## POSTERS FRIDAY MAY 25, 2007

### P1
### PAIN, FEAR OF PAIN, AND DISABILITY: A REPEATED MEASURES ANALYSIS WITH A TERTIARY TREATMENT SAMPLE

**Murray P. Abrams, B.A.Hons, R. Nicholas Carleton, M.A., Shane S. Kachur*, BMR(P.T.), & Gordon J. G. Asmundson, Ph.D.**
**Anxiety and Illness Behavior Laboratory, University of Regina**

Fear-avoidance models of musculoskeletal pain posit individual differences in fear of pain responding along a continuum of confrontation and avoidance (Asmundson et al., 2004). Individuals who confront their pain are believed more likely to adaptively resume physical and social activities, experiencing only minimal psychological or physiological complications. Conversely, those who engage in fear-related pain avoidance behaviors are expected to exhibit psychological and physical consequences, increased pain perception, and disability. It is reasonable to expect that multidisciplinary treatment resulting in reduced fear of pain will produce corresponding reductions in pain and disability (de Jong et al., 2005). There are few prospective studies that evaluate this hypothesis (Sieben et al., 2005). The purpose of the present study was to longitudinally assess patients with chronic musculoskeletal pain over the course of a six week tertiary treatment program. Thirty individuals (23% women; M age=44.5, *SD*=10.7) enrolled in a government sponsored multi-disciplinary rehabilitation program were assessed at intake, three weeks, and six weeks. Participants completed the McGill Pain Questionnaire, the Pain Anxiety Symptoms Scale-20, and were assessed with an objective measure of functional ability. Repeated measures analysis of variance revealed several significant linear effects: increases in reported pain intensity, $F(1,27)=4.81$, $p<.05$, $eta^2=.18$; reductions in fear of pain, $F(1,24)=8.27$, $p<.01$, $eta^2=.35$; and reductions in functional deficit, $F(1,28)=20.57$, $p<.01$, $eta^2=.74$. These findings suggest that over the course of multidisciplinary treatment, although reported pain intensity increased, both reported fear of pain and functional deficit decreased. Implications and future research directions are discussed.

### P2
### A SUGGESTED ABBREVIATION OF THE PAIN COPING QUESTIONNAIRE (PCQ)

**Ahola, S.[1], Pillai Riddell[1,2], R., Reid, G. J.[3] & Chambers, C[4].**
**[1]York University; [2]Hospital for Sick Children; [3]University of Western Ontario; [4]Dalhousie University**

**AIM:** The Pain Coping Questionnaire (PCQ) has been demonstrated to be a valid and reliable tool to understand how a child copes with pain of an extended duration. The PCQ consists of 49 coping strategies, which load onto eight factors: information seeking, problem solving, social support seeking, positive self-statements, behavioural distress, cognitive distress, externalizing and catastrophizing. The goal of the present analysis was to develop a reliable and valid short-form that could be utilized for screening how children cope with pain.

**METHODS:** Using an amalgamated dataset from the validation studies of the PCQ, the preliminary short form was developed through confirmatory factor analysis and expert ratings of item content and clarity. The PCQ database (total N = 1225) for the present analyses consisted of six samples (from schools and clinics) from 5 separate published studies. The average age for the six groups ranged from 7 to 18 years (M= 12.6; SD = 2.01) and the gender distribution was almost evenly split (55% female). All clinical samples were recruited from a Maritime tertiary-care teaching hospital.

**RESULTS:** Preliminary analyses have resulted in a 16-item short-form that has acceptable reliability (range 0.666 to 0.805) and validity (content validity ratings agreed with the 16 short-form chosen for inclusion).

**CONCLUSIONS:** Both statistical and expert analyses support the use of the 16-items as an alternative to the full measure. The compact format will allow practitioners to quickly determine a child's areas of strengths and weaknesses when coping with pain. Plans for clinical validation are in progress.

### P3
### ENHANCED DELTA OPIOID RECEPTOR-MEDIATED ANTINOCICEPTION FOLLOWING PROLONGED MORPHINE TREATMENT: THE ROLE OF SPINAL GLIAL ACTIVATION

**SA Armstrong, VT[1]; S.V. Holdridge[1], BScH; A.M.W. Taylor[1], BScH; C.M. Cahill[1,2], PhD**
**1. Department of Pharmacology & Toxicology, 2. Department of Anesthesiology, Queen's University, Kingston, Ontario**

Previous studies have demonstrated that prolonged morphine treatment *in vivo* induces the translocation of delta opioid receptors (δORs) from intracellular compartments to neuronal plasma membranes. This trafficking event correlates with an increase in the functional competence of the receptor; however the underlying mechanisms involved remain unknown. In the present study we have examined whether glia are associated with the enhanced δOR-induced antinociception following prolonged morphine treatment (5-15 mg/kg, s.c. every 12 hr). Accordingly, animals received morphine with or without concomitant administration of propentophylline (PF; 10 μg, i.t., every 24 hr for 5 days), an inhibitor of glial activation which has previously been shown to block the development of morphine antinociceptive tolerance. Morphine treatment induced the activation of astrocytic and microglial cells in the dorsal spinal cord, as indicated by a significant increase in both cell surface area and cell volume. Consistent with earlier findings, our 48 hr morphine regimen significantly augmented the antinociceptive effects of [D-Ala] 2- deltorphin II (DLT), a selective δOR agonist. This enhancement in δOR-mediated effects was effectively blocked by PF, which was also shown immunohistochemically to attenuate the spinal immune response. Taken together, these data suggest that spinal glial activation not only contributes to a state of opioid analgesic tolerance, but neuro-glial communication likely underlies the altered functional competence of δORs following morphine treatment.

### P4
### LONG-TERM OPEN LABEL EXTENSION OF A DOUBLE-BLIND, RANDOMIZED, PLACEBO-CONTROLLED TRIAL OF CONTROLLED RELEASE (CR) TRAMADOL (ZYTRAM XL®) IN PATIENTS WITH CHRONIC OSTEOARTHRITIS PAIN

**Andre Beaulieu MD[1], William O'Mahony MD[2], Carter Thorne MD[3], John Sibley MD[4], John Bartlett MD[5], Gunnar Kraag MD[6], Paula S. Piraino, Ph.D. [7], John Eisenhoffer, MD[7] Zoltan Harsanyi, MBA[7], Andrew C. Darke, Ph.D. [7]**
**1. Centre de Rheumatologie St-Louis, Ste-Foy, PQ, 2. Corunna Medical Research Centre, Corunna, ON 3. The Arthritis Program Research Group Inc., Newmarket, ON, 4. Royal University Hospital, Saskatoon, SK, 5. London Road Diagnostic and Medical Centre, Sarnia, ON, 6. The Ottawa Hospital, Ottawa, ON, 7. Purdue Pharma, Pickering, Ontario.**

**AIM:** To evaluate the long-term efficacy and safety of CR tramadol in chronic osteoarthritis pain.

**METHODS:** Patients who completed a double-blind, placebo-controlled crossover study were offered open label CR tramadol for up to 6 months. The primary outcome was pain intensity (VAS and ordinal). Other questionnaires included: WOMAC, Pain and Disability (0-10 ordinal), Pain and Sleep (VAS) and SF-36. All assessments were completed every 2 months.

**RESULTS:** Of 75 eligible patients, 53 (70.7%) chose to continue CR tramadol; 29 (54.7%) completed 6 months of open label treatment. Mean treatment duration was 133.0±63.2 days. The mean final CR tramadol dose was 313.2±100.1 mg/day, compared with 330.2±93.7 mg/day at the end of double-blind treatment. Pain intensity significantly decreased to 36.3±17.9 mm in the double-blind phase. This was maintained during open label (35.4±22.7 mm, p=0.7809). WOMAC subscale scores for pain and physical function were significantly decreased at the end of the double-blind phase (177.2±81.6 mm and 582.7±287.5 mm, respectively). Both

were maintained throughout open label (185.6±101.8 mm, p=0.5735; 609.1±364.3 mm, p=0.5664, respectively). Significant double-blind reductions in overall pain and disability (21.6±10.1) and overall pain and sleep scores (89.2±78.8) were sustained throughout open label (21.5±13.4, p=0.9660; 96.7±85.1, p=0.4555, respectively). Significant deterioration in the Physical Functioning and Physical Component scales of the SF-36 may be attributable to osteoarthritis progression. Most patients reported moderate (44.2%) or a great deal of benefit (42.3%) from CR tramadol.

**CONCLUSION:** Long-term CR tramadol treatment provided sustained pain control for up to 6 months without evidence of analgesic tolerance.

