Award Poster Session

BP01

Health-related Quality of Life of Adolescent Idiopathic Scoliosis Patients 30 Years after Surgery

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Introduction: Our centre has provided surgical treatment service for scoliosis for over 30 years, so it has been 30 years since some patients with adolescent idiopathic scoliosis (AIS) underwent surgery. Long-term follow-up of the quality of life of these patients has not been reported elsewhere. We speculate that definitive changes may occur many years after surgery.

Methods: Patients with AIS who previously underwent surgery at our centre were invited to complete the Scoliosis Research Society Outcomes Questionnaire (SRS-22) through a custom-designed online system from a mobile device. Number of years since surgery per questionnaire were grouped per 1 year until the 10th year, and per 5 years thereafter. Function, pain, self-image, mental health, satisfaction with management, and mean scores per time interval were compared.

Results: In total, 1315 patients completed 2445 the SRS-22 from November 2016 to June 2019. Comparing with results from less than 1 year after surgery, results showed function was significantly increased within the first 2 years, decreased during year 3, recovered at year 4, and gradually increased and remained stable until year 30. Pain was lowest at year 3 after surgery and was stable thereafter. Self-image decreased during years 10 to 15 and 20 to 25, and otherwise remained stable. Mental health, satisfaction, and mean scores remained stable over the entire study period.

Conclusion: This is the first long-term study of the quality of life of patients with AIS up to 30 years after surgery. Patients experienced promising quality of life many years after surgery. Continuous monitoring and support are recommended for patients towards as they approach age 40 to 50 years (perimenopause).

BP02

Low-magnitude High-frequency Vibration Treatment Attenuates Age-related Neuromuscular Junction Degeneration

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Introduction: Sarcopenia is defined as age-related decline in muscle mass and strength. There are multiple aetiological factors leading to sarcopenia, and neuromuscular junction (NMJ) degeneration is one of the causes. According to our previous studies, systemic low-magnitude high-frequency vibration (LMHFV) treatment could improve skeletal muscle function in sarcopenia, but the detailed mechanisms are still unclear. This study aimed to investigate the effects of LMHFV on NMJ degeneration in sarcopenia.

Methods: A total of 54 male SAMP8 mice aged 6 months were randomised into either control or vibration (VIB) groups. The mice in the VIB group were treated with LMHFV (35 Hz, 0.3 g) 20 minutes/day and 5 days/week. Neuromuscular junction ex vivo function and structure were evaluated at months 0, 2, 3, 4 and 6 post-treatment with n=6/group/time point. Student’s t test was used for analysis with p<0.05 considered significant.

Results: In NMJ ex vivo function test, specific tetanic force in VIB group increased by 15% compared with control group at month 3 post-treatment. Morphologically, immunofluorescence results showed that discontinuity index of NMJ postsynaptic acetylcholine receptors in control group was higher than that in VIB group at month 4 post-treatment (10 in control vs 7.8 in VIB).

Conclusion: Low-magnitude high-frequency vibration was previously shown to enhance muscle function in sarcopenic mice. Our updated results revealed that LMHFV treatment could achieve the muscle enhancement through improving NMJ function and attenuate morphological degeneration of the NMJ in sarcopenic animal model during ageing.
Algorithm and Tips for Management of Vascular Injury in Total Knee Replacement: A Retrospective Case Study

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Introduction: Total knee replacement (TKR) is one of the most common and successful joint replacement operations. However, complications of TKR may compromise the clinical outcome. Among various complications, vascular injury is recognised as rare but devastating. Incidence of vascular injury in our centre was 0.09% from 2000 to 2019. Early recognition and quick action are essential once injury occurs.

Methods: A retrospective case study with data of TKR operations in our centre from 2000 to 2019 was conducted. All cases undergoing TKR in the period were evaluated and cases of subsequent vascular injury were highlighted. Preoperative assessment, radiological investigations, physical examination, intra-operative findings, and follow-up of the highlighted cases were reviewed and analysed. An algorithm was drafted for managing suspected vascular injury based on our experience and data.

