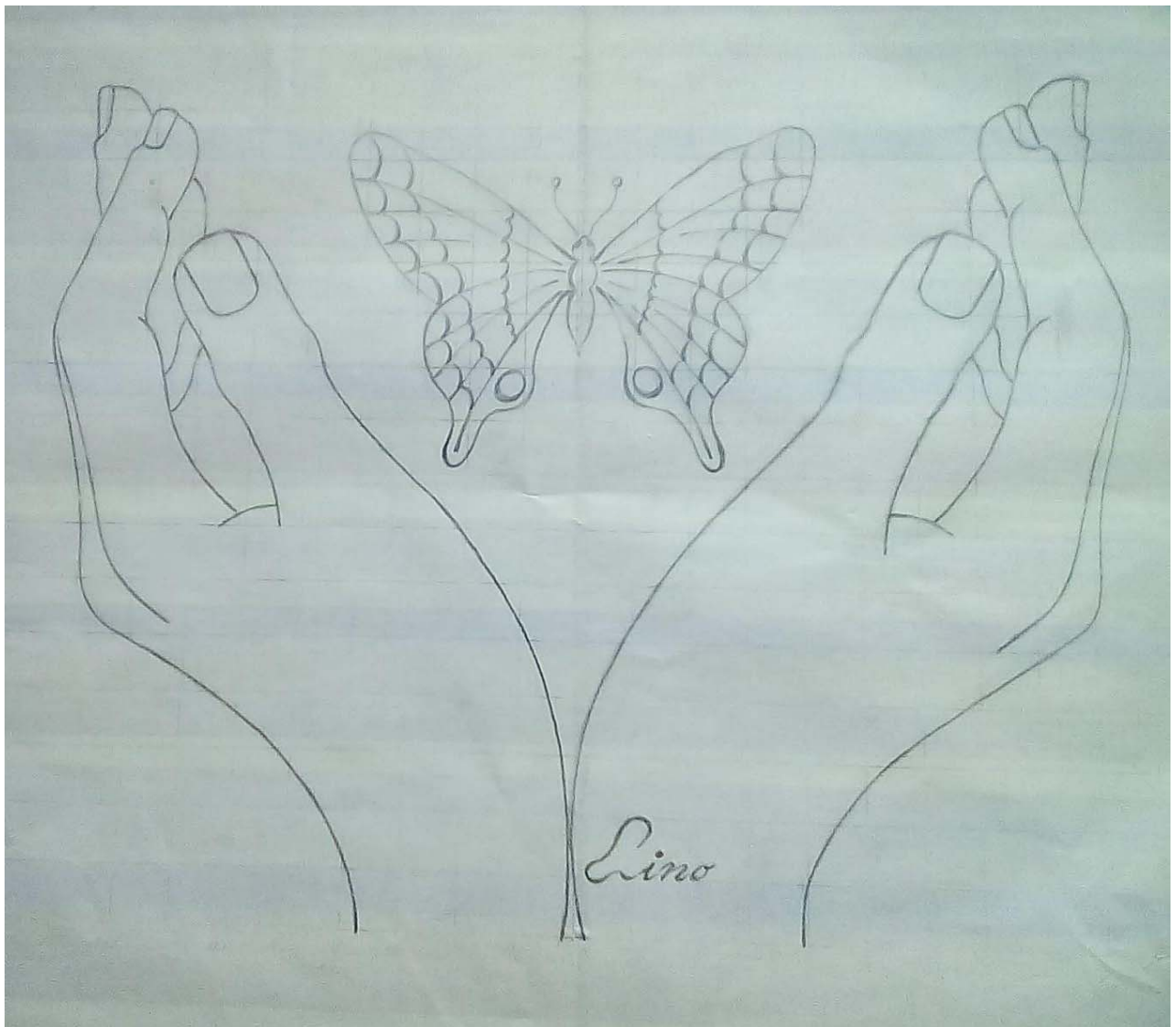


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Correlation between T score and vitamin D values evaluated by ultrasound sonography in the geriatric age.

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ABSTRACT

Background: Osteoporosis is an increasingly emerging problem worldwide given the continuous increase in the average age of the population. From the data in the literature it emerges that osteoporosis affects both sexes and the risk increases 4 times in women after menopause. Osteoporosis is divided into primary (primary in 95% of cases) or secondary (due to hyperparatroidism, osteotoxic drugs, etc.). Primary osteoporosis is divided into idiopathic osteoporosis (of unknown origin), Type I or postmenopausal (due to hormonal changes related to climacteric), Type II or senile (due to immobilization, reduced intake of somatotropin, testosterone, calcium, magnesium, vitamin D and vitamin K). Secondary osteoporosis is divided into: osteoporosis due to hyperparathyroidism, use of osteopenizing drugs (prednisone, betamethasone, methylprednisone, inhaled cortisone, antiepileptics, heparins, oral anticoagulants, loop diuretics and drugs against HIV, low body weight, immobilization protracted, Hypersadrenalism (Cushing's Syndrome), Hypercalciuria, COPD, Rheumatoid Arthritis, sarcoidosis, celiac disease, malignant neoplasms, reduced vitamin D absorption, hypogonadism, crhon's disease, sickle cell disease (sickle cell anemia), hereditary hemochromatosis and cymbal fibrosis. **Aim:** the purpose of our study project is to screen the population of subjects over 55 with ultrasound methodology to highlight the presence of osteopenia, especially in postmenopausal women, in order to prescribe the appropriate therapy and avoid evolution in osteoporosis. Another purpose of the study is to re-evaluate any patients undergoing therapy for osteopenia in relation to the values of vitamin D over the course of age. **Materials and Methods:** in our study, all subjects over the age of 50 will be enrolled, 18 women and 12 men, who voluntarily agreed to undergo screening for osteopenia or osteoporosis using a non-invasive ultrasound-based method. All patients will be asked to provide informed consent to carry out the screening procedure and to process personal data. At the same time as evaluating the presence of osteopenia or osteoporosis, patients will be asked to perform the vitamin D dosage. **Results:** the analysis of the data revealed a statistically significant change in the T score value from -2.1 to -1.4, a sign of an improvement in the osteoporosis / osteopenia picture and a significant change in the mean value of vitamin D from 11.9 ng /

ml to 49.7 ng / ml after 3 months of therapy. **Discussion:** From the data in the international literature, the approach to osteopenia or osteoporosis requires a specific differentiated therapy also in relation to the presence of comorbidities and the presence of normal or reduced calcium levels. The purpose of vitamin D therapy is to promote calcium metabolism and promote the deposition of crystals in the bone. On average, about 1 g of calcium is taken daily but part of the calcium precipitates during intestinal transit as an insoluble crystal of phosphate or oxalate, therefore, the amount of calcium absorbed is about half of the dose taken. The absorption of calcium in the intestine is regulated by vitamin D which stimulates absorption and only a minority is absorbed by passive transposition. The data of our study allow us to state that the administration of vit D at appropriate dosages allows to improve the picture of osteoporosis / osteopenia without significant side effects. Such an approach improves the quality of life of patients and reduces the risk of accidental falls fractures which are very frequent in elderly patients. **Conclusions:** treatment with high dose of Vitamin D improve T score in subjects over 50 years old screened by Ultrasound Densitometry. This result makes it possible to prevent severe complications related to accidental fall fractures that often occur in older subjects. The variability of the age of the participants (over 50) does not allow us to apply the data to the entire population. We believe that further studies are useful, differentiating the variations in the T score and in the dosage of the vitamin, stratifying for the different age groups.

Limitation of the study: Our data have provided encouraging results, but further evaluations are needed in order to apply these results to the whole population.

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