

## 4.1

### PREVALENCE OF VITAMIN-D INSUFFICIENCY AMONGST MEDICAL STUDENTS AND ITS CORRELATION WITH BONE PARAMETERS IN HONG KONG

**A Chan, TP Lam**

*Department of Orthopaedics and Traumatology, The Chinese University of Hong Kong, Hong Kong*

**Introduction:** Medical students are the future of the medical field. Given the prevalence of Vitamin-D insufficiency and suboptimal bone health previously detected among the young population and the lack of related information amongst medical students in Hong Kong, this cross-sectional study aimed to investigate Vit-D and bone health status amongst medical students with respect to years of study and its correlation with bone parameters. This study was also intended to raise bone health awareness amongst students to encourage them to set an example of health living for their future patients.

**Methodology:** 28 females and 23 males studying in author's medical school were recruited in winter. Serum 25(OH) Vit-D level, dietary calcium intake, physical activity, in-vivo bone parameters were measured with validated methods.

**Results and Analysis:** 70.2% of the subjects were either Vit-D insufficient [ $25 \leq 25(\text{OH})\text{Vit-D} \leq 50 \text{ nmol/L}$ ] or deficient [ $25(\text{OH})\text{Vit-D} < 25 \text{ nmol/L}$ ]. For 10 out of 16 bone parameters, the measurements were numerically greater in the higher Vit-D level tercile than the lower tercile although the difference did not reach statistical significance likely due to Type II error. For Vit-D levels and bone parameters, females were more affected than males.

**Discussion and Conclusion:** Vitamin-D insufficiency is highly prevalent amongst medical students in Hong Kong. A positive relationship between Vit-D is also demonstrated in majority of the bone parameters. Although this is a cross-sectional study and causality relationship cannot be concluded, the significance of further studies on this topic should be emphasized.

## 4.2

### USE OF TRADITIONAL CHINESE MEDICINE IN HONG KONG NURSES WITH CHRONIC PAIN

**AWL Kwok<sup>1</sup>, WC Ko<sup>2</sup>**

<sup>1</sup>*Tung Wah College, Hong Kong*

<sup>2</sup>*The Open University of Hong Kong, Hong Kong*

**Introduction:** In Hong Kong, our health care system is predominated by the Western medicine. Patients with chronic pain are prescribed with mainly Western medicine treatment. It is unclear whether nurses accept the traditional Chinese medicine (TCM) for treating their own chronic pain.

**Methodology:** 400 nurses of age from 20 to 50 with chronic pain were recruited, by convenient sampling, in different district hospitals. The study design was a cross-sectional survey to investigate the knowledge, attitude and behavior of nurses in using TCM in treating their own chronic pain.

**Results and Analysis:** 66 male nurse and 334 female nurses completed the survey. 64.5% of the respondents were registered nurses. 91.5% of them required shift duty. The main areas of chronic pain were in the lower back and shoulder. The main reasons included work strained (78.8%) and poor posture (58.5%). The chronic pain caused frustration (36%), anxiety (30.5%), reducing work efficiency (83.6%), affecting sleep quality (55.5%), and daily activities (48%). 48% of the male respondents and 61% female respondents sought TCM as the primary treatment ( $p < 0.05$ ). 16.1% of male respondents and 28.1% female respondents had bad or unpleasant experience with the TCM. 54% male respondents and 78.4% female respondents would recommend TCM to the others or patients ( $p < 0.05$ ).

**Discussion and Conclusion:** The high percentage of nurses utilized TCM as chronic pain reliever indicates that TCM are useful in the chronic pain management. Its application should be similar to the western medicine in the chronic pain control.

## 4.3

### SARCOPENIA INTERVENTION PROGRAM FOR GERIATRIC HIP FRACTURE

**LC Man, MY Cheung, AWH Ho**

*Caritas Medical Centre, Hong Kong*

**Introduction:** Sarcopenia and osteoporosis increase the risk of falls, resulting in fragility fracture. Intervention program on sarcopenic hip fracture was set up at our centre.

