S15 - Investigation on the Effectiveness of Two Different Therapeutic Exercise Programmes in Patients with Chronic Mechanical Neck Pain: A Randomised Controlled Trial

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Introduction: There is a need to conduct a randomised control trial (RCT) to review the effectiveness of these two different neck exercise programmes that are commonly used in clinical settings.

Aims: To study the effectiveness of two different therapeutic exercise programmes in patients with chronic mechanical neck pain using a randomised control trial with 6 months follow up.

Methods: The Neck McKenzie Class (NMC) group (n=103, 50.6±11.55) was given a 5 weeks McKenzie exercises and the Upper Quarter Stabilisation (UQS) exercise group (n=84, 52.98±11.01) was given a 5-week core stabilisation exercise programme, while the control group (n=84, 53.83±10.75) participated in a neck postural care workshop for one session.

Outcome Measures: The values of Chinese version of The Northwick Park Neck Pain Questionnaire (NPQ), Numeric Pain Rating Scale, (NPRS), cervical active range of motion (AROM) and Numeric Global Rating Changes Scale (NGRCS) were measured at baseline, 5/52, 3/12 and 6/12.

Results: After 6 month intervals, both between group effects and within group X Time interaction effects revealed significant difference in NGRCS ($p<0.001$; $p<0.001$), AROM ($p<0.019$; $P<0.002$) and NPQ ($p<0.004$; $p<0.001$). When compare with control and at first month follow-up, the significant group mean difference shown in NPQ with $p<0.001$ (NMC mean difference was 9.88, 95 % CI 5.19 to14.57; UQS mean difference 8.43, 95% CI 3.56 to13.3). Significant difference noted in NGRCS with $p<0.001$ (NMC mean difference was -2.66, 95 % CI -3.48 to-1.84; UQS mean difference was -2.27, 95% CI -3.13 to-1.41). However, only side flexion AROM shown significant group mean difference with $p<0.001$ (NMC mean difference was -4.66, 95 % CI -7.19 to-2.13; UQS mean difference was -4.42, 95% CI -7.07 to-1.78). When compare with control and at 6 month, significant group mean difference found in AROM with $p< .05$ and NGRCS with $p<0.001$. For AROM Flexion-extension: NMC mean difference -7.40, 95 % CI -11.42 to-3.37; UQS mean difference -5.83, 95% CI -10.06 to-1.61); Side flexion AROM (NMC mean difference -8.64, 95 % CI -11.39 to-5.90; UQS mean difference -7.26, 95% CI -10.13 to-4.39). Significant difference noted in NGRCS (NMC mean difference was -1.89, 95 % CI -2.85 to-0.93; UQS mean difference was -1.60, 95% CI -2.61 to-0.59).

Conclusions: The results demonstrated that both UQS and NMC were effective in improving AROM and NGRCS up to 6 months interval but short-term effect with NPQ only.

S16 - First-stage Development of a Comprehensive Genome Sequence Database for the Identification of Foodborne Pathogens in Hong Kong

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Introduction: Foodborne diseases such as salmonellosis and vibriosis are common public health issues around the world. In Hong Kong, *Salmonella enterica* serovars Enteritidis and Typhimurium accounted for almost 50% of salmonellosis whereas *Vibrio parahaemolyticus* commonly causes vibriosis.

Aims: In this study, we proposed to construct the first genome sequence database for local foodborne pathogens including *S. Typhimurium* (ST) and *V. parahaemolyticus* (VP). We aimed to investigate the genotypes and phylogenetic relationships of the local isolates and compare them with strains worldwide.

Results: We determined genome sequences of 10 Hong Kong clinical isolates of ST, which had various degrees of antibiotic resistance, and 10 VP Hong Kong isolates using the Roche 454 FLX-Titanium pyrosequencer. The first foodborne pathogen genome database was constructed based on the Ensembl genome annotation system with a user-friendly web-based interface. A suite of computational tools is available for comparative sequence analysis and data mining such as multi-locus sequence typing (MLST), restriction enzyme typing and detection of genetic variations using local and foreign typed ST and VP genome data.

