special proteins present in 3 species of pine found in the Himalayan region, scientists hope to provide a more natural means of strengthening weaker bones in post-menopausal women.

Pharmaceutical companies and doctors, alike, are working tirelessly to alleviate osteoporosis in all Indians. Given the widespread nature of this disease, multiple drugs are currently available in the market, each with their own advantages and target patients. By making these medicines more accessible to the general public, one would expect a decrease in the great

instances of osteoporosis and the difficulties it brings.

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