

size, 95% CIs, heterogeneity (I<sup>2</sup>), evidence for small-study effect, evidence for excess significance bias, and 95%-prediction intervals were estimated. We used these metrics to categorize the evidence of significant outcomes ( $p < 0.05$ ) from class I (convincing) to class IV (weak), according to pre-established criteria.

**Results:** From 358 abstracts, 6 meta-analyses with 14 associations were included. Sarcopenia was associated with higher risk of other comorbidities and mortality in 11 of 14 outcomes explored. However, only 3 outcomes (i.e., association between sarcopenia and increased risk of death in community-dwelling older people [odds ratio, OR=3.60; 95%CI 2.96–4.37;  $n=14,305$ ], disability [OR=3.04; 95%CI 1.80–5.12;  $n=8569$ ], and falls [OR=1.60; 95%CI 1.31–1.97;  $n=12,261$ ]) presented a highly suggestive evidence (class II). Other association was classified as having only a weak evidence.

**Conclusion:** Sarcopenia is associated with several adverse health-related outcomes in older people, and its associations with mortality, disability, and falls are supported by a highly suggestive evidence. The effect of interventions on sarcopenia to improve these outcomes needs to be investigated.

## P256

### EFFECTS OF TERIPARATIDE OR DENOSUMAB IN ELDERLY WOMEN WITH SEVERE OSTEOPOROSIS AND HIP FRACTURES: A 2-YEAR RETROSPECTIVE, SINGLE CENTRE, OBSERVATIONAL STUDY

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**Objective:** In patients with severe osteoporosis (OP), the presence of a fracture represents the most important risk factor for subsequent fractures. This risk is high immediately after the event and declines thereafter. In these patients teriparatide (TPTD) and denosumab (DMAB) treatments increase BMD and bone strength through different mechanisms of action. The aim of this retrospective study was to evaluate the effects of TPTD vs. DMAB on BMD, and functional outcomes in patients with severe OP and hip fractures.

**Methods:** 180 patients with severe OP, mean age 77 y (71–83), referred to our hospital for an intertrochanteric fracture (AO 31 A2.2/31 A2.3) were treated with an intramedullary locking nail. After surgery patients were divided in 3 groups of 60, and treated with TPTD 20 µg sc daily, DMAB 60 mg sc every 6 months, and calcium and vitamin D, respectively. All patients received calcium and vitamin D for 2 y, and were OP treatment naive before the surgery. BMD was measured at lumbar spine, contralateral femoral neck and total hip. Time up and go (TUG), SF-36, and self-reported back pain were measured at 3, 6, 12, and 24 months after treatment.

**Results:** After 2 y, BMD at lumbar spine and femoral neck were significantly increased more in the TPTD group than in DMAB group. No differences were observed in the total hip. TUG test was significantly better in the TPTD group. Patients treated with TPTD reported less self-reported back pain and SF-36 score compared to patients treated with DMAB.

**Conclusion:** In this 2-y retrospective observational study, in elderly women with peritrochanteric femoral fractures, TPTD treatment showed better increase of BMD at lumbar spine and femoral neck, and better beneficial effects on early functional recovery parameters compared to DMAB treated patients.

## P257

### SARCOPENIA: PREVALENCE AND PROGNOSTIC SIGNIFICANCE IN COMMUNITY-DWELLING PATIENTS WITH ACUTE ILLNESS

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**Objective:** Sarcopenia is characterized by progressive loss of skeletal muscle mass and strength with associated increased risk of adverse outcomes. An acute illness is a stress for an elderly person with sarcopenia, mainly due to the inflammatory and catabolic state, but there is not enough data about its prevalence and prognostic significance in elderly persons hospitalized for acute state. We aimed to evaluate the prevalence and prognostic significance of sarcopenia in elderly patients hospitalized for acute illness.

