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Towards a Unified Multidisciplinary Fragility Hip Fracture Pathway: Pilot Phase in a Trauma Center

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Introduction: There will be more than ten thousand cases of fragility hip fracture (FHF) per year in Hong Kong projected in 2031. With the ageing population and the increasing incidence of osteoporosis, it is without doubt that FHF will have enormous impact on the population and the health care system. By comparing the outcomes of FHF patients admitted to public hospitals in Hong Kong to the international standard, we noticed that the FHF management in Hong Kong has not been systematic enough to keep up with the ever-increasing incidence of osteoporosis and FHF. A working group on Fragility Fracture Registry from different Hospitals in Hong Kong has been set up since the early 2013, with a clear objective of promoting the best multidisciplinary care for early operation, stable fixation or replacement, early weight bearing and mobilization, and appropriate bone health management to prevent secondary fragility fractures in Hong Kong.

Method: A unified pathway for holistic management of FHF, from admission, operation, rehabilitation, back to community and secondary fracture prevention, was established this year and is piloted in our center since June 2015. A detailed protocol concerning data collection, standardized clinical and surgical management, discharge planning and rehabilitation was designed. This pathway includes all patients with hip fracture resulting from fall on standing height and it involves orthopaedic surgeons, physicians, anaesthetists, nursing staff, physiotherapists, occupational therapists, speech therapists, dieticians, orthotics specialists, clinical psychologists and medical social workers, to provide a multidisciplinary holistic care to patients with FHF. The primary outcome measures include the time from admission to operation, length of stay, mortality and medical and surgical complications; the secondary outcome measures include re-admission rate and functional outcome. Demographic data, the Charlson Comorbidity index and the Functional Comorbidity Score are recorded. Dedicated day-time operative sessions for FHF have increased to cater the increasing needs. Bone health management is supported by physicians who would assess all patients with FHF in the Osteoporosis Clinic upon discharge from acute hospital.

Future integrated model of care: The FHF pathway and the bone health management on FHF patients are being the initial phase of modification of care for patients with fragility fracture in Hong Kong. With further support from the hospital executives and geriatricians in our centre, we are going to expand the holistic care by establishing Ortho-geriatric wards in 2016 in which patients with FHF or with fragility fractures involving other parts of the body, will be co-cared by orthopaedic surgeons and geriatricians during acute hospitalisation period. Modification on operative implants and technique, weekend rehabilitation, public screening and prevention of osteoporosis and public education of fall prevention are of equal importance and need to be emphasised.

Result: Short-term outcome measurements and results of adopting the unified pathway in our centre will be updated in the near future.

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Lignan and Flavonoid Intakes are Associated with Bone Mineral Density (BMD) in Southern Chinese Adult Men

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Objectives: While studies suggest that phytoestrogens may retard bone loss in postmenopausal women, data concerning the skeletal effects of specific phytoestrogens on adult men and premenopausal women are sparse. This study aims to examine the association between specific phytoestrogens (intake of isoflavones, coumestrol, flavonoids and lignans) and bone mineral density (BMD) at spine and femoral neck in a cohort of Southern Chinese adult men and women. We hypothesized that higher intake of specific phytoestrogens may associated with higher BMD in adult men and premenopausal women

Methods: The participants of this cross-sectional study included 957 Southern Chinese adult women and 386 men between 20 to 39 years old. Sex-specific linear regression analysis was employed to examine the association between each phytoestrogen intake (examined as continuous and categorical variable) and BMD. The models were adjusted for age, BMI, calcium intake, smoking and drinking history, number of pregnancy (for women), educational and exercise level, serum estradiol (for women and men) or testosterone (for men only) level. Analysis of covariance (ANCOVA) was used to calculate least square mean BMD by tertiles of phytoestrogen intake. A test for linear trend was conducted across sex-specific tertiles of phytoestrogens intake.

Results: Mean age was 32+/-5 years. In men, dietary lignan intake was significantly associated with lumbar spine BMD (beta = 0.093; $p = 0.009$) as well as femoral neck ($p = 0.04$). Flavonoid intake was also positively associated with lumbar spine BMD (beta = 0.075; $p = 0.04$), but isoflavone intake was negatively associated with lumbar spine BMD (beta = -0.024; $p = 0.01$) in adult men. However, in women, similar but only marginally significant positive associations were observed for lignan intake and flavonoid intake with BMD in women (p range: 0.062–0.093). No significant associations were seen for coumestrol in men or women.

Conclusion: Specific phytoestrogens intake may be positively associated with hip and spine BMD in Southern Chinese adult men. Gender differences as well as negative association with isoflavone intake should be further investigated. This is possible that phytoestrogens are more beneficial for women after menopause when endogenous estrogen levels are low. Bioavailability of isoflavone and equol producer phenotype of subjects may affect the effect of isoflavone on bone.

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An Empowerment Exercise Program is Effective in Maintain Bone Health and Reduce Fall Incidence in Clients with Osteopenia or Osteoporosis

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Introduction: Osteoporosis is a silent disease but result in big health impact. Osteoporotic fractures especially hip or vertebral fractures cause substantial pain, severe disability and also associate with decreased life expectancy. Furthermore, it results in heavy burden to health care system. Elderly falls are an independent and important determinant of hip fractures. It is advocated that treatments for