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Intranasal delivery system as new treatment paradigm for the treatment of postmenopausal osteoporosis.

Dr. Foziyah Zakir

Delhi Pharmaceutical Sciences and Research University (DPSRU), New Delhi, India

Abstract

Osteoporosis is the most prevailing disease in postmenopausal women leading to increased risk of fractures, pain and low quality of life. It is a progressive bone disease which remains unnoticed until a fracture occurs. The disease is more predominant in older age population particularly females due to reduced estrogen levels and limited calcium absorption. The cost burden of treating osteoporotic fractures is too expensive therefore primary focus should be treatment at an early stage. Most of the marketed drugs are available as oral delivery dosage forms. The complications as well as patient non-compliance limit the use of oral therapy for prolonged drug delivery. Intranasal delivery system seems to be a promising approach for systemic delivery of drugs through nasal cavity bypassing the first-pass effect. Intranasal delivery has the potential to improve the absorption of the drug, enhance the bioavailability, and provide better patient compliance as well as possibility of self administration. Most of the osteoporotic medications are not absorbed orally due to proteomic nature or first pass metabolism. Therefore, a suitable delivery system can be designed to promote intranasal delivery of therapeutics. We have developed an intranasal in-situ thermosensitive nanoemulgel of raloxifene hydrochloride to overcome the pharmaco-technical limitations of the drug. The delivery system boosted the bioavailability of raloxifene hydrochloride by 7 fold and improved the bone mineral density by 162% when compared with marketed oral tablets.

Biograph :

Osteoporosis is the most prevailing disease in postmenopausal women leading to increased risk of fractures, pain and low quality of life. It is a progressive bone disease which remains unnoticed until a fracture occurs. The disease is more predominant in older age population particularly females due to reduced estrogen levels and limited calcium absorption. The cost burden of treating osteoporotic fractures is too expensive therefore primary focus should be treatment at an early stage. Most of the marketed drugs are available as oral delivery dosage forms. The complications as well as patient non-compliance limit the use of oral therapy for prolonged drug delivery. Intranasal delivery system seems to be a promising approach for systemic delivery of drugs through nasal cavity bypassing the first-pass effect. Intranasal delivery has the potential to improve the absorption of the drug, enhance the bioavailability, and provide better patient compliance as well as possibility of self administration.

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