Results: Two out of 2166 TKR operations from 2000 to 2019 were identified to have vascular injury in our centre (incidence 0.09%). Both patients were men, aged 61 and 74 years. One was injured during revision surgery whereas the other during index operation. Repair was carried out in both cases with regular follow-up examinations. Both patients had limb salvage with residual deficit.

Conclusion: Vascular injury is rare but devastating, we have to remain vigilance in detecting its signs and symptoms. Once vascular injury is suspicious, following pre-designed algorithm would allow prompt management and facilitate coordination with different teams. From our experience, limb is salvageable following vascular injury in TKR whereas prevention and prompt treatment are the cornerstone to prevent long-term functional deficit.

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Introduction: In 2005 the Patchell’s group published the only randomised controlled trial on the beneficial role of decompressive surgery in malignant spinal cord compression (MSCC). In the past decade, novel systemic anticancer treatments achieved high disease response rate and its role in MSCC remains to be defined.

Methods: A cohort of 259 patients with high-grade MSCC between January 2008 and December 2018 were retrospectively reviewed. Inclusion criteria were: (1) magnetic resonance imaging–confirmed epidural spinal cord compression (ESCC); (2) Grade 2 or above MSCC according to ESCC scale. Exclusion criteria were: (1) haematological malignancy; (2) intramedullary or intramural tumour. Patients were stratified into two groups according to druggability for systemic treatment defined by ER+ / HER2+ breast cancer, EGFR mutation/ALK/ROS1 aberration in lung cancer, and castration-sensitive prostate cancer. Demographic data, overall survival (OS), and functional status were recorded.

Results: Among the 259 patients, 44 received surgery, 67 received systemic drugs according to the tumour’s druggability. In the group without druggable targets, decompressive surgery carried significant OS benefit (median, 246 vs 55 days; p=0.0004). However, in the group with druggable targets, decompressive surgery was not associated with significant OS benefit (638 vs 372 days, p=0.25). Multivariate regression on OS showed that the use of systemic therapies (relative risk [RR]=2.48, p<0.001) was the strongest favourable factor, followed by decompressive surgery (RR=1.98, p<0.001) and pretreatment American Spinal Injury Association (ASIA) score D or above (RR=1.37, p<0.026). Multivariate analysis of 3rd- and 6th-month post-treatment ASIA score showed that pretreatment ASIA was the only significant predictor.

Conclusion: With effective systemic anticancer therapies, beneficial role of decompression surgery in OS may be diminished. For functional outcome, pretreatment status is the strongest predictor.
Immediate Contralateral Local Osteo-enhancement of the Hip in Postmenopausal Women with Fragility Hip Fracture: Early Interim Results of a Prospective Study

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Introduction: Hip fractures are common fragility fractures and are associated with significant morbidity and mortality. Patients with a first hip fracture are at high risk of contralateral hip fracture within 1 year. The AGN1 local osteo-enhancement procedure (LOEP) is a novel intervention that may help prophylactically reduce the risk of contralateral hip fracture. This study aimed to evaluate the feasibility and safety of performing LOEP on the contralateral hip in the same operative session for a first-time fracture.

Methods: This is a prospective single-arm cohort study of 20 patients. Each patient underwent repair of the fractured hip followed by treatment of the contralateral hip with LOEP in the same operative session. The primary endpoint was the incidence of all serious adverse events occurring from the day of procedure through the 24-month follow-up period related to femoral LOEP. The secondary endpoints were the incidence of fragility fractures occurring during the follow-up period; all adverse events related to LOEP; and serial evaluation of bone mineral density post-procedure.

Results: No adverse events were directly related to the device or procedure. There was no increase in perioperative complications, length of stay, or time to weightbearing. No patients experienced fractures, pain or discomfort at the injected hip. By 12 months, the AGN1 core was replaced by new bone integrated with surrounding host bone.

Conclusion: The preliminary data at 12 months support the feasibility of AGNI LOEP as a concomitant treatment of the contralateral hip in patients with a first hip fracture.