Discussion: Phylogenetic analysis based on 7962 chromosomal SNPs differentiates the local ST isolates from the foreign ST isolates that were originally indistinguishable by having the same MLST sequence type ST19. Besides, gene composition of the multidrug-resistant ST strains were compared with the reference strain LT2 and revealed known antibiotic resistance mechanisms and potential novel resistance determinants. Based on the phenotypes, we identified 184 orthologs as candidate multi-drug resistance determinants in ST. We also identified more than 50 insertions of at least 500 bases and 1000 SNPs, which represent potential DNA sequences for marker development.

Assembled genome sequences of 5 clinical VP strains from stool samples of patients and 5 environmental strains in Hong Kong were compared together with other reference strains. Phylogenetic analysis based on SNPs reveals clear distinctions between the clinical and environmental isolates. Comparative genomics showed the gene repertoires and virulence determinants. We also found that a few environmental strains harbour virulence genes and prophage elements, indicating their virulence potential, and also identified a unique biphenyl degradation pathway.

Conclusions: We developed the first genome sequence databases of local foodborne pathogens that provide a user-friendly platform to access and analyse the genome sequences and annotations of VP and ST. The platform facilitates the monitoring of trends of foodborne outbreaks and serves as a model for the use of genome sequences in clinical investigations.

S17 - Electroacupuncture Analgesia for Colonoscopy: A Prospective, Randomised, Sham-controlled Study

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Background and Objectives: Colonoscopy is often regarded as a painful and unpleasant procedure. Electroacupuncture (EA) has been used successfully to treat pain of various origins, but few good-quality studies have evaluated its role in treating pain and anxiety during colonoscopy. This prospective randomised study aimed to investigate the efficacy of EA in reducing procedure-related pain and the consumption of sedatives/analgesics during colonoscopy.

Methods: Between October 2011 and October 2012, 128 consecutive acupuncture-naive patients undergoing first-time elective colonoscopy were randomised to receive either EA (n=64) or sham acupuncture (SA) before/during colonoscopy. The acupoints relevant to the treatment of abdominal pain, including Zusanli (ST-36), Hegu (LI-4), and Neiguan (PC-6) were used. For the SA group, blunt-tip needles were placed (without skin penetration) 15 mm away from the acupoints. Foam blocks were used to stabilise the needles and to blind the patients of both groups and the endoscopists to the treatment allocation. A mixture of propofol and alfentanil, delivered by a patient-controlled syringe pump, was used for sedation/analgesia in both groups. The primary outcome was the dose of patient-controlled sedation/analgesia consumed. Secondary outcomes included pain and satisfaction scores, and cecal intubation time.

Results: The demographic data and baseline anxiety/pain scores of the two groups were comparable. The mean dose of propofol used was significantly lower in the EA group than in the SA group (0.19 mg/kg vs. 0.61 mg/kg; P<0.001). Comparing with the SA group, the EA group had a lower mean pain score (2.7 vs. 4.5; P<0.001) and a higher mean satisfaction score (9.4 vs. 8.8; P=0.016). A significantly shorter cecal intubation time was also observed in the EA group when compared with the SA group (7.5 min vs. 9.6 min; P=0.015). Endoscopists in the EA group reported a higher mean satisfaction score than those in the SA group (8.5 vs. 7.3; P<0.001). Multiple linear regression analysis revealed that the use of EA (P<0.001), absence of looping (P<0.001), male gender (P<0.001), and shorter procedure time (P=0.001) were independent predictors of less consumption of patient-controlled sedatives/analgesics during colonoscopy.

Conclusions: This study suggests that EA is more effective than SA in reducing procedure-related pain and the consumption of sedatives/analgesics during colonoscopy. The use of EA is an independent predictor of less consumption of patient-controlled sedatives/analgesics during colonoscopy.