**Methods:** This cross-sectional study included 150 community-dwelling elderly patients hospitalized for acute disease. The patients were evaluated for cognitive state, comorbidities, smoking status, fall frequency, anthropometric data, BMI and basic activity daily living (BADL). Sarcopenia was defined as low muscle mass, estimated by low skeletal mass index (SMMI <8.9 kg/m<sup>2</sup> for men and SMMI <6.37 kg/m<sup>2</sup> for women) and poor physical function, estimated using the SARC-F questionnaire (SARC-F ≥4 taken as positive for sarcopenia).

**Results:** The study included 150 patients. The mean age was 85.7 ±5.4 y. Sarcopenia was prevalent in 74.2% patients aged ≥83 y. Patients with sarcopenia had more concomitant diseases and had significantly longer length of hospitalization. Patients with sarcopenia needed more hours per week of assistance in the basic everyday functions and had more recurrent hospitalizations (24% vs. 15.6% in the patients without sarcopenia).

**Conclusion:** Our findings demonstrate the importance of screening for sarcopenia among elderly patients with acute disease.

## P258

### SECONDARY FRACTURE PREVENTION IN HIP FRACTURE PATIENTS: 6-YEAR IMPACT OF A FRACTURE LIAISON SERVICE

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**Objective:** Osteoporotic hip fractures are associated with increased morbidity, mortality and subsequent fractures. Fracture liaison services (FLS) are recommended as a model of best practice for organizing patient care and preventing subsequent fracture for hip fracture patients. We report the impact of an FLS strategy on the management of patients after hip fracture.

**Methods:** 1870 patients with hip fragility fracture ≥50 years were identified by the FLS from the orthopedic surgery department in a large Belgian university hospital from 2012–2018.

They were invited through a written and personal invitation at the outpatient department, for a DXA measurement and visit to our FLS. Patients who did not respond were contacted by telephone.

**Results:** Of the 1870 patients who were identified, 230 (12.30%) were already followed for osteoporosis. 227 patients (12.14%) died, between the diagnosis and hip fracture invitation to participate in our program. Our target population was 1413 patients. Out of them, 381 (26.97%) visited our FLS clinic. The main reasons given by the nonparticipating individuals were lack of interest or not reachable ( $n=766$ ; 54.21%), primary care doctor refusal ( $n=57$ ; 4.04%), physically unable to attend the clinic ( $n=208$ ; 14.72%). Among the 381 patients (273 women, 71.65% - mean (SD) age: 79.25 (11.01) y), the following risk factors were highlighted: low BMI ( $n=41$ ; 10.76%), early menopause (53 women, 19.41% of women), prior fragility fracture ( $n=136$ ; 35.70%), prior family fragility fracture ( $n=52$ ; 13.64%), taking corticosteroids ( $n=24$ ; 6.30%), alcohol consumption ( $n=22$ ; 5.77%), active smoking ( $n=72$ ; 18.89%). Within the population who attended the clinic, 246 patients (64.57%) were receiving calcium and/or vitamin D supplementation. 8.92% ( $n=24$ ) were treated at the time of consultation by an inhibitor of bone resorption and 7.61% ( $n=29$ ) had been previously treated.

After DXA, and according to the WHO criteria, 18.52% of patients ( $n=70/378$ ) had trabecular osteoporosis and 46.80% ( $n=154/329$ ) had cortical osteoporosis. Using the FRAX algorithm, 44.88% ( $n=171$ ) and 39.90% ( $n=152$ ) of patients, respectively, were considered at increased 10-year probability of hip fracture or major osteoporotic fracture based on the normative data for Belgium.

**Conclusion:** In a population with a non-traumatic hip fracture, only 8.92% of patients having sustained a hip fracture were receiving an anti-osteoporosis medication. With the implementation of a FLS, in close collaboration with the Department of Orthopedic Surgery, 359 additional patients (25.41% of our sample) were screened for osteoporosis and were offered an appropriate treatment to prevent subsequent fracture.