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## P5

## DEVELOPMENT AND EVALUATION OF A HOSPITAL CHRONIC PAIN CONSULTATION SERVICE

**J Boyd MSN, AJ Clark MD, PA Taenzer PhD, CC Spanswick MB ChB, S Chary MB BS, V Wiebe MN.**
**Chronic Pain Centre, Regional Pain Program, Calgary Health Region, Calgary, Alberta**

**AIM:** To provide a consultation service to physicians caring for hospitalized patients with chronic pain.

**METHODS:** The CHR Regional Pain Program identified poorly managed chronic pain as a significant hospital service gap. A consultation service – nurse practitioner (NP), 3 physicians, psychologist – is being rolled out sequentially to 3 acute care hospitals. Consultations from attending physicians are assessed by the NP who will provide suggestions to the attending physician after discussing the patient with a physician. Rounds are held twice weekly by the NP and a physician. A consultation report is provided with suggestions about care during hospitalization and at discharge (for the family physician). The service does not take over care of the patient's pain. Evaluation consists of tracking service events, pre- and post-consultation pain levels, patient satisfaction with pain care, physician impression of impact of service and audit of discharge notes.

**RESULTS:** 134 consults were received between Jan-Sep 2006. Pre-post data are available on 37 patients and indicates a 46% reduction of average pain. Patients commented that the NP listened, took their problem seriously and educated them about pain management. Attending physicians found the service easy to access, recommendations were easy to implement and led to reduced pain intensity, increased function and decreased length of hospital stay. An audit showed 80% of attending physicians included the consult service's recommendations in the discharge note to the family doctor.

**CONCLUSIONS:** This data indicates that the service provides effective pain management for hospitalized patients by providing recommendations to attending physicians.

## P6

## IMPROVING THE MANAGEMENT OF LOW BACK PAIN IN THE COMMUNITY USING COLLABORATIVE ACTION LEARNING GROUPS.

**Carr E[1] BSc (Hons) RGN, PGCEA, RNT, MSc, PhD, Breen A[2] PhD, DC, Campion-Smith C[1] MB, ChB, FRCGP, Austin H[1] RGN, HV, Mann E[1] BSc, PGCHE, RGN, SCM**
**1. Institute for Health and Community Studies, Bournemouth University, UK**
**2. Institute for Musculoskeletal Research and Clinical Implementation, Bournemouth, UK**

**AIMS:** To evaluate the educational interventions with specific reference to

1. Patient outcomes (eg impact on function, return to work)
2. Professional behaviour (eg utilisation of national guidelines)
3. Organisational changes (eg referral services)

**BACKGROUND AND SIGNIFICANCE:** The management of acute low back pain in primary care can be a difficult and frustrating experience for General Practitioners (GP). Our research team[1] has focused on collaborative research to explore the feasibility of a nurse-led back pain service (Breen et al 2004) and more recently how GP's manage the psycho-social aspects of patients' experiencing acute low back pain[2].

**METHOD:** 18 practices in the South West region of the UK were invited to participate. Four practices responded before the closing date and a further two afterwards. Each practice was presented by a GP, practice nurse and either a receptionist, a further nurse or physiotherapist. Twelve participants attended a series of four local half-day workshops. The Pain Attitudes and Beliefs Scale for Physiotherapists (PABS-PT) was completed by all participants before and after the series of workshops and a Visual Analogue Scale of how confident they felt managing low back pain. Workshops used a participatory action learning framework and included content identified by participants and group work. Practice based activity occurred between meetings. Rapid feedback questionnaires were completed at the end of each workshop.

**RESULTS:** All participants evaluated the workshops positively. One item showed a significant difference PAB-PT ($p<0.05$ Wilcoxin Ranked signed test). There was a significant improvement in 'confidence to manage back pain'; (before workshop mean confidence 3.9 (SD1.96) compared with afterwards 7.0 (SD1.36) $p<0.001$). Four quality improvement projects on low back pain are ongoing.

**CONCLUSIONS:** Using collaborative action learning groups with practitioners can help practitioners improve the management of low back pain in the community[3].

1. Breen, A., E. Carr, et al. (2004). "Acute back pain management in primary care: a qualitative pilot study of the feasibility of a nurse-led service in general practice." Journal of Nursing Management;12: 201-209.
2. Breen A, Austin H, Campion-Smith C, Carr ECJ & Mann E (2007) "You feel so hopeless": A qualitative study of GP management of acute back pain. European Journal of Pain; 11:21-29
3. This work has subsequently been successful in acquiring a grant from the Health Foundation (UK) for a three year project to extend and develop it further. A short summary will be included.

## P7

## RECONCEPTUALIZING 'PROFESSIONALISM': WHY CHRONIC PAIN SERVICE PROVIDERS NEED TO RETHINK THE AFFECTIVE DOMAIN

**Cary A. Brown, BMR, MA, PhD, Associate Professor, Faculty of Rehabilitation Medicine, University of Alberta, Edmonton Alberta**

**INTRODUCTION:** Service providers working with people who have complex health problems like chronic pain are considered at particular risk from the heavy emotional content (frustration, guilt, hostility) of these interactions[Bellon 2002]. It is important for service providers (SPs) to employ reflective practice acknowledging these issues [Freemantle 1996, Novack 1999, Adler 2002]. However, despite the growing awareness that wellbeing can no longer be envisioned as a linear (cause and effect) process divorced from socio-cultural influences and attendant values and beliefs [Sweeney 2002, WHO 2002], service providers are still inculcated to negate the affective domain of their practice [Meier 2001, Smith 1988, Zinn 1988].

**AIM:** To examine to what degree SPs believe their decision-making is influenced by self-image and emotion and the reasons they offered for these beliefs.

**METHOD:** As part of a larger study involving members of the British Pain Society, the National Occupational Therapy Pain Association and service-user lead support groups, participants were asked to identify their level of agreement with statements about how the themes (*coherence, purposiveness, self-image and affect*) [Chapman 1999] influenced their decision-making. A second stage questionnaire asked participants to comment on why the *affect* and *self-image* were rated as of little influence.

**RESULTS:** Only 20.5% of service providers rated the influence of *self-image* as 3 (mostly) or 4 (completely). The influence of *affect* was similarly low with only 19.4% of respondents selecting a rating of 3 or 4. In marked contrast, service users rated the influence of *self-image* and *affect* as strong. Themes emerged in the SPs' statements about these findings.

**CONCLUSION:** Although SPs felt that affect and self-image had little influence on their decision-making, there is growing evidence to suggest that it is not possible, nor preferable, to divorce emotion from the clinical encounter.

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## P8

## CHRONIC PAIN AND COMPLEXITY: THE BELIEFS OF PEOPLE WITH PAIN AND SERVICE PROVIDERS

**Cary A. Brown, BMR, MA, PhD, Associate Professor, Faculty of Rehabilitation Science, University of Alberta, Edmonton, Alberta**

**INTRODUCTION:** The director of the British National Health Service (NHS) Modernisation Agency, David Fillingham, stated that 'the NHS is the epitome of a complex adaptive system. Such systems do not always respond well to mechanistic formulae' (Fillingham 2002). A growing number of theorists and researchers echo this sentiment in relation to many aspects of healthcare in the 21st century. It is increasingly emphasized that people are complex biological systems that do not behave in a linear fashion and that effective healthcare for the growing number of chronic disease and lifestyle issues (like chronic pain) must be grounded in a non-reductionist paradigm focused on understanding relationships and applying flexible problem-solving. Chapman et al. have predicted that for pain research, '…the principle challenge will not be technological advancement but rather the generation of a theoretical framework that can guide complex scientific inquiry' (Chapman and Nakamura 1999, p.138).

**AIM:** The aim of this study was to examine, from the perspective of people with chronic pain and service providers, the congruence between characteristics of a complex adaptive system (CAS) and features of the chronic pain experience.

**METHODS:** This data was extracted from a much larger study regarding congruence between service users and providers in beliefs about treatment for chronic pain. The data were gathered by postal questionnaire during the final round of a 4-part Delphi study. Participants rated their agreement on a 4-point scale with 23 statements based on the 8 principles of CAS outlined by Plsek (2003). Additionally, they identified on separate visual analogue scales how much disagreement and uncertainty they believed people have about which treatments for chronic pain are important.

**RESULTS:** Findings lend support to applying a CAS framework to the chronic pain experience. Respondents indicated that in regards to treatments for chronic pain relationships and context are important, structures and process are varied, and actions can be linked to persisting practices and personal beliefs. Additionally, the chronic pain experience is seen as changing and requiring high amounts of giving and receiving information. Participants believe that there is little certainly and agreement regarding treatments for chronic pain. A graphic representation of their responses clearly illustrates a system in the 'zone of complexity' (Stacey 1996).

