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OC11

MULTIDIMENSIONAL PROGNOSTIC INDEX AND THE RISK OF FRACTURES: AN 8-YEAR LONGITUDINAL COHORT STUDY IN THE OSTEOARTHRITIS INITIATIVE

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Background: Fractures increase risk for disability and poor quality of life in older people. Frailty may be associated with higher fracture risk, but limited research has been carried out using a multidimensional approach to frailty assessment and diagnosis. The present research aimed to investigate whether the multidimensional prognostic index (MPI), based on comprehensive geriatric assessment (CGA), is associated with the risk of fractures in the Osteoarthritis Initiative (OAI) study.
Methods: Community-dwellers affected by knee OA or at high risk for this condition were followed-up for 8 years. A standardized CGA including information on functional, nutritional, mood, comorbidities, medications, quality of life and co-habitation status was used to calculate the MPI. Fractures were diagnosed using self-reported information. Cox's regression analysis was carried out and results are reported as hazard ratios (HRs), with their 95% confidence intervals (CIs), adjusted for potential confounders.
Results: The sample consisted of 4,024 individuals (mean age 61.0 years, females = 59.0%). People with incident fractures had a significant higher MPI baseline value than those without (0.42 ± 0.18 vs. 0.40 ± 0.17). After adjusting for eight potential confounders, people with an MPI over 0.66 (HR = 1.71; 95%CI: 1.29–2.28) experienced a higher risk of fractures. An increase in 0.10 point in MPI score corresponded to an increase in fracture risk of 6% (HR = 1.06; 95%CI: 1.01–1.11). Higher MPI values were also associated with a higher risk of non-vertebral clinical fractures.
Conclusion: Higher MPI values at baseline were associated with an increased risk of fractures, reinforcing the importance of CGA in predicting fractures in older people.

OC12

THE PREVALENCE OF COMMUNITY-DWELLING OLDER ADULTS AT HIGH FRACTURE RISK WHO ARE NOT TAKING OSTEOPOROSIS MEDICATIONS: RESULTS FROM THE CANADIAN LONGITUDINAL STUDY ON AGING (CLSA)

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Objective: There is an established osteoporosis care gap, where individuals who have had a fracture do not receive subsequent treatment. Care gap studies have focused on the post-fracture context, and we know very little about whether individuals with other fracture risk factors are receiving treatment. The purpose of our study was to estimate the prevalence of community dwelling older adults at high fracture risk who are not taking osteoporosis medication using the Canadian Longitudinal Study on Aging (CLSA).[1]
Material and methods: We included CLSA participants who completed the baseline (2015) comprehensive interview and had dual-energy X-ray absorptiometry (DXA) (N = 28,781). We describe the age- and sex- stratified proportion and prevalence of people at high fracture risk (FRAX® major osteoporotic fracture probability > 20%) and not taking an osteoporosis medication. Osteoporosis medications were defined using the Public Health Agency of Canada standards for osteoporosis surveillance and identified via drug identification numbers.[2] Sampling weights, as defined by the CLSA, were applied.[1]
Results: The mean age of participants was 70.0 (SD 10.3). Overall, 6.2% were at high fracture risk. Of people who were at high risk, 96.6% of men and 79.8% of women were not taking an osteoporosis medication. This proportion decreased with age, for both men (45–54 years: 100%; 55–64 years: 98.9%; 65–74 years: 96.7%; 75 + years: 91.2%) and women (45–54 years: 96.4%; 55–64 years: 86.2%; 65–74 years: 82.7%; 75 + years: 74.0%) but was higher for men at all ages. The prevalence of people at high fracture risk and not taking an osteoporosis medication per 1000 persons increased with age for both men (45–54 years: 10.1; 55–64 years: 19.8; 65–74 years: 20.8; 75 + years: 17.8) and women (45–54 years: 13.2; 55–64 years: 34.9; 65–74 years: 64.7; 75 + years: 153.2) and was highest for women aged 75 years or older.
Conclusions: Our study demonstrates that most community-dwelling older adults at high fracture risk are not receiving osteoporosis medication, particularly men. This presents an opportunity for improved primary fracture prevention in the community.

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OC13

PATIENT'S PREFERENCES FOR LIFESTYLE CHANGES IN OSTEOPOROTIC FRACTURE PREVENTION: A CROSS-EUROPEAN DISCRETE-CHOICE EXPERIMENT

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Objective: Healthy lifestyle habits are recommended for preventing osteoporotic fracture, alongside drug therapy. In this study, we aimed to

assess patients' preference to adopt lifestyle changes to prevent osteoporotic fractures.

Methods: A discrete-choice experiment was conducted in seven European countries: Belgium, France, Ireland, Spain, Switzerland, the Netherlands and United Kingdom. Patients were repetitively asked if they would closely follow different regimens of lifestyle recommendations that varied with respect to 6 attributes and different levels (options): physical activity (levels: not included, moderate or high), calcium and vitamin D status (levels: not included, taking supplements or improve nutrition and assure a minimal daily sunlight exposure), smoking (levels: not included or quit smoking), alcohol (levels: not included or moderate consumption), weight reduction (levels: not included or ensure a healthy body weight) and fall prevention (levels: not included, receive general advice or following a one-day prevention program). A conditional logit model was used to estimate patient's preferences for all participants (global model) and per country.

