

Feasibility of Low Intensity Pulsed Ultrasound to Improve FRAX[®] Results in Postmenopausal Osteoporotic Femur

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Abstract : *Objectives:* The aim of this study was to investigate the efficacy of low intensity pulsed ultrasound on the results of fracture risk assessment tool (FRAX[®]) of osteoporotic femoral neck in postmenopausal women. *Methods:* Thirty six postmenopausal women with low femoral neck bone mineral density ageing between 45 to 75 years with BMI between 28.2 to 45.7 kg/m² participated in this study. They were assigned randomly into one study group (18 Osteopenic subjects: with a T-score between -1.0 and -2.5, and 18 Osteoporotic subjects: with a T-score at or below -2.5) as each subject was her control in a single group pretest posttest study design. All participants received the treatment of low intensity pulsed ultrasound (LIPUS) for successive six months. Both 10-years probability of major osteoporotic hip fracture and 10-years probability of hip fracture were assessed by FRAX[®] desktop individual entry model (version 3.91). The participants were tested twice; before and after the application of LIPUS therapy. *Results:* The statistical analysis revealed that there was a statistically significant decrease of both 10-years probability of major osteoporotic hip fracture and 10-years probability of hip fracture in the post-treatment condition compared with the pre-treatment ($p < 0.05$). Moreover, there was a more significant improvement of FRAX[®] results in osteopenic subgroup compared to FRAX[®] results in osteoporotic subgroup ($p < 0.05$). *Conclusions:* low intensity pulsed ultrasound therapy may be considered as one of the most helpful methods of physiotherapy in management of low bone mineral density in postmenopausal women.

Keywords : Osteoporosis; Low Intensity Pulsed Ultrasound; Fracture risk assessment tool; FRAX[®].