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Abstracts for poster (clinical) sessions

Sarcopenia and Osteoporosis in Hong Kong Chinese Geriatric Hip Fracture Patient.

W.H.A. Ho, M.L. Lee, W.C. Chan, M.Y. Ng, C.W. Lee, W.S. Ng, S.H. Wong.
Caritas Medical Centre, Hong Kong, Hong Kong

Introduction: Sarcopenia and osteoporosis are age-related declines in the quantity of muscle and bone respectively. Both contribute in disability, fall and hip fracture in elderly.

Methods: We included all geriatric primary hip fracture patients admitted to Kowloon West Cluster Orthopaedic Rehabilitation Centre. Hand grip strength and body composition measurement using Dual-energy x-ray absorptiometry (DEXA) were performed.

Results: There were 356 patients with mean age 81.7. By stratifying in male and female, the mean hand grip strength were 20.8 and 13.7 kg, the mean Relative Skeletal Muscle Mass Index (RASM) were 5.79 and 4.90kg/m², the hip bone mineral density (BMD) were 0.699 and 0.992g/cm². The prevalence of sarcopenia based on RASM according to the Asian Working Group for Sarcopenia (AWGS) definition were 89.5% in male and 76% in female. The prevalence of femoral neck osteoporosis based on hip T-score less than −2.5 were 43.4% in male and 63.6% in female. RASM was positively correlated with hand grip strength, body weight, femur T score, hip BMD, body mass index (BMI) and total fat mass in both male and female. All were statistically significant.

Conclusion: The prevalence of sarcopenia was very high in geriatric hip fracture patients, and much higher than community dwelling elderly. Apart from the need to prescribe osteoporosis medicine in geriatric hip fracture patients, sarcopenia screening and treatment should be addressed, which is essential to reduce subsequent fall, subsequent fracture and the fracture-related complications and economic burden to Hong Kong.

Incidence and Risk Factors of Subsequent Hip Fractures in Korea: Multicenter Study

Kee Haeng Lee 1, Ju Young Kim 2, Soo Jae Yim 3, Do Hyun Moon 4, Geun Hong Choi 1, Kyung Ho Moon 5.
1 Bucheon St. Mary’s Hospital, Bucheon, Republic of Korea 2 Incheon St. Mary’s Hospital, Incheon, Republic of Korea 3 Bucheon Soonchunhyang University Hospital, Bucheon, Republic of Korea 4 Gachon University Hospital, Incheon, Republic of Korea 5 Inha University Hospital, Incheon, Republic of Korea

This study analyzes the incidence of subsequent hip fractures and its risk factors in the northwestern region of Korea. We analyzed hip fracture patients who visited any of the 5 teaching hospitals in the Bucheon and Incheon area from January 2000 to December 2010. Medical records were reviewed and presence of subsequent hip fractures, alcohol history, marital status, live in solitude, dementia, dizziness, American society of anesthesiologists score, osteoporosis treatment after fracture, body mass index (BMI) and initial bone mineral density were analyzed. The average follow-up period was 12 months (range 1—130 months). A total of 2,546 patients (women 1,770, men 776) who had experienced hip fractures were included. Of these, subsequent hip fractures were found in 233 patients (9.2%) (women 187, men 46). Mean age at the time of the first fracture was 79.2 yr old (range 50—100 yr). The average interval between the first fracture and the subsequent hip fractures was 30.2 months (range 4 days—154 months). In this large-scale, retrospective, multicenter study, overall incidence of subsequent hip fractures is 9.2%. Independent risk factors of subsequent fracture are women, BMI < 22 kg/m², and being unmarried.

Clinical and Biochemical Characteristics of Subjects with Diabetes Suffering from Low Bone Mass and Prevalent Fragility Fracture

1 Department of Medicine, Queen Mary Hospital, Hong Kong, Hong Kong 2 Department of Medicine, the University of Hong Kong, Hong Kong, Hong Kong

Objective(s): Patients with low bone mass and history of low trauma fractures are at increased risk of future fracture. Type 2 diabetes is itself a risk factor for fracture as well. The aim of this study is to evaluate the clinical and biochemical characteristics of subjects with low bone mass and prevalent fragility fracture, who also suffer from type 2 diabetes, in comparison to those without diabetes.