**Methodology:** All patients  $\geq 60$  years admitted to CMC with operatively treated hip fracture and diagnosed sarcopenia were included. Interventions include inpatient nursing education, dietary advice, therapist assessment and structured 12-week geriatric day hospital (GDH) exercise program. Those not eligible for GDH training were classified as control group. Changes in relative skeletal muscle mass index (RASM), functional recovery (hand grip, muscle strength, functional score) were measured.

**Results and Analysis:** There were 9 intervention and 10 control patients. Increment in RASM (intervention 0.316mm/kg<sup>2</sup>, control 0.82,  $p < 0.05$ ), hand grip (intervention 0.26kg, control 0.71kg), knee extension of injured limb (intervention 5.77kg,  $p < 0.05$ ), control 2.85kg,  $p < 0.05$ ) were noted. All patients have improvement in functional scores ( $p < 0.05$ ). Between groups analysis showed there was apparent decrement in RASM, hand grip and knee extension power of good limb in intervention program group compare with control group ( $p > 0.05$ ).

**Discussion and Conclusion:** Generally, there were improvement in muscle mass, muscle strength and functional recovery in all patients. However, there was apparent reduction in muscle mass and muscle strength in intervention group compared with control group. The result shows that intervention program with exercise prescription in sarcopenic hip fracture patient can improve the lower limb muscle strength and functional recovery but not sarcopenia. These patients do not benefit from traditional exercise treatment for sarcopenia.

## 4.4

### COMPREHENSIVE OSTEOARTHRITIS MANAGEMENT (COME) PROGRAMME – MULTI-DISCIPLINARY EXERCISE TRAINING PROGRAMME FOR PATIENT WITH OSTEOARTHRITIC KNEE IN MMRC

**SS Yeung<sup>1</sup>, SW Siu<sup>2</sup>, YL Ng<sup>3</sup>, CCR Tsang<sup>1</sup>, H Chan<sup>1</sup>, PK Chan<sup>4</sup>, CH Yan<sup>4</sup>, KY Chiu<sup>4</sup>**

<sup>1</sup>*Physiotherapy Department, Macle hose Medical Rehabilitation Centre, Hong Kong*

<sup>2</sup>*Nursing Department, Macle hose Medical Rehabilitation Centre, Hong Kong*

<sup>3</sup>*Occupational Department, Macle hose Medical Rehabilitation Centre, Hong Kong*

<sup>4</sup>*Department of Orthopaedics and Traumatology, Queen Mary Hospital, Hong Kong*

**Introduction:** Patient education and exercise therapy are the pillars in managing osteoarthritis (OA). In 2016, a Comprehensive Osteoarthritis Management (COME) programme for patients with osteoarthritic knee was launched in the MMRC after a team visit to European OA centres. The COME consists of 3-hour education, 12 physiotherapy exercise sessions and 6 occupational therapy training sessions of coping skills. This presentation is to review the one-year results.

**Methodology:** Patients with radiological stages of Kellgren-Lawrence Grade I to III were recruited and assessed at baseline, 6-week, 3 months and lastly 1 year with telephone follow-up. These outcomes were assessed: quality of life with EQ-5D-3L and EQ-VAS (0-100); weekly time on physical activities and exercise training; physical performance with one-minute chair-stand test and both quadriceps strength with dynamometer; functional status with Patient Specific Function Score (PSFS), and self-efficacy with Self-Exercise Efficacy Scale (SEE).

**Results and Analysis:** 75 patients completed COME with 1-year follow-up. Significant outcome improvements were observed: EQ-5D-3L showed 19-28% improvement in mobility, pain reduction and anxiety. EQ-VAS at 3 months improved by 7.5±19.5 points ( $p = 0.001$ ). Time spent on physical activities and training increased from 58.0±42.5 to 109.2±24.0 minutes at 1 year ( $p < 0.001$ ). One-minute chair-stand test increased by 11.9±8.6 repetitions. Quadriceps strength increased by 5.6±7.9 and 5.8±7.0 kgf in right and left side respectively. PSFS improved almost by 3.5±2.3 points. SEE improved the greatest at 3 months by 13.7±17.3 points.