Paradox seemed to exist within responses of participants to questions about certain beliefs and behaviors. For example, responses indicate that *search for cure and the medical system as the source of assistance* are still part of the personal belief system most people hold for dealing with chronic pain. Many participants said that chronic pain has a wide range of biological, psychological and social influences. However, the responses indicated that they were also attempting to find solutions within a simple, cause-and-effect biomedical model at times.

**CONCLUSIONS:** The findings supported that CAS theory is an appropriate framework for seeking to understand chronic pain.

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## P9

## RELATIONSHIP BETWEEN CONCENTRATION OF INTRAMUSCULAR GLUTAMATE AND SENSITIZATION OF RAT MASSETER MUSCLE NOCICEPTORS

**Brian E. Cairns, Ph.D. [1], Xudong Dong, B.D.S., Ph.D. [1], Mandeep K. Mann M.Sc.[1], Peter Svensson, D.D.S., Ph.D., Dr.Odont. [2], Barry J. Sessle, B.D.S., M.D.S., Ph.D.[3], Lars Arendt-Nielsen, Ph.D., Dr.Med.[4]**

**[1] Faculty of Pharmaceutical Sciences, The University of British Columbia, Vancouver, British Columbia, V6T 1Z3, Canada**

**[2] Department of Clinical Oral Physiology, Dental School, Århus University, DK-8000 Århus C, Denmark**

**[3] Faculty of Dentistry, The University of Toronto, Toronto, Ontario, M5G 1G6 Canada**

**[4] Laboratory for Experimental Pain Research, Center for Sensory-Motor Interaction, Aalborg University, DK-9220, Denmark**

**AIMS:** Evidence suggests that elevated tissue levels of glutamate may contribute to pain and sensitivity in certain musculoskeletal pain conditions. The present experimental study investigated whether systemic administration of monosodium glutamate (MSG) could elevate tissue levels of glutamate and sensitize muscle nociceptors to mechanical stimuli.

**METHODS:** MSG 50 mg/kg was administered intravenously to rats (n = 5 male, 5 female) and the interstitial concentration of glutamate in the masseter muscle measured with a glutamate selective biosensor. Putative muscle nociceptors were recorded in the rat trigeminal ganglion and identified by their response to mechanical stimulation of the masseter muscle and projection to the caudal brainstem. An electronic von Frey Hair was used to measure nociceptor mechanical threshold after intravenous administration of 50 mg/kg MSG (n = 5 male, 5 female) or saline (control, n = 5 male, 5 female).

**RESULTS:** The mean (±SE) pre-injection interstitial concentration of glutamate in the rat masseter muscle was 24±11 μM, and was unchanged after saline injection, but increased to a peak of 63±19 μM after MSG injection. The average afferent mechanical threshold was decreased by ~25% during the first 5 min after injection of 50 mg/kg MSG but was not changed after saline injection. No sex-related differences in interstitial glutamate concentrations or in MSG-induced mechanical sensitization were detected.

**CONCLUSIONS:** The present results indicate that a 2-3 fold elevation in muscle interstitial glutamate concentration is sufficient to induce mechanical sensitization and suggest that even modest elevations of interstitial glutamate concentration could alter musculoskeletal pain sensitivity.

## P10

### DEVELOPMENT AND PRELIMINARY EVALUATION OF A MEASURE OF THREE PAIN-RELATED PATTERNS OF ACTIVITY

**Douglas Cane, Ph.D., Pain Management Unit, Capital Health, Halifax, NS, Warren R. Nielson, Ph.D., Beryl & Richard Ivey Rheumatology Day Programs, St. Joseph's Health Care, London, ON, , Mary McCarthy, Ph.D., Pain Management Unit, Capital Health, Halifax, NS, Dwight Mazmanian, Ph.D., Dept. of Psychology, Lakehead University, Thunder Bay, Ontario**

**AIM:** Chronic pain affects numerous aspects of an individual's life including activity. Three distinct patterns of activity may develop among individuals with chronic pain. Avoidance/under-doing is characterized by escape/avoidance of activities associated with pain and a consistently low level of activity. Over-doing/under-doing is characterized by persevering with activities until completed and results in alternating periods of high and low activity. Pacing is characterized by a moderate approach incorporating periods of activity and rest. Pacing is assumed to result in a moderate, consistent level of activity.

Despite their assumed significance for chronic pain, existing measures do not adequately assess these patterns of activity. The present study describes the development of a questionnaire assessing these three pain-related patterns of activity.

**METHOD:** Descriptions of these three patterns of activity were developed and 51 items representing these patterns were written. An initial version of the questionnaire was administered to a large sample of adults experiencing mixed chronic pain conditions. Items demonstrating acceptable response distributions, significance correlations with their own scale, and low correlations with other scales were retained.

**RESULTS:** Analyses indicated that the three scales demonstrated excellent internal consistency and good test-retest reliability. The three scales were independent of social desirability and generally independent of each other. The scales correlated as expected with existing measures of related constructs.

**CONCLUSIONS:** The resulting questionnaire demonstrates good psychometric properties and evidence of construct validity. Further development of this questionnaire and potential applications, such as assessing the prevalence and psychosocial consequences of these patterns of activity, will be discussed.

## P11

### A SURVEY OF NUTRIENT INTAKES OF PATIENTS WITH CHRONIC NON-CANCEROUS PAIN.

**Stéphanie Chevalier[1], Cyrille Naïm[2], Yoram Shir[2]**

**[1]Nutrition & Food Science Centre, Royal Victoria Hospital, [2]Pain Centre, Montreal General Hospital, McGill University Health Centre, Montreal, Quebec**

**INTRODUCTION:** Diet has been shown to possess analgesic properties in animals and in humans. In a previous pilot study we observed low intakes of dietary nutrients in chronic pain patients.

**HYPOTHESIS:** Patients with chronic non-cancerous pain are at risk of nutrient deficiencies.

**AIMS:** To quantify, for the first time, nutrient intakes of patients with chronic pain and examine possible correlations with pain levels.

**METHODS:** Dietary intake was assessed with three 24-h food recalls within 3-5 days. One recall was face-to-face and two were done by telephone, all using two-dimensional visual aids for estimating portion sizes. Socio-demographic and anthropometric data were also obtained.

**RESULTS:** Ninety-seven patients, 68 women and 29 men with chronic non-cancer pain were recruited. Mean age was 49 ± 15 years (±std dev), pain duration was 8.5 ± 8.6 years and the body mass index (BMI) was 26.2 ± 5.2 kg/m$^2$. From 68 full food records, total energy intake was above that of the Quebec population due to higher fat and carbohydrate intakes, whereas protein intake was similar. Although 59% of patients consumed dietary supplements, high proportions of them had low intakes (below 2/3 of recommended dietary intakes) of essential fatty acids, vitamin D, vitamin E, vitamin K, folates, calcium and magnesium (30%, 55%, 74%, 66%, 37%, 28% and 24% of patients, respectively).

**CONCLUSIONS:** Although macronutrient intakes were more than sufficient, low essential fatty acids and micronutrient intake indicates a poor dietary quality in patients with chronic non-cancer pain. Possible correlation between dietary deficiency and pain levels is currently been assessed.

## P12

### SUFFERING RELIEF: A BASIC HUMAN RIGHT

**Beverley M. Clarke, R.P.T., B.A., M.Sc. Adrian R. Upton, M.B., B.Chir., FRCP(C), FRCP(E), FRCP(G). Claudia M. Castellanos, B.A., Neurology Division, McMaster University, Hamilton, Ontario**

**AIM:** To provide evidence to show that suffering and pain are separate and only sometimes related phenomena in chronic illness.

**METHODS:** 381 subjects (166 arthritis, 113 epilepsy, 79 migraine, 23 spinal cord) were given a validated questionnaire (MASQ) to assess suffering. Mean age ranged from 30 – 74 years old. Items were scored using a 5 point Likert-type scale (5 = most negative response). Of the total sample, severe pain was reported in: arthritis n=166, epilepsy n=38, spinal cord n=18 and migraine n=30 cases.

Data analyses consisted of Pearson correlation coefficients and z-scores.

**RESULTS:** The relationship between Total Suffering and Pain Intensity is weak: arthritis r=0.343 (p=0.000), epilepsy r=0.500 (p=0.000), migraine r=0.210 (p=0.06), spinal cord r=0.576 (p=0.004). The relationship is weak also for the pain specific sub groups: epilepsy (n=38) r=0.363 (p=0.02), spinal cord (n=18) r=0.538 (p=0.02), migraine (n=30) r= –0.03 (p=0.86). Z-scores indicated that some subjects with low suffering scores had high pain scores and others with little pain had severe suffering.

