Purpose: Previous meta-analyses yielded inconsistent results because of differences in the baseline of 25(OH)D and dose of vitamin D and use of vitamin D or in combination with calcium in different studies.Therefore, an updated and comprehensive meta-analysis is warranted.

Methods: We systematically searched several literature databases including PubMed and Embase database from inception to September 2020. RCTs reporting the effect of vitamin D supplementation alone or with calcium on fall incidence were selected from studies. Qualitative and quantitative information was extracted; the random-effects model was conducted to pool the data for fall.

Results: Of the citations retrieved, 31 eligible studies involving 57867 participants met inclusion criteria. A total of 21 RCTs of vitamin D alone and 10 RCTs of vitamin D plus calcium were included in the meta-analysis. A meta-analysis of 21 RCTs (51984 participants) of vitamin D supplementation alone did not show a reduced risk of falls (RR 1.00, 95% CI 0.95 to 1.05) compared to placebo or no treatment. Subgroup analyses showed that the baseline of serum 25(OH)D concentration less than 50 nmol/l resulted in a reduction of fall risk (RR 0.77, 95% CI 0.61 to 0.98). The meta-analysis of 10 RCTs (5883 participants) of combined supplementation of vitamin D and calcium showed a 12% reduction in the risk of fall (RR 0.88, 95% CI 0.80 to 0.97).

Conclusion(s): The combination of vitamin D and calcium have beneficial effects on prevention falls in old adults. Although vitamin D supplementation alone has no effect on fall risk in old adults with 25 (OH)D levels higher than 50 nmol/L, vitamin D supplementation alone does have a benefit on prevention falls in old adults with 25(OH)D levels lower than 50 nmol/L.

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Quality of life changes in women with osteoporotic vertebral fractures and possibility of its improvement using new complex of physical therapy including mechanotheraputic technologies

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Background/Introduction: New comprehensive rehabilitation programs including physical exercise and mechanotherapeutic technologies is promising method of quality of life (QOL) improving in patients with vertebral fractures (VFs) associated with osteoporosis.

Purpose: To assess QOL in patients with osteoporotic VFs and evaluate effect of new complex of physical rehabilitation including mechanotherapy on QOL of those patients.

Methods: At the 1st stage study group was comprised of 60 women 40-80 years old with osteoporotic VFs. The comparison group (n=60) was formed from patients with osteoporosis but without any fracture. 2nd stage was carried out in the form of a prospective controlled open study. 120 patients with osteoporotic VFs were randomized in two groups. The intervention group (group 1, n=60) received a new complex of physical therapy including back muscle training with mechanical loads #10; sensorimotor training on double unstable platform #10; kinesohydrotherapy in a pool #15; physical exercises in a gym #10. Group 2 was prescribed only physical exercises in a gym #15. QOL was assessed in all patients with QUALEFFO-41 scale at baseline, at 21st day at the end of rehabilitation and at 70th day as follow-up.

Results: In patients with VFs a significant decrease in main QOL domains such as severity of pain, daily living activity, mobility, mental state, general health and general QUALEFFO-41 scale was revealed ($p<0.05$ vs comparison group). Administration of a new physical rehabilitation complex resulted in pain reduction and improvement of such QOL aspects as house jobs, mobility and mental state ($p<0.05$ at 21st day day vs baseline). Therapy effect on pain syndrome, daily living activity, mobility and overall QOL remains for at least 4 weeks after the rehabilitation course ($p<0.05$ at 70th day vs baseline).

Conclusion(s): New physical therapy complex including mechanotherapeutic technologies can be recommended for rehabilitation of patients with osteoporotic VFs to increase QOL and to reduce back pain.

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Elastofibroma dorsi. An entity to consider

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Background/Introduction: Painful shoulder is a common pathology. Osteotendinous etiology is the most common but we must consider others.

Purpose: A 57-year-old woman with persistent pain in right shoulder for 4 months.

Methods: She refers to joint clicking with mobilization for years. Associated with occasional pain and clicking in the left shoulder. On examination, a non-painful infrascapular mass and clicking with abduction and external rotation. No joint limitation but pain in all ranges of motion. In the joint ultrasound there is an image compatible with a soft tissue tumor without signs of malignancy. The MRI confirms the existence of the lesion affecting the connective tissue on the lateral aspect of the right rib cage between the ribs and the serratus, without bone or pleural infiltration, compatible with elastofibroma dorsi (ED). We found a smaller left supraclavicular ED.

Results: ED is an underdiagnosed unusual lesion with an accidental diagnosis. It´s a rare benign fibroelastic tissue tumor. It´s more common in women after the fifth decade. The most common location is the subscapular region. Also described in the suprascapular, deltoid, ischium, olecranon and feet level. It predominates on the right side, however, there are bilateral or synchronous cases.The diagnosis is clinical. On physical examination, the lesion is usually well circumscribed without adhering to the overlying skin. It´s difficult to delineate with respect to neighboring structures. The tumor is moveable, becoming palpable and more painful. Its most frequent location is anterior to the scapula, between 6-8 rib. Ultrasound, CT and MRI are the most used complementary examinations to confirm the diagnosis. The differential diagnosis includes osteotendinous pathology, and other benign tumors and cancer. Treatment is conservative, excision only being performed in highly symptomatic processes.

Conclusion(s): The ED must be known in order to differentiate it from other entities. We can avoid invasive techniques such as joint infiltrations or excision.

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Development of a virtual reality-based training for the elderly with increased fracture risk to prevent falls and improve their balance

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