**Discussion and Conclusion:** The COME is effective to improve patients' quality of life, physical performance and self-efficacy to maintain exercise habit.

## 4.5

### CAN 365-DAY PHYSIOTHERAPY SERVICE IMPROVE THE OUTCOME OF PATIENTS WITH TOTAL KNEE ARTHROPLASTY?

PL Lam<sup>1</sup>, HT Yip<sup>1</sup>, CM Ng<sup>1</sup>, KF Cheng<sup>1</sup>, PK Chan<sup>2</sup>, CH Yan<sup>2</sup>, PKY Chiu<sup>2</sup>

<sup>1</sup>Department of Physiotherapy, Queen Mary Hospital, Hong Kong

<sup>2</sup>Department of Orthopaedics and Traumatology, Queen Mary Hospital, Hong Kong

**Introduction:** Physiotherapy to patients with Total Knee Arthroplasty (TKA) has been extended to daily service since 1st Oct 2017 in Queen Mary Hospital. We sought to evaluate the 365-day physiotherapy service to these patients by analyzing the hospital length of stay (LOS) and Timed-up & go test (TUGT).

**Methodology:** Patients with primary unilateral TKA performed between 1 Jan 2017 and 31 March 2018 who were directly discharged home from Queen Mary Hospital were reviewed. They were divided into 2 groups: before (non-365 group) and after the daily physiotherapy service started (365 group). LOS(s) and TUGT(s) were compared.

**Results and Analysis:** There were 54 patients in non-365 group and 46 patients in 365 group. Baseline assessment of both groups was similar. The average LOS of non-365 group was  $7.6 \pm 1.9$  days and the 365 group was  $6.9 \pm 1.8$  days. The difference between the two groups was statistically significant ( $p=0.04$ ). The TUGT upon discharge for non-365 group was  $51.2 \pm 32.8$  seconds whereas for 365 group was  $34.2 \pm 18.5$  seconds. There was statistical significant difference between two groups ( $p=0.005$ ).

**Discussion and Conclusion:** The enhancement in provision of physiotherapy service was associated with the improvement in the mobility of patient (TUGT upon discharge) and shortening of hospital LOS. This echoed with previous studies which had found that increasing therapy dose was effective in reducing LOS and improving patient outcomes. In conclusion, the service enhancement was effective in managing patients with TKA.

## 4.6

### THE EFFECTS OF LOCALIZED THERMAL THERAPY ON ACUPUNCTURE POINTS IN THE MANAGEMENT OF KNEE OSTEOARTHRITIS: AN EVALUATION FROM A RANDOMIZED CONTROLLED TRIAL

AWL Kwok<sup>1</sup>, SM Xia<sup>2</sup>, YL Wang<sup>2</sup>, KKW Ho<sup>2</sup>

<sup>1</sup>School of Medical and Health Sciences, Tung Wah College, Hong Kong

<sup>2</sup>Department of Orthopaedics and Traumatology, The Chinese University of Hong Kong, Hong Kong

**Introduction:** Application of heat therapy in Western Medicine, and application of acupuncture and moxibustion in Traditional Chinese Medicine are common treatments to reduce knee pain and relieve joint stiffness.

**Methodology:** 76 KOA patients of age over 40 were recruited randomly into Thermal Gun Group (as intervention) and Heat Pack Group (as control). Each subject received 30 minutes treatment in each session, twice a week for 4 weeks. All subjects were taught home knee exercises. The Western Ontario and McMaster Universities OA Index (WOMAC), 12-Item Short Form Health Survey (SF-12), Visual Analog Scale (VAS) for pain intensity, muscle power, and knee range of motion (ROM) were measured.