**CONCLUSIONS:** Because suffering and pain are separate and only sometimes related phenomena, suffering relief per se is clinically important.

## P13

### INVOLVEMENT OF NEURONAL NITRIC OXIDE SYNTHASE IN A RAT MODEL OF NEUROPATHIC PAIN

**Dableh, L.J., M.Sc.[1,3] Yashpal, K., Ph.D.[1,3] and Henry, J.L., Ph.D.[2,3]**

**[1]Department of Psychiatry and Behavioural Neurosciences, [2]Michael G. DeGroote Institute for Pain Research and Care, McMaster University, Hamilton, Ontario, [3]Department of Physiology and Pharmacology, University of Western Ontario, London, Ontario, Canada**

Neuropathic pain is a chronic condition that is debilitating for the sufferer, and often resistant to pharmacological intervention. The Mosconi and Kruger model (1996) of sciatic nerve cuff implantation was used, and mechanical hypersensitivity was measured using von Frey filaments. This model was modified by removing the cuff at different time points. Removal of the cuff 24 hours after implantation led to hypersensitivity that reversed within 2 weeks. Removal of the cuff at 4 days led to long-lasting hypersensitivity that was less severe compared to rats with an intact cuff. This suggests that there may be an early, reversible phase and a subsequent irreversible phase of neuropathic pain. Since nitric oxide (NO) may be involved in nociceptive transmission, the role of neuronal nitric oxide synthase (nNOS) was examined in this model. Administration 10, 20 or 30 mg/kg of 7-nitroindazole, a selective nNOS inhibitor, increased withdrawal thresholds in cuff-implanted rats. However, at the 30 mg/kg dose, rats showed somnolence and motor deficits. Western blot analysis of nNOS in the lumbar spinal cord showed an increase at day 1 and day 4 after cuff-implantation, but not at day 4 when the cuff was removed one day after implantation. Future studies will target levels of nNOS at later time points following cuff removal, as this will indicate whether nNOS is involved in the early phase of neuropathic pain. The results to date suggest that nNOS activity may contribute to the persistence of hypersensitivity in this model of neuropathic pain.

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## P14

### PREEMPTIVE EFFECT OF SYSTEMIC INJECTION OF WIN 55,212-2, A SYNTHETIC CANNABINOID, IN A MODEL OF NEUROPATHIC PAIN

**Julie Desroches[1], Josée Guindon[1], Mélina Dani[1], Chantal Lambert[1] & Pierre Beaulieu[1,2]**

**Departments of Pharmacology[1] and Anesthesiology[2], Faculty of Medicine – Université de Montréal, Montreal, Quebec**

**AIM:** The antinociceptive effects of WIN 55,212-2 (WIN), a synthetic cannabinoid $CB_1$ and $CB_2$ agonist, have already been evaluated in different models of neuropathic pain but not when administered before the nerve injury.

**METHODS:** The antinociceptive effects of daily administration of WIN (s.c. 0.1 mg/kg) a week before and two weeks after surgery were evaluated in the model of partial sciatic nerve ligation. Mechanical allodynia and thermal hyperalgesia were evaluated every two days in 46 Wistar rats allocated to: (1) Vehicle (before surgery) – Vehicle (after surgery); (2) Vehicle – WIN – Vehicle; (3) WIN – Vehicle; (4) WIN – WIN – Vehicle; (5) Sham. Additionally, the cannabinoid receptor antagonists AM251 ($CB_1$) and AM630 ($CB_2$) were tested.

**RESULTS:** Systemic administration of WIN significantly decreased mechanical allodynia and thermal hyperalgesia. This effect was significantly greater when WIN was given a week before surgery. Finally, these antinociceptive effects were mediated by $CB_1$ and $CB_2$ receptors.

**CONCLUSION:** WIN decreased mechanical allodynia and thermal hyperalgesia in neuropathic animals. Furthermore, the group receiving preemptive WIN had significantly greater antihyperalgesic and antiallodynic effects compared with the group receiving only the vehicle before the surgery. Preemptive use of cannabinoids produced greater antinociceptive effects in a rat model of neuropathic pain.

## P15

### PAIN MANAGEMENT IN ACUTE PSYCHIATRIC SETTINGS: A COMPLEX RELATIONAL PROCESS

**Dewar, AL, RN PhD Associate Professor School of Nursing, University of British Columbia, Osborne, M. RN PhD, Adjunct Professor, School of Nursing, University of British Columbia, Langdeau, S. MSN (c), Research Assistant, Plumer, M. MSN Research Assistant and Mullett, J. PhD. Faculty of Human and Social Development University of Victoria**

Nurses who provide care for psychiatric patients in acute care settings are often faced with complex decisions when providing pain relief. An exploratory, naturalistic approach was used to examine nurses decision making in this practice context. Data were collected from twenty registered nurse/registered psychiatric nurses from a variety of acute practice settings through in-depth interviews. The findings indicate that a variety of intrapersonal and interpersonal factors play a crucial role in determining if the expression of pain is legitimate, which may create dilemmas for the nurse. The model of decision-making developed in this research articulates and explores the interactions between these factors. Interpersonal factors include the need to keep the environment safe for all patients. In addition, the patient's diagnosis (particularly Axis II), and the views of other colleagues were major influences in the nurse's decision-making. Intrapersonal influences included fears about being manipulated and beliefs about addiction. The importance of understanding the various dilemmas and influences on decisions surrounding pain management have an important message for nurses and nurse managers. Effective pain management in this specialized area of practice is a complex issue and needs an approach that will consider and confront societal attitudes about addiction and its influence on pain relief.

## P16

### MATERNAL RELATIONSHIP STYLE AND MATERNAL SOOTHING BEHAVIOURS DURING AN ACUTE PAINFUL PROCEDURE

**Laila Din[1], Jonathan Danson[1], Kate Kalousek[1], Rebecca Pillai Riddell[1,3], Bonnie Stevens[2,3] & Saul Greenberg [2,3]**

**[1]York University, [2]University of Toronto, [3]The Hospital for Sick Children**

**AIM:** The goal of this study was to explore how maternal soothing behaviours vary according to maternal relationship style during routine infant immunizations.

**METHODS:** Seventy-five mothers (M=33.04 years old, SD=3.89 years) and their infants (M=11.21 months old, SD=4.82 months; range 5 to 20 months) were recruited from a paediatrician's clinic in Toronto during routine infant immunizations. Maternal soothing behaviours were observed and coded during the first two minutes post immunization using the Parent Regulatory Behaviour Categories (PRBC; Jahromi, Putnam & Stifter, 2004) and included a variety of behaviours such as affection, touching, holding, rocking, caretaking, feeding, vocalizations, distraction and pacifying. In addition, soothing behaviours were further categorized as proximal (affection, touching, holding and rocking) vs. distal (vocalizations, distraction, pacifying, feeding and caretaking). Maternal Relationship Style was measured using the Relationship Style Questionnaire (RSQ; Griffin & Bartholomew, 1994) which asks mothers to rate how much they identify with Secure, Fearful, Preoccupied and Dismissive relationship styles.

**RESULTS:** During the first minute post needle stick (time 0) mothers' higher correlation scores on the dismissive subscales were associated with lower amounts of affectionate behaviours and distal behaviours. During the second minute post needle stick (time 1) mothers' scores on the dismissive subscale were correlated with a decrease in affectionate behaviours.

**CONCLUSIONS:** Mothers who strongly identified with the dismissive relationship style tended to use fewer affectionate behaviours and fewer distal soothing behaviours over all. Due to the rarity of individuals who strongly endorse the Preoccupied and Dismissive styles, more research is needed with larger samples.

## P17

### GENERAL PRACTICE: PROMOTING THE OVERALL HEALTH OF WOMEN WITH FIBROMYALGIA

**Natasha A Egeli, BA, Education Program, University of Northern British Columbia, Prince George, BC**

**Deborah Hunt Matheson, MA, & Elliott G. Marchant, PhD, Psychology Department, Malaspina University-College, Nanaimo, BC**

**AIM:** Fibromyalgia Syndrome (FMS) is a chronic pain condition associated with frequent unproductive physician visits. Five factors associated with enhanced health outcomes for patients with FMS include improved diet, moderate exercise, better sleep, decreased stress, and social support. The purpose of this study was to examine whether physicians had consulted with their patients regarding these health variables in the past year and whether or not these consultations were associated with better subjective health scores.

**METHODS:** Data were collected from May to December 2005. One-hundred thirty-two women with FMS completed an online survey questioning if they could recall physicians asking about the five health variables, assisting with a plan, and/or following up on the five aforementioned variables related to health. Participants also rated the quality of their diet, activity level, sleep, stress, and social support. Analyses of variance were conducted to assess the differences between patient groups based on consultations recalled.