Material and Methods: All patients referred for management of low bone mass underwent a standardized systematic assessment protocol with detailed medical history and comprehensive biochemical measurements performed. All patients had their bone mineral density (BMD) measured by DXA (Dual-energy X-ray Absorptiometry) scan. Patients with known history of diabetes assessed from 2008 to 2014 were recruited for analysis (DM group). Age- and gender-matched subjects without diabetes were selected as control (Non-DM group). The variables were compared between groups by one-way ANOVA for continuous data and Chi-square test for categorical data whichever appropriate.
Results: 251 subjects with diabetes (age 74.5 ± 7.9 years, 81.7% female) and 502 age- and gender- matched control (age 74.5 ± 7.8 years, 81.7% female) were included in this report. Comparing to non-DM control, DM patients had higher BMI (23.5 ± 3.8 vs. 22.5 ± 3.6 kg/m², P < 0.001), fasting glucose (7.20 ± 2.37 vs. 5.28 ± 0.72 mmol/L, p < 0.001) and a higher BMD at spine (0.783 ± 0.179 vs. 0.716 ± 0.155 g/cm², p < 0.001) and at neck of femur (0.539 ± 0.123 vs. 0.516 ± 0.118 g/cm², p = 0.018). The parathyroid hormone levels of the two groups were comparable. There was no difference in history of fall observed in the two groups (57.7% vs. 49.3%, p = 0.283). Fewer subjects in the DM group experienced back pain (45.9% vs. 55.8%, p = 0.011) and their daily calcium intake were significantly lower than the non-DM control subjects (545.09 (interquartile range (IQR): 202.25-887.93) vs. 600.00 (IQR: 181.93-1018.07) mg/day, p = 0.035).

Conclusion(s): For subjects with low bone mass, those with diabetes present with fracture despite having a higher BMD. They have a lower dietary calcium intake which may reflect a deficiency in the general knowledge on bone health. As they are less likely to suffer from low back pain, their awareness and alertness to the risk of fracture may even be lower. Hence, subjects with diabetes should be reminded to have adequate dietary calcium during their diabetes dietary education sessions. In addition, fracture risk assessment, as well as BMD measurement in indicated cases, should also be considered in diabetes complication screening program.

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Bone Density in Patients with Cervical Cancer or Endometrial Cancer in comparison with Healthy Control; According to the stages

Heungyeol Kim, Kosin University, Busan, Republic of Korea

Objective: To evaluate the bone mineral density (BMD) in the lumbar spine and femur in postmenopausal women with cervical cancer and endometrial cancer without bone metastasis in comparison with that in healthy control postmenopausal women, and to assess the loss of BMD according to the cancer stage.

Materials and methods: We analyzed the BMD of the lumbar spine and femur using dual-energy X-ray absorptiometry (DXA) in 218 patients with cervical cancer, 85 patients with endometrial cancer, and 259 healthy controls. The serum levels of calcium (Ca), phosphorus (P), osteocalcin (OSC), and total alkaline phosphatase (ALP), and urine deoxypyridinoline (DPL) were measured in all participants.

Results: Age, body mass index, parity, and time since menopause were not significantly different between the three groups. Serum Ca level was higher in the cervical cancer group (p = 0.000), however, urine DPL was lower in endometrial cancer group (p = 0.000). The T-scores of basal BMD at the second and fourth lumbar vertebra (L2, L4) were significantly lower in patients with cervical cancer (p = 0.038, 0.000, respectively) compared to those in the healthy control groups. Additionally, the incidence of osteoporosis and osteopenia basal status of bone mass was significantly higher in patients with cervical cancer compared to those in the other two groups. Additionally, the incidence of osteoporosis at L4 according to the basal status of bone mass was significantly higher in patients with cervical cancer (10.0%) compared to that in controls (0.4%). Urine deoxypyridinoline levels were significantly higher in patients with cervical cancer compared to those in controls. No differences in basal BMD of the lumbar spine and femur were observed between patients with endometrial cancer and controls, and no significant differences in biochemical markers were detected between patients with endometrial cancer and controls.

Conclusion: Our results suggest that postmenopausal women with cervical cancer have a lower BMD and are at increased risk of osteoporosis in the lumbar spine before receiving anticancer treatment compared with postmenopausal women with endometrial cancer.

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The Effect of Femur Neck BMD on the Discriminative characteristics of FRAX Model of 3 East Asian Countries in Korean Elderly Female Patient

Kwang-Jun Oh, Yong-Bong Ko, Department of Orthopaedics Surgery, KonKuk University Medical Center, Seoul, Republic of Korea

Objectives: There are ongoing concern about the effect of femur neck BMD on the discrimination of risk for osteoporotic fracture using FRAX® algorithm, especially in elderly population In this retrospective study, using Korean female patients over 70-year, the effect of existence of femur neck BMD data on discriminative characteristics of fracture probability of different FRAX model of east Asian countries (Korea, Japan and China) which have similar ethnicity was assessed.

Methods: The probability for major and hip osteoporotic fracture in one hundred seven Korean female patients over 70-year (avr. 78.0 ± 5.0) which were calculated using FRAX model of 3 countries were analyses depending on the existence of femur neck BMD data.

Results: Regardless of femur neck BMD data, the calculated probability for major and hip osteoporotic fracture using Japan FRAX was significant higher than those of Korean and China FRAX (p < 0.05) And there were no significant difference of all fracture risk calculated by Japan FRAX between those with and without femur neck BMD data.