**Results and Analysis:** VAS showed significant decrease in both groups ( $p \leq 0.05$ ). In the Thermal Gun Group, WOMAC index decreased from  $52.47 \pm 17.58$  to  $41.64 \pm 16.61$ , physical component of SF-12 improved from  $28.88 \pm 6.41$  to  $31.71 \pm 5.04$ , ROM of knee extension lack decreased from  $16.89 \pm 8.06$  to  $12.44 \pm 5.54$ , and Hamstring strength increased from  $4.56 \pm 0.50$  to  $4.78 \pm 0.42$  ( $p < 0.01$ ). In the Heat Pack Group, the quadriceps strength increased from  $4.54 \pm 0.51$  to  $4.71 \pm 0.46$  ( $p < 0.01$ ).

**Discussion and Conclusion:** Heat therapy in both groups gave pain relief. Thermal Gun on acupuncture points had positive effects in reducing joint stiffness, improved physical health component of quality of life, decreased knee extension lack and increased hamstrings muscle strength; whereas the heat pack increases the strength of the quadriceps muscles in KOA patients.

### 4.7

#### TORSIONAL MAL-ALIGNMENT INCREASES EXTERNAL KNEE ADDUCTION MOMENT DURING WALKING IN PATIENTS WITH MEDIAL KNEE OSTEOARTHRITIS

**C Huang<sup>1</sup>, SN Fu<sup>1</sup>, WK Lai<sup>2</sup>, SS Yeung<sup>3</sup>, PK Chan<sup>4</sup>, CH Yan<sup>4</sup>, KY Chiu<sup>4</sup>**

<sup>1</sup>Department of Rehabilitation Sciences, The Hong Kong Polytechnic University, Hong Kong

<sup>2</sup>Department of Health Technology and Informatics, The Hong Kong Polytechnic University, Hong Kong

<sup>3</sup>Department of Physiotherapy, MacLechose Medical Rehabilitation Centre, Hong Kong

<sup>4</sup>Department of Orthopaedics and Traumatology, Queen Mary Hospital, Hong Kong

**Introduction:** Malalignment is one of the key factors of disease progression in patients with knee osteoarthritis (KOA). The mal-alignment along the frontal plane (varus/valgus angle) is associated with increased joint loading during walking. This study aimed to investigate the relationship between the torsional mal-alignment and the impact loading at the knee during normal gait.

**Methodology:** Symptomatic medial compartment KOA patients confirmed with radiography of KL grades of 2 and 3 were recruited from a regional hospital. Lower limb alignment was measured by a bi-planar x-ray system (EOS imaging, Paris, France) and external knee adduction moment (KAM) was estimated from gait analysis (Vicon, Oxford, UK). Partial correlations between knee varus angle, tibial torsional angle and KAM were assessed and controlled for gender, walking speed and co-existed musculoskeletal problems at the more affected knee.

**Results and Analysis:** Forty-three medial KOA patients were included (32 female, age  $62.8 \pm 6.0$  years, BMI  $26.9 \pm 3.6$  kg/m<sup>2</sup>). Significant relationship was detected between the varus angle and KAM ( $r=0.57$ ,  $p<0.001$ ) but not tibial torsional angle ( $r=0.16$ ,  $p>.05$ ). When sub-grade analyses were conducted, KAM was significantly related to varus angle ( $r=0.47$ ,  $p<0.05$ ) in patients with KL-2; KAM was significantly related to varus angle ( $r=0.69$ ,  $p<0.05$ ) and TTA ( $r=0.56$ ,  $p<0.05$ ) in patients with KL3.

**Discussion and Conclusion:** The findings of this study indicate that torsional malalignment is also a factor contributing to the abnormal knee joint loading in patients with moderate radiographic severity knee. Therefore, to control external torsion in addition to varus-valgus deformity of the lower limb might benefit medial KOA patients with moderate radiographic severity when clinical management targets on modifying abnormal mechanical loading.