**RESULTS:** Analysis revealed significant differences between patients who had been merely asked by their physician about sleep versus those who had been assisted with a plan to improve sleep. Differences were also found between patients who reported being asked about their social support when compared to those who could not recall being asked.

**CONCLUSION:** Findings suggest that physician consultations that inquire about patients' social support and that assist patients in developing a plan to improve sleep can be influential in improving the health of women with FMS.

## P18

## THE PHYSICIAN AS A SOURCE OF SOCIAL SUPPORT FOR WOMEN WITH CHRONIC PAIN

**Natasha A Egeli, BA, Education Department, University of Northern British Columbia, Prince George, British Columbia,**
**Peter D. MacMillan, PhD, Associate Professor, Cross Appointment: Education Program & Community Health Program University of Northern British Columbia**

**AIM:** Previous researchers have found higher ratings of social support predict better sleep quality, better diet, less stress, and greater activity levels. Women with chronic pain most often report seeking social support from their spouses, after which they most frequently discuss their pain difficulties with physicians. The purpose of this research is to assess how greatly physician behaviours, as assessed by the patient, account for women's ratings of social support.
**METHOD:** One hundred thirty two female participants were recruited through fibromyalgia support groups listed on the internet, and were asked to complete an online survey. All participants reported having a physician's diagnosis of fibromyalgia; 26 percent of participants also reported having comorbid rheumatological conditions. Multiple regression analysis was conducted to determine the extent to which reported physician behaviours accounted for the participants' ratings of social support after accounting for their ratings of stress, health concern, education, income, and marital status.
**RESULTS:** Regression analysis revealed women's ratings of physicians' behaviours significantly predicted their social support ratings even after accounting for possible confounding variables. Physicians' behaviours that most significantly contributed to better social support ratings included: providing nonverbal encouragement, maintaining interactive conversation, and giving specific reassuring information.
**CONCLUSION:** The results of this research suggest that physicians' behaviours contribute to the perceived social support of women with fibromyalgia. Physician support is expected to reduce the emotional distress associated with chronic pain, and may further reduce the use of health care resources.

## P19

## ESTABLISHING THE PSYCHOMETRIC PROPERTIES AND PREFERENCES FOR THE NORTHERN PAIN SCALE

**Jacqueline Ellis RN, PhD, University of Ottawa School of Nursing; Abigail Ootoova, Pangnirtung Health Centre; Renee Blouin RN, BScN, Betty Rowley RN, BScN, Children's Hospital of Eastern Ontario; Maurice Taylor, PhD, University of Ottawa Faculty of Education; Christine DeCourtney MPA, Alaska Native Tribal Health Consortium; Margaret Joyce EdD, Nunavut Department of Education; Wilma Greenly, Ottawa Health Services Network Inc.**

**BACKGROUND:** Currently, there are no culturally relevant, evidence-based pain assessment and education resources in Inuktitut. The key to effective pain management is a pain assessment scale that is culturally sensitive, age appropriate, easy for the children to use and easy for health professionals to score. The Northern Pain Scale (NPS) is a revised version of the Wong-Baker FACES scale and is used in Alaska with adults. The scale has not been validated or used in other Inuit communities. This study is phase one of a three phase study to develop pain education materials for use in the circumpolar north.
**OBJECTIVES:** 1) Describe the concurrent validity of the Northern Pain Scale (NPS), the FACES scale and a numerical rating scale (NRS) for use with Inuit children and adults; 2) Describe the test-retest reliability of the three scales with Inuit children and adults; 3) Describe factors that influence the preference of Inuit children and adults for using the NPS, the FACES scale or a NRS.
**METHODS:** In a test-retest design participants were shown a sequence of 17 pain scenarios in two interviews. Pain intensity was rated with the FACES scale, the NRS and the NPS. Participants were then asked which pain scale they preferred and why. Interviews were conducted in Pangnirtung, Nunavut.
**RESULTS:** Seventy-two adults, 72 children aged 8-18 years and 22 children aged 5-7 years were included in the study. Data collection is complete and data analysis is underway to be completed by January.
**CONCLUSIONS:** The second phase of this multi-phase study is to develop pain education materials in Inuktitut and the results of this study will guide us with respect to a culturally appropriate pain scale to feature in the materials.

## P20

## HOW PAINFUL IS IT? PORTUGUESE DOCTORS AND NURSES ATTITUDES ABOUT NEONATAL PAIN AND PAIN MANAGEMENT

**FERNANDES, Ananda, RN, MScN, PhD student[1], MOREIRA, Ana Carolina, RN, BN[2], MACHADO, Eduarda, RN, BN[3] MOREIRA, Vera, RN, BN[3]**
**1 Coimbra College of Nursing, Coimbra, Portugal**
**2 Hospital Infante D.Pedro, Aveiro, Portugal**
**3 Pediatric Hospital of Coimbra, Coimbra, Portugal**

**BACKGROUND:** The environment and the care in Neonatal Care Units can cause distress and pain to preterm and ill neonates. Efforts to reduce the frequency of handling and the pain during procedures depend a great deal on the attitudes of the staff regarding how painful these procedures are and on the knowledge about evidence-based recommendations.
**AIMS:** 1) to obtain doctors and nurses pain ratings of frequent stimuli in Neonatal Care Units; 2) to identify the interventions they recommend to reduce pain and distress; and 3) to determine the agreement of those with international consensus about pain management in neonates.
**METHOD:** 17 doctors and 43 nurses from two Neonatal Care Units in Portugal were asked to rate the intensity of pain caused by common procedures and to indicate pharmacological and non-pharmacological interventions they would consider appropriate to reduce pain and distress.
**RESULTS:** Procedures that involve needles like the insertion of chest tube are considered painful by 100% of the staff). Most procedures are considered to cause at least some degree of distress or pain. Doctors are more consistent than nurses in rating the procedures. Nurses tend to indicate more non-pharmacological interventions than doctors. Most of the interventions are in agreement with international recommendations.
**CONCLUSIONS:** Neonatal staff's awareness of distress caused by procedures is variable. Ratings obtained from this sample are similar to those found in other studies (Porter et al., 1997; Choules et al., 1999). In general, international recommendations for pain management are followed in a reasonable way but knowledge about them can be improved.

## P21

## A SYSTEMATIC REVIEW OF THE EFFECTS OF OPIOIDS ON DRIVING AND WORKING PERFORMANCES

**Andrea Furlan[1,2,3], SFatima Lakha[1], Balaji Yegneswaran[1], Maria Ishakova[1], R. Sabatowski[4], and Angela Mailis-Gagnon[1,2,5]**
**1. Comprehensive Pain Program, Toronto Western Hospital, Toronto, ON, Canada**
**2. University of Toronto Centre for the Study of Pain**
**3. Institute for Work & Health, Toronto, ON, Canada**
**4. Dept. of Anaesthesiology, University of Cologne, Cologne, Germany**
**5. Krembil Neuroscience Center, Toronto Western Hospital**

**AIM:** To assess whether opioids have an effect on driving and working performances in a chronic pain population.
**METHODS:** Various databases were searched for controlled studies of opioids for chronic pain with outcomes related to driving or working performances (e.g. community driving, driving simulator, cognitive or psychomotor tests). We used the GRADE methodology to summarize the quality and strength of the evidence.
**RESULTS:** The searches yielded 1720 titles and abstracts, out of which 31 were included (7 RCTs and 24 non-RCTs). There were 3851 subjects (972 on opioids and 3158 controls, mean age 55.2 years). A variety of opioids was orally administered. One study assessed driving on the road and two on a driving simulator, concluding that stable opioid doses did not impair driving performance. In all 31 studies there were 79 evaluations of cognitive or psychomotor tests: 27 evaluations found impairment and 52 no impairment during opioid administration. Twenty-five studies reported on pain relief, 11 on sedation and 24 on concomitant medications; however,

the relative influence of these factors on driving could not be evaluated. No study on work performance was found.

**CONCLUSIONS:** The quality of the evidence is very low. There are few studies assessing real driving or driving simulator. Most of the evidence comes from surrogate outcome measures (cognitive and psychometric tests). While stable doses of opioids do not affect driving performance in a chronic pain population, the confounding effects of pain control, co-medications and sedation is unknown and should be explored in further studies.