## P259

### IDENTIFICATION, THROUGH A FRACTURE LIAISON SERVICE, OF UNDIAGNOSED VERTEBRAL FRACTURES IN PATIENTS HOSPITALIZED FOR A PREVALENT HIP FRAGILITY FRACTURE

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**Objective:** The prevalence of undiagnosed vertebral fragility fracture (VFF) is high in elderly people. This study aims to identify through a Fracture Liaison Service (FLS), the prevalence of undiagnosed VFF in patients presenting with a hip fragility fracture.

**Methods:** Patients with hip fracture were identified by the FLS of a large Belgian university hospital from 2012-2018. A subset visited our FLS and benefited from a DXA measurement and of a spinal x-ray.

**Results:** A total of 381 patients were assessed (273 women, 71.65% - mean (SD) age: 79.25 (11.01) y). During the anamnesis, 143 patients (37.53%) reported a history of other fragility fracture including only 17 patients (4.46%) reporting spinal fracture. After spinal X-ray, 171 patients (44.88%) were identified as presenting a VFF, 97 (56.73%) of them having multiple fractures. Within those, DXA identified 25.15% of patients with trabecular osteoporosis and 47.95% of patients with cortical osteoporosis following the WHO diagnostic criteria. Mean (SD) age was nonsignificantly higher in those with vertebral fractures compared to those without: 75.64 (10.54) y vs. 74.66 (10.92) y ( $p$ -value=0.38). The

age category (based on the median age of 77) did not increase the risk of having multiple fractures ( $p=0.51$ ).

**Conclusion:** The implementation of a FLS allowed us to identify 154 patients, out of a sample of 381 patients with hip fragility fracture, presenting with undiagnosed vertebral fracture. They were offered a management strategy to prevent subsequent fractures. Age was not related to an increase in the presence of multiple fractures.

## P260

### INTERLIMB MUSCULOSKELETAL ABNORMALITIES IN PATIENTS IN RECOVERY FROM A UNILATERAL RUPTURE-REPAIRED ACHILLES TENDON

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**Objective:** Our previous study has found kinematic and kinetic gait asymmetries after an Achilles tendon rupture (ATR). The purpose of this study was to compare the interlimb joint kinematics, joint moments, muscle forces and joint reaction forces in patients after an ATR during walking, jogging and running via subject-specific musculoskeletal modeling.

**Methods:** Six patients recovering from a surgically repaired unilateral ATR were included in this study. The bilaterally Achilles tendon (AT) lengths were evaluated using ultrasound imaging. The three-dimensional marker trajectories, ground reaction forces and surface electromyography (sEMG) were collected on both sides during self-selected speed walking, jogging and running. Subject-specific musculoskeletal models were developed to compute joint kinematics, joint moments, muscle forces and joint reaction forces. One-dimensional statistical parametric mapping (SPM1d) with a two-sample t-test was conducted to assess differences over a stance phase on the variables of interest between the involved and uninvolved sides.

**Results:** AT lengths were significantly longer in the involved side. The side-to-side triceps surae muscle strength deficits were combined with decreased plantarflexion angles and moments in the injured leg during walking, jogging and running. However, the increased knee extensor femur muscle forces were associated with greater knee extension degrees and moments in the involved limb. Greater knee joint moments and joint reaction forces vs. decreased ankle joint moments and joint reaction forces in the involved side indicate elevated knee joint loads compared with reduced ankle joint loads that are present during normal activities after an ATR. In the frontal plane, increased subtalar eversion angles and eversion moments in the involved side were demonstrated only during jogging and running.

**Conclusion:** After an ATR, the elongated AT accompanied by decreased plantarflexion degrees and calf muscle strength deficits indicates ankle joint function impairment in the injured leg. In addition, increased knee extensor muscle strength and knee joint loads may be a possible compensation mechanism for decreased ankle function. These data suggest patients after an ATR may suffer from increased stance phase overuse injury risk.

## P261

### VITAMIN D RECEPTOR ATTENUATES MUSCLE ATROPHY BY SUPPRESSING THE RENIN-ANGIOTENSIN SYSTEM

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**Objective:** Vitamin D deficiency is associated with a range of muscle disorders, including muscle atrophy, but its functional role and the