### 4.8

#### FUNCTIONAL INDEPENDENCE UTILIZING A NOVEL MODULAR AND LIGHTWEIGHT EXOSKELETON FOR AMBULATION BY SPINAL CORD INJURY PATIENTS: A MULTI-CENTER SAFETY AND EFFICACY TRIAL

**P Koljonen, A Sternin, Y Jeong, M McKinley, JM Latorre, PT Yiu, Y Hu, YW Wong, KMC Cheung, H Kazerooni**

Queen Mary Hospital, Hong Kong

No copyright transfer for abstract printing.

## 4.9

### OVER 20-YEARS OF EXPERIENCE OF A MULTIDISCIPLINARY PROGRAMME FOR REHABILITATION OF CHRONIC LOW BACK PAIN &NDASH - FACTORS PREDICTING SUCCESSFUL RE-INTEGRATION AND RETURN TO WORK

**GCN Leung, PWH Cheung, G Lau, ST Lau, PA Koljonen, JPY Cheung**

*Department of Orthopaedics and Traumatology, The University of Hong Kong, Hong Kong*

**Introduction:** Low back pain (LBP) is highly disabling with significant health cost worldwide and in Hong Kong. Since 1996, we have adopted a 14-week intensive multidisciplinary programme targeting patients with chronic LBP, providing functional rehabilitation aiming at re-integration back to the society. This study aims to review its outcomes, as well as to identify factors predicting successful return to work.

**Methodology:** This is an assessment of a prospectively collected cohort of chronic LBP patients consecutively enrolled into the programme from 1996–2014. Rigorous pre-admission assessment was performed to identify patients with functional deficits while excluding patients with surgically treatable diseases or psychological disorders. All recruited patients failed to return to work previously despite a prolonged period of conservative treatment. Assessments were performed at baseline, 8-weeks and 14-weeks for sitting, standing and walking tolerance, and straight leg raise test, Oswestry Disability Index (ODI) and Spinal Function Sort Score (SFSS).

**Results and Analysis:** 191 patients were recruited. Significant improvement was found in ODI (46.9 to 43.9,  $p<0.05$ ) and SFSS (98.3 to 108.1,  $p<0.05$ ). Sitting, standing, walking tolerance, performance in straight leg raising test all improved significantly ( $p<0.01$ ). After training, 41.9% of patients met their work demand. Multivariate logistic regression model showed gender and initial job demand level (by Physical Demands Classification) correlated with meeting work demand level ( $R^2=62.4\%$ ). Male Patients were 5.92 times ( $p<0.05$ ) more likely to meet work demand level.

**Discussion and Conclusion:** This staple multidisciplinary programme has been effective in re-integrating patients back to work by improving self-perceived disability. Predictors of good outcome included male gender and lower initial job demand level.

## 4.10

### PSYCHOLOGICAL FACTORS SIGNIFICANTLY INFLUENCES PAIN PERCEPTION AND FUNCTION IN INDIVIDUALS WITH LOW BACK PAIN

**GCN Leung, PWH Cheung, G Lau, ST Lau, PA Koljonen, JPY CHEUNG**

*Department of Orthopaedics and Traumatology, The University of Hong Kong, Hong Kong*

**Introduction:** Pain perception varies with each individual and influences treatment outcome. Psychological acceptance and wellbeing may affect pain perception and hence functional capabilities of patients with chronic low back pain (LBP). The aim of study is to determine the impact of psychological factors on pain perception and function.

**Methodology:** This was an assessment of a prospectively collected cohort of patients with chronic LBP enrolled in a 14-week rehabilitation programme. Functional and psychological assessments at baseline, 8-weeks and 14-weeks included Visual Analogue Scale (VAS), Oswestry Disability Index (ODI), Spinal Function Sort Score (SFSS), Acceptance of Illness Scale (AIS), Bradburn Affect Balance Scale (BABS) and Beck Depression Inventory (BDI).