Results: In total, 1042 patients completed the questionnaire, with samples varying between 91 and 244 per country. Overall, patients were favourable to lifestyle changes for preventing osteoporotic fractures (positive and significant coefficients in the global model as well as in all countries separately). However, among the lifestyle factors proposed, consensually across all countries, patients were not prone to engage in high physical activity (i.e. walking for 30-40 minutes, 3-4 times per week or equivalent). In Ireland, Belgium, the Netherlands and Switzerland, patients were not favourable neither to follow a one-day falls prevention program. Belgian, Swiss and Dutch patients were not prone neither to modify their nutrition (i.e. diet rich in calcium and consumption of fish at least twice a week) and ensure a 10-15 minutes daily sunlight exposure. In the global model as well as for Belgian and Dutch patients separately, we observed favourable intention from patients to reduce their alcohol consumption, engage in moderate physical activity, taking calcium and vitamin D supplements and ensure a normal body weight for preventing fractures.

Conclusions: Patient's healthy lifestyle behaviours are essential for an optimal osteoporosis management. This is the first study that explicit patients' preferences for lifestyle factors in preventing osteoporotic fracture. In an ideal patient-centred approach, fracture prevention should take these considerations and preferences into account.

OC14

PARATHYROIDECTOMY IS ASSOCIATED WITH REDUCED RISK OF FRACTURE AND CARDIOVASCULAR EVENTS IN PATIENTS DIAGNOSED WITH PRIMARY HYPERPARATHYROIDISM – A NATIONAL, RETROSPECTIVE COHORT STUDY

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Background: Previous studies have shown that patients with primary hyperparathyroidism (PHPT) have an increased risk of fractures and other comorbidities such as cardiovascular events, but the effect of parathyroidectomy (PTX) on these outcomes, has been insufficiently studied. Most previous studies have been limited in size and results have not been consistent.

Method: In this retrospective cohort study of all patients diagnosed with PHPT (ICD-10 E210) at hospitals in Sweden between July 1st 2006 and Dec 31st 2017, we investigated the association between PHPT diagnosis, parathyroidectomy, and outcomes. In total, we identified 16 652 patients with PHPT who were assigned 166 520 age and sex-matched controls from the general population. The primary aim of this study was to investigate whether the diagnosis of PHPT was associated with an increased risk of fractures and cardiovascular events (CVE). The secondary aim was to determine if PTX in patients with PHPT diagnosis was associated with a reduced risk of these outcomes.

Results: The majority of the patients were female (78.2 %), the mean (standard deviation) age 67.4 (12.8) years, and the follow-up time for the entire patient group was 35 423 patient-years. In a Cox proportional hazards model, adjusted for age, sex, and calendar year, patients with PHPT had a higher risk of any fracture (adjusted HR 95% CI: 1.30 (1.22-1.38)), hip fracture (1.25 (1.11-1.40)), and major osteoporotic fracture (1.28 (1.19-1.38)) compared to controls. Furthermore, patients with PHPT had a higher risk of cardiovascular events (1.46 (1.35-1.57)) and death (1.44 (1.37-1.52)). In a Poisson regression model with PTX as a time-dependent variable, PTX was associated with reduced risk of hip fracture (HR 0.77 (0.61-0.97), any fracture (HR 0.83 (0.74, 0.92)) and CVE (HR 0.77 (0.68-0.88) in patients with PHPT.

Conclusions: Patients with primary hyperparathyroidism have an increased risk for fractures, cardiovascular events, and death. Parathyroidectomy was associated with a reduced risk of fractures and cardiovascular events, indicating that surgery could have beneficial effects in patients with PHPT.

OC15

FRAILTY IS ASSOCIATED WITH INFLAMMATION AND REDUCED BONE MINERAL DENSITY INDEPENDENT OF FAT MASS: FINDINGS FROM UK BIOBANK

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Objective: Frailty represents a huge public health burden. Fundamental aging processes (e.g. chronic inflammation) are associated with frailty, but the independence of these relationships from age, sex, lifestyle and adiposity is unclear. Using UK Biobank, we investigated associations between frailty, blood biomarkers and bone health, independent of these characteristics.

Material and Methods: 502,640 participants aged 40-69 years were recruited to UK Biobank 2006-10. Venous blood samples were obtained. From 2014 onwards, a subset attended an imaging follow-up, including whole-body DXA (GE Lunar iDXA), grip strength (Jamar dynamometer), and a questionnaire. Frailty was defined using a modification of Fried's classification (at least 3 of weight loss, mental exhaustion, low physical activity, slow gait speed and low grip strength). The presence of 1-2 criteria designated pre-frailty. Linear regression was used to discern associations between frailty status, biochemical markers (CRP, 25(OH)-vitamin D, HbA1c) and bone outcomes, adjusting for age, sex, smoking, alcohol, educational level and total fat mass assessed by DXA. Non-frail was the reference category and blood biomarkers were standardised (β: mean difference in SD).

Results: 22,332 participants (11,484 women, 10,848 men) with frailty assessment and DXA bone measures or blood biochemistry were included in the analysis; 547(2.4%) were frail and 9359(41.9%) pre-frail. Frail participants were more likely to be female [59.6% vs. 50.9%], older [mean(SD) 63.2(7.9) vs. 62.6(7.3)years], of higher BMI [mean(SD) 30.7(6.4) vs. 25.9(4.0)kg/m^2]. After full adjustment, frail