## P22

## CONCORDANCE BETWEEN SPOUSE AND PATIENT PAIN CATASTROPHIZING IS ASSOCIATED WITH REDUCED PAIN

**Nathalie Gauthier, B.Sc., Department of Psychology, Université de Montréal, Montréal, Quebec, Pascal Thibault, B.Sc., Department of Psychology, Université du Québec à Montréal, Montréal, Quebec, Michael J.L. Sullivan, Ph.D., Department of Psychology, McGill University, Montréal, Quebec**

**AIM:** To examine the impact of the concordance between spouse and patient pain catastrophizing on pain severity.

**METHOD:** A total of 29 couples in which one of the partners was suffering from back or neck pain for more than 6 months completed the Pain Catastrophizing Scale (PCS) and other pain related measures. A measure of concordance was derived by computing the difference between spouse and patient scores on the PCS (higher scores on the concordance index reflect greater dissimilarity).

**RESULTS:** The dissimilarity between spouse and patient pain catastrophizing was associated with the Pain Rating Index (r=.43, p= .021) and the Present Pain Intensity (r= .41, p = .025) as measured by the McGill Pain Questionnaire completed by the patient. The results suggest that in couples in which partners had similar levels of pain catastrophizing, the patient reported less pain, than in couples in which partners had less similar levels of pain catastrophizing.

**CONCLUSIONS:** Pain patients may not feel understood in couples with low levels of concordance of pain catastrophizing. In this situation, patients may report more pain in order to communicate more effectively their suffering and their needs. These results provide support for the communicative function of pain catastrophizing proposed by the Communal Coping Model.

## P23

## VALIDATION OF THE ENGLISH VERSION OF THE CRITICAL-CARE PAIN OBSERVATION TOOL (CPOT) IN CRITICALLY ILL ADULTS

**Céline Gélinas,RN, PhD[1], Celeste Johnston, RN, D.Ed.[1], Colleen Stone, RN, B.Sc.[2], Krista Brecht, RN, M.Sc.(A)[2], Suzanne Watt, RN, M.Sc.(A)[2], Catherine Becker, RN, B.Sc.[2], Andréanne Robitaille, RN, M.Sc.(c)[3], Dr. Ash Gursahaney, MD[2], Louise Fullerton, RN, M.Sc.[2]**

**1. School of Nursing, McGill University, Montréal, Québec, Canada**

**2. McGill University Health Center (MUHC), Montréal, Québec, Canada**

**3. Université de Montréal, Montréal, Québec, Canada**

**AIM:** The aim of this study was to validate the English version of the Critical-Care Pain Observation Tool (CPOT), a behavioural tool originally developed in French, in critically ill adults.

**METHODS:** Both conscious (n = 30) and unconscious (n = 25) intubated patients participated in the study. Patients were assessed by research team and ICU nurses (n = 51), previously trained to use the CPOT, during two procedures: 1) nociceptive procedure : turning, 2) non-nociceptive procedure : taking blood pressure. Assessments were completed at rest pre-procedure, during the procedure and 20 minutes post-procedure. Conscious patients were asked to provide their self-report of pain (yes/no and pain intensity from 0 to 10).

**RESULTS:** Interrater reliability was supported with intraclass correlation coefficients (ICC) from 0.80 to 0.93 ($p \leq 0.001$). For criterion validity, a CPOT cutoff score > 3 yielded a specificity of 83.3% and a sensitivity of 66.7%, and patients' self-reports of pain intensity were strongly related to CPOT scores ($r = 0.71$; $p \leq 0.05$). Discriminant validity during the nociceptive procedure and the non-nociceptive procedure was also examined. The turning procedure (mean = 3.02) had higher CPOT scores compared to the blood pressure procedure (mean = 0.55) ($F = 59.35$; $p \leq 0.001$).

**CONCLUSIONS:** The use of valid behavioral pain assessment tools in non-verbal patients is highly recommended in clinical guidelines. As the CPOT is a reliable and a valid tool, it could be implemented in intensive care practice so that pain could be assessed in a systematic way.

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## P24

## COMPARISON OF PAIN RESPONSES IN INFANTS OF VARYING GESTATIONAL AGES

**Sharyn Gibbins [a,b*] Bonnie Stevens [b,c], Patrick McGrath [d], Janet Yamada [b], Joseph Beyene [e], Lynn Breau [f,g,h] Carol Camfield [i], Allen Finley [h], Linda Franck [j], Alexandra Howlett [k], Celeste Johnston [l], Patricia McKeever [m], Karel O'Brien [n], Arne Ohlsson [n],**

**[a] Interdisciplinary Research, Sunnybrook Health Sciences Centre, Toronto, Ont., Canada**

**[b] Research Institute, Hospital for Sick Children, Toronto, Ont., Canada**

**[c] Faculties of Nursing and Medicine, University of Toronto, Toronto, Ont., Canada**

**[d] Psychology, Pediatrics, Psychiatry, Biomedical Engineering, Dalhousie University,**
**IWK Health Centre, Halifax, NS, Canada**

**[e] Department of Public Health Sciences, University of Toronto and Biostatistics Methodology Unit, Research Institute, Toronto, Ont., Canada**

**[f] Pediatric Pain Research Lab, IWK Health Centre, Halifax, NS, Canada**

**[g] Faculties of Nursing and Pediatrics, Dalhousie University, Halifax, NS, Canada**

**[h] Pediatric Pain Management, IWK Health Centre, Halifax, NS, Canada**

**[i] Pediatrics, Dalhousie University and IWK Health Centre, Halifax, NS, Canada**

**[j] UCL Institute of Child Health & Great Ormond St. Hospital for Children, London, UK**

**[k] Department of Pediatrics, Dalhousie University, Halifax, NS, Canada**

**[l] School of Nursing, McGill University, Montreal, Que., Canada**

**[m] Faculty of Nursing, University of Toronto and Research Institute, Bloorview Kids Rehab, Toronto, Ont., Canada**

**[n] Mount Sinai Hospital, Toronto, Ont., Canada**

**BACKGROUND:** There is a plethora of infant pain measures; however, none of them have been validated for extremely low birth weight ([ELBW]) infants. To date, clinicians, researchers and parents use information gleaned from more mature infants to make inferences about pain in ELBW infants. Using physiological or behavioural pain indicators from more mature infants may lead to inaccurate assessments and management.

**OBJECTIVES:** To compare physiological (heart rate, oxygen saturation) and behavioural (9 facial activities, cry) pain indicators of ELBW infants with infants of varying more mature gestational ages.

**METHODS:** The aim of this study was to determine the effects of gestational age (GA) on pain response. GA was categorized into four mutually exclusive age strata: <27 6/7 weeks, 28-31 6/7 weeks, 32-35 6/7 weeks and > 36 weeks. Physiological data during four phases of a routine heel lance were collected by placing disposable ECG electrodes and pulse oximetry probes on the infant's chest. Behavioural data were collected by videotaping facial activities, and cry data were collected by audio recording.

**RESULTS:** Four facial activities (brow bulge, eye squeeze, nasolabial furrow,

vertical mouth stretch) in response to acute pain were present in ELBW infants. Facial activities increased following painful procedures and the magnitude of responses was proportional to GA with the youngest infants (<27 6/7 weeks) showing the least amount of change ($F_{3,145}$ =6.5, p<0.001). Decreased oxygen saturation and increased heart rate were associated with the most invasive lance phase, but the differences were not clinically or statistically significant across any age group. Cry was not a sensitive pain indicator in extremely premature infants, due to the presence of endotracheal tubes in this high-risk population.

**DISCUSSION:** ELBW infants' have similar pain responses to older infants, but the responses are less developed. Other factors such as severity of illness, frequency of painful procedures or medication use should be examined, as they may influence the pain responses in this infant population.

## P25

### ELECTRO NEUROMUSCULAR FACILITATOR: A NEW APPROACH IN THE TREATMENT FOR LOW BACK PAIN.

**Gonçalves F. BSc PT, MSc., Rehabilitation, Moore T. PhD (ABD), Oucharek B. BSc (HK), Borys T. MD**
**MMTR Neuromuscular Research Institute, Guelph, Ontario**

**AIMS:** Our objective was to identify the efficacy of the Moore Muscle Therapy and Rehabilitation/ Electro Neuromuscular Facilitator (MMTR/ENF) protocol for patients suffering from low back pain (LBP).

**METHODS:** Fifteen volunteers participated in this study. Eight females (mean age 47.5±12.4) and seven males (mean age 41.8±13.0), followed the MMTR/ENF protocol for a minimum of four and maximum of ten sessions within two months. Volunteers were excluded from this study if they presented with neurologic deficits in the legs due to a medical condition other than the back, severe obesity (BMI > 34.9), severe spinal stenosis, fibromyalgia and/or pregnancy. All subjects followed the same protocol: electromyotherapy using the ENF followed by a ten-minute trigger point release and a protocol of stretches and strengthening for the low back muscles. The Borg pain scale was used to acquire pain levels.