**Results and Analysis:** 191 patients were recruited. After the programme, patients reported significant improvement in SFSS. A significant improvement was observed in AIS and BABS. Patients however reported increased BDI, suggesting pervasive negative cognitions about their physical condition. An inverse correlation between change in AIS and change in VAS at rest ( $r_s=0.19$ ,  $p<0.05$ ) and under exertion ( $r_s=-0.28$ ,  $p<0.05$ ) was observed, suggesting patients' attitude positively affects pain and physical performance. Similarly, change in BDI was found to correlate positively with VAS at rest ( $r_s=0.22$ ,  $p<0.05$ ) and under exertion ( $r_s=0.20$ ,  $p<0.05$ ). Change in AIS correlated inversely with change in ODI ( $r_s=-0.33$ ,  $p<0.05$ ) while change in BDI positively correlated with change in ODI ( $r_s=0.30$ ,  $p<0.05$ ).

**Discussion and Conclusion:** The study found that acceptance of illness and lack of negative cognitions towards the injury correlated with less pain and disability. Targeted strategies at enhancing psychological acceptance may be as important as physical and functional rehabilitation.

## 4.11

### OPERATIVE TREATMENT OF HUMERAL METASTASIS: A CASE SERIES

**SK Chui, IB Yang**

*Tuen Mun Hospital, Hong Kong*

**Introduction:** Humeral metastasis is common in adults. It has been reported to have an incidence of 16-27%. Operative treatment is now recommended to provide pain relief and functional return to patients. A local study was conducted in 2005, showing benefits in improving quality of life after operative treatment. This study is to update the progress and outcome of local patients with humeral metastasis after operative treatment.

**Methodology:** 50 cases from 2003 to 2016 were included in this retrospective study. Patients with metastatic lesion with or without fracture to the humerus with operative treatment done were recruited. Patients who did not receive operative treatment were excluded. A retrospective review was conducted at postoperative level.

**Results and Analysis:** 35 patients had humeral shaft fractures, 14 had surgical neck fractures and 1 supracondylar fracture. Among these patients, 43 had IM nail done, 3 had plating, 3 had combination of IM nail and plating, and 1 had hemiarthroplasty done. The most common primary tumour is breast cancer. 45 patients had other bone or solid organs secondaries at the time of humeral fracture. The average survival after surgery was 7.84 months (1 – 72 months). After surgery, 47 patients reported good pain control, 4 reported fair pain control and 1 reported poor pain control. None of them has wound complications.

**Discussion and Conclusion:** Operative treatment provides adequate pain control and reasonable quality of life for patients with metastatic lesion in humerus.

## 4.12

### PAROSTEAL LIPOMA - REPORT OF 2 CASES AND REVIEW OF LITERATURE

**PYT Tse, KS Yu, MS Wong**

*Congruence Orthopaedics and Rehabilitation Centre, Hong Kong*

**Introduction:** 2 cases of a rare type of Lipoma arising from bone tissue was reported and the literature reviewed.

**Methodology:** The clinical records, radiological images and surgical technique was reviewed and discussed in our presentation. Literature search using Pubmed was carried out.

**Results and Analysis:** 2 cases of Parosteal lipoma arising from the femur were successfully excised and histology proven the benign nature. No post-operative complications were noted.

**Discussion and Conclusion:** Parosteal lipoma is a very rare tumour accounting for around 0.3% of all lipomas. The term was used by Power in 1888 and refers to lesion arising adjacent from the bone but not necessarily from it. Periosteal Lipoma, on the other hand, was first used by Seering in 1836 to strictly define a lipoma originating from the periosteum. Up to 2015, about 200 cases of Parosteal Lipoma has been reported in the literature. To our knowledge, these 2 cases are the first ones reported in Southern Chinese. The report may help the audience to be aware of the condition and to carry out appropriate management.