**RESULTS:** Pain levels were gathered prior (pre) and after (post) the first treatment (Tx1), fourth session (Tx4) and last visit (Txlas). All data was analyzed using One-way ANOVA. Results were statistically significant (p<0.05) when comparing pre and post for Tx1 (p=0.03) and Txlas (p=0.02). A significant difference was also found when comparing Tx1 to Tx4 (p=0.00), Tx4 to Txlas (p=0.00) and Tx1 to Txlas (p=0.00).

**CONCLUSION:** Perceived pain levels were lower after subjects received their first treatment with the ENF and significantly decreased after completion of the treatment plan. This improvement leads us to believe that the MMTR/ENF protocol is an efficient tool in the treatment for LBP.

## P26

### A RANDOMIZED, DOUBLE-BLIND, CROSSOVER COMPARISON OF BUPRENORPHINE TRANSDERMAL SYSTEM (BTDS) AND PLACEBO IN PATIENTS WITH CHRONIC LOW BACK PAIN

**Allan Gordon, M.D.[1], Denis Callaghan, M.D[2]., Donald Spink, M.D.[3], Christian Cloutier, M.D.[4], Peter Dzongowski, M.D.[5], William O'Mahony, M.D.[6], Duncan Sinclair, M.D[7]., Saifee Rashiq, M.D.[8], Norm Buckley, M.D.[9], John Sibley, M.D.[10], Geoffrey Cohen , M.D.[11], James Kim, M.D.[12], Aline Boulanger, M.D.[13], Paula S. Piraino, Ph.D.[14], John Eisenhoffer, M.D.[14], Zoltan Harsanyi, MBA,[14] Andrew C. Darke, Ph.D.[14]**
**1. Wasser Pain Management Centre, Toronto, ON; 2. Hamilton, ON; 3. Brookdale Research, Peterborough, ON; 4. CHUS-Hôpital Fleurimont, Sherbrooke, QC; 5. London East Medical Centre, London, ON; 6. Corunna Medical Services Ltd, Corunna, ON; 7. Aylmer, ON; 8. University of Alberta, Edmonton, AB; 9. Department of Anesthesia, McMaster University , Hamilton, ON; 10. Royal University Hospital, Saskatoon, SK; 11. Winston Churchill Medical Centre, Mississauga, ON; 12. Brampton, ON; 13. CHUM – Hotel Dieu de Montreal, Montreal, QC; 14. Purdue Pharma, Pickering, ON**

**OBJECTIVE:** To compare the efficacy and safety of a 7-day BTDS and placebo in chronic low back pain patients.

**METHODS:** Patients requiring at least 1 tab/day of an opioid preparation underwent a 2-7d washout from all opioids before randomization to 10mg BTDS or placebo and titrated weekly according to efficacy and tolerability to 20mg and 40mg. After 4 weeks, patients crossed over to the alternate treatment for another 4 weeks. Acetaminophen 650mg q4-6h prn was provided for rescue.

**RESULTS:** Of 78 randomized patients, 52 (67%) were included in the per-protocol population. BTDS resulted in significantly lower VAS (45.3±21.3 vs. 53.1±24.3mm, p=0.0219) and 5-point ordinal (1.9±0.7 vs. 2.2±0.8, p=0.0439) pain intensity scores during the last week of treatment than placebo. The overall Pain and Sleep score was significantly better with BTDS than placebo (177.6±125.5 vs. 232.9±131.9, p=0.0268). There were no differences between treatments on the Pain Disability Index, Quebec Back Pain questionnaire or SF-36. 66% of patients (p=0.0009) and 60% of investigators (p=0.0079) preferred BTDS, compared to placebo (patients: 24%; investigators: 28%), while 10% of patients and 12% of investigators had no preference. 65% of patients (p=0.0139) and 63% of investigators (p=0.0139) assessed BTDS as moderately or highly effective. These results were confirmed by ITT analysis. Patients receiving BTDS reported significantly more adverse events (mainly opioid-related: nausea, dizziness, somnolence, vomiting, constipation, sweating) than those receiving placebo (p=0.0005). 77% of patients chose to continue receiving BTDS in a long-term open-label evaluation.

**CONCLUSION:** BTDS is effective for management of chronic low back pain.

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## P27

### INFANT GENDER AND ITS IMPACT ON MATERNAL REGULATORY BEHAVIOURS FOLLOWING IMMUNIZATION

**Jessica Hillgrove[1], Aruvita Aggarwal[1], Glynnis Dubois[1], Rebecca Pillai Riddell[1,3], Bonnie Stevens[2,3] & Saul Greenberg [2,3]**
**[1]York University, [2]University of Toronto, [3]The Hospital for Sick Children**

**AIM:** The purpose of this study was to describe maternal behaviours post-immunization and explore the relationship between infant gender and maternal soothing behaviours.

**METHODS:** Seventy-five mothers (M= 33.04 years old, SD= 3.90 years), and their healthy infants (M=11.21 months old, SD= 4.83 months, 37 males) were recruited from a paediatrician's office during a routine immunization procedure. Using the Parent Regulatory Behaviour Categories ([PRBC], Jahromi, Putnam & Stifter, 2004), nine soothing behaviours (affection, touching, holding, rocking, vocalizing, caretaking, distraction, feeding, and pacifying) were coded. In addition, soothing behaviours were further categorized as proximal (affection, touching, holding and rocking) vs. distal (vocalizations, distraction, pacifying, feeding and caretaking).

**RESULTS:** During the first minute post-needle stick, vocalization, rocking, holding and affection behaviours were most frequently seen. For the later time periods, soothing vocalizations in combination with caregiving were the most commonly utilized strategies.

Four one-way MANOVA's, one for each of the minutes observed, were used to analyze the relationship between infant gender and soothing behaviours. Maternal soothing behaviours did not significantly differ by infant gender for any of the four minutes observed.

**CONCLUSION:** A combination of maternal proximal and distal behaviours are seen directly after immunization, while engaging in soothing talk and caretaking occur in the latter time periods post-immunization. Distraction was not frequently used as a soothing behaviour following the painful procedure. Regardless of infant gender, mothers provided similar frequencies and types of soothing behaviours after immunization. These findings suggest that infant gender does not appear to have an impact on maternal soothing behaviours within the immediate immunization context.

## P28
## CAREGIVER BELIEFS UNDERLYING INFANT PAIN JUDGMENTS: COMPARING PARENTS, NURSES AND PAEDIATRICIANS

**Rachel E. Horton[1], Rebecca R. Pillai Riddell[1,2], Kenneth D. Craig[3], York University[1]; The Hospital for Sick Children[2]; University of British Columbia[3]**

**AIM:** Research suggests that caregivers' beliefs significantly influence paediatric pain assessment and management. Recent work found that parents rated infants as having greater pain intensity than paediatricians, while nurses' ratings did not differ significantly from either group. Using both quantitative and qualitative data, the purpose of the current study was to clarify these findings and evaluate how differences in pain judgments relate to pain beliefs and pain management practices by: 1) analyzing the pain beliefs underlying caregivers' pain judgments and 2) examining how the wording of belief questions may have impacted caregivers' responses.

**METHODS:** The larger analysis was a cross-sectional, quasi-experimental video judgment study requiring caregivers to judge infant pain and complete a questionnaire package containing four questions targeting beliefs concerning infants' pain capacity and suitable pain management practices. The final sample (N = 123) consisted of 41 parents, 41 nurses and 41 paediatricians.

**RESULTS:** Chi-square analyses suggested that a greater number of parents (as opposed to health professionals) endorsed beliefs that would be considered suboptimal for infant pain management. Moreover, only parents' responses regarding beliefs about infants' pain experience differed depending on variants of question wording.

**CONCLUSIONS:** The current study suggests that researchers cannot assume higher pain judgments will result in better pain management as parents may take a more cautious and less well-informed perspective than health professionals. Caution must be taken when interpreting past research pertaining to parental beliefs about infant pain as question wording may confound interpretation of caregivers' pain beliefs.

## P29
## PEDIATRIC HEALTH CARE UTILIZATION AND INFANT HEALTH: THE ROLE OF MATERNAL AND INFANT FACTORS

**Rachel E. Horton, BA[a], Laila Din, BA[a], Rebecca R. Pillai Riddell, MA, PhD C.Psych.[a,b], Bonnie Stevens, RN, PhD[d,e], Saul Greenberg, MD, FRCP(C)[b,c]**

**[a] York University, [b] The Hospital for Sick Children , [c] University of Toronto**

**AIM:** The Sociocommunication Model of Infant Pain asserts that inter- and intra-caregiver characteristics impact the ways in which infants experience and express pain. As infants' expressions of pain and distress likely prompt caregivers to seek pediatric care, the current study aimed to explore several maternal and infant factors in relation to pediatric health care utilization and infant health.

**METHODS:** This cross-sectional study was an addendum to an initial study that acquired video data of infant reactivity to immunization and interview data regarding maternal and infant variables. For the purpose of the current study (N = 65), data pertaining to infant health status, received immunizations and number of pediatric care visits (preventive/acute) was extracted from infants' patient files for the year following the video-recorded immunization.

**RESULTS:** Hierarchical regressions revealed that older infants had fewer total pediatric visits, fewer acute care visits and less timely immunizations. Maternal endorsement of the dismissing relationship style predicted fewer infant illnesses and diagnoses, fewer total pediatric visits and fewer acute care visits while stronger maternal identification with North American culture predicted more acute care visits.

**CONCLUSIONS:** Maternal endorsement of the dismissing relationship style may indicate tendencies to avoid pediatric care or to be less sensitive to infants' symptom cues. The findings surrounding infant age replicate past research while the relationship between identification with North American culture and acute care visits may reflect cultural barriers to pediatric care or cultural differences regarding pediatric health practices or infant health needs. Further research is needed to clarify this relationship.

## P30
## DO FEAR OF PAIN, ANXIETY SENSITIVITY, OR PAIN CATASTROPHIZING PREDICT WHO DEVELOPS CHRONIC PAIN?

**Shane S. Kachur*, BMR(P.T.), R. Nicholas Carleton, M.A., & Gordon J. G. Asmundson, Ph.D. Anxiety and Illness Behavior Laboratory, University of Regina**

Current chronic pain models posit pain appraisal at injury onset as key to the development of chronic pain (Asmundson et al., 2004). Catastrophic appraisals of pain are believed to be the result of precedent fear of pain and anxiety sensitivity (Vlaeyen & Linton, 2000). From a practical view, it would be prudent to identify all cognitive precursors to the development of chronic pain and then, where appropriate, involve multi-disciplinary treatment early on. The purpose of this study was to examine if the presence of fear, anxiety, or pain catastrophizing would predict the need for multi-disciplinary care. Participants were 120 patients (41.4% women, Mage=41.1, *SD*=12.1) who attended a local physiotherapy clinic for the treatment of work-related injuries. All participants completed the Pain Anxiety Symptoms Scale-20 (PASS-20; McCracken & Dhingra, 2002), Anxiety Sensitivity Index (ASI; Peterson & Reiss, 1992), and the Pain Catastrophizing Scale (PCS; Sullivan et al., 1995). Independent *t*-tests compared patients who required multi-disciplinary treatment (MDT) with those who successfully returned to work. The two groups did not differ significantly on the PASS, $t(108)=1.83$, $p>.05$; however, participants requiring MDT did score significantly higher on the ASI $t(118)=2.02$, $p<.05$, and the PCS, $t(119)=2.26$, $p<.05$. Furthermore, MDT patients required more days of pre-MDT, $t(119)=3.29$, $p<.01$, than the non-MDT group. This study supports the catastrophic appraisal of pain as an important component for the development of chronic pain and disability. Accordingly, measuring pain beliefs early on may identify the need for multi-disciplinary treatment, potentiating better resource allocation and faster patient recovery.

## P31
## PAIN AND PAIN MANAGEMENT: A STUDY OF THE INFORMATION NEEDS OF GENERAL DAY SURGERY PATIENTS

**Patti Kastanias RN, MSc(A), ACNP, Sandra Robinson RN, MN/ACNP, Kianda E. Snaith RN, MScN, APRN, PhD(c), Keith Denny MLS, MA, PhD, Kathy Sabo, RN, BAS, MHA**

**AIMS:** Postoperative pain has been identified as a key issue about which patients wish to learn. However, little attention has been devoted to finding out what patients themselves identify as important. This study, grounded in Patient-Centered Care, investigated what informational content patients themselves identified as being most important.

**METHODS:** 150 primarily English speaking, general day surgery patients participated in a telephone survey within 72 hours after discharge from a large, quaternary care hospital in Toronto. Using a 10-point Likert scale, 19 statements were rated to determine which issues were of most importance. The responses were grouped to determine if variables such as sex or pain history effected expressed information needs.

**RESULTS:** The top 3 information items identified were: 1) "What to do if I still have pain or side effects? " ; 2) "Who to call if my pain is not well controlled? " ; and 3) "The plan for which drugs to take and when". The lowest average score for all information items, "If I can get help to pay for pain medicines", was 5.9/10. Women rated 8 of the 19 items as significantly more important than men ($p<0.05$).

**CONCLUSIONS:** This study validates previous findings that information about pain and pain management is important to patients. The findings may also be used to improve current approaches to patient education about acute postoperative pain and in doing so improve the patients' experience of pain and satisfaction with its management. Currently are conducting phase II of this study with a multilingual population.

## P32
## A COMMUNITY-BASED EDUCATION AND EXERCISE PROGRAM (Y-PEP) FOR INDIVIDUALS WITH CHRONIC PAIN

**Meaghan Kinlin (BSc, MScPT candidate)[1], Gina DiRienzo[1] (BSc, MScPT candidate), Dean Tripp[2] (BA, MA, PhD), Ruth Dubin[3] (MD, PhD, FCFP), Cheryl King-VanVlack[1] (BSc, MSc, PhD)**
**School of Rehabilitation Therapy[1], Departments of Psychology, Anesthesiology & Urology[2], Department of Family Medicine[3], Queen's University, Kingston, Ontario**

**AIM:** This pilot study examined the effects of a community-based education and exercise program (Y-PEP) on physical activity, pain perception, pain catastrophizing, level of depression and locus of control in individuals with chronic pain.

**METHODS:** The Y-PEP program ran for 12 weeks program (3 hours/week). The education component was developed using the Chronic Pain Self-Management Program (© S.M. LeFort) and the low-intensity multi-exercise component was developed by a consortium of YMCA personnel and health care professionals. Participants completed the Human Activity Profile (HAP), Patient Health Questionnaire (PHQ), Pain Catastrophizing Scale (PCS), Brief Pain Index (BPI), Health Locus of Control Form C (LOC) and a demographics information sheet prior to and upon completion of the Y-PEP program.

**RESULTS:** Full data sets were obtained for 10 (7 women, 3 men) of the 17 individuals originally enrolled in the program. Maximal activity levels increased 40% and the number of activities that had stopped doing was reduced by 35% ($p<0.05$). Participants reported a 21% reduction ($p<0.05$) in the rating of their "worst" pain and a 17% decrease in the interference that pain imposed on their activities (NS). No significant changes were noted in results from the PCS, BPI, LOC and PHQ.

**CONCLUSION:** The Y-PEP program resulted in significant gains in physical activity among participants and less imposition of pain on their daily activities. Low statistical power in the current investigation may have prevented the detection of any substantive effects of the Y-PEP program on psycho-social parameters.

## P33
## A NOVEL NURSE-LEAD FOLLOW-UP AND EDUCATION PROGRAM FOR PATIENTS TREATED WITH METHADONE FOR CHRONIC PAIN

**Louise Lamb, BSN, RN; John Pereira, MD; Yoram Shir, MD, Pain Centre, Montreal General Hospital, McGill University Health Centre, Montreal, Quebec**

**Introduction:** The analgesic use of methadone in chronic pain patients is still limited due to misconceptions relating to addiction and safety. In the last two years we developed a nurse-led case management program for patients treated with methadone for chronic pain.

**AIMS:** To examine whether a nurse-led case management program can improve patient care in an ambulatory setting.

**METHODS:** The case management program consists of having an education session for every patient receiving methadone for the first time. This program includes a verbal and written education session on methadone therapy and establishes guidelines for patient-initiated follow-up telephone calls. An audit was done over a 9 month period which included filling a follow-up questionnaire after doing a full evaluation of a patient's condition. During calls, nurses managed side effects, changed dose intervals and reduced methadone doses as needed. Nurses consulted physicians prior to increasing methadone, adding adjuvants or discontinuing treatment.

**RESULTS:** Seventy-four patients, using methadone in doses ranging from 1-228mg daily, were followed. Forty-four percent of the phone calls resulted in a methadone dose increase and 13% led to a dose decrease or methadone cessation. Patients reported mainly nausea (40%), drowsiness (40%) and dizziness (28%), efficiently managed by the nurse. None of the patients developed serious morbidity or mortality. Fifty-seven percent were either satisfied or very satisfied with their methadone treatment.

**CONCLUSION:** A nurse-led case management program of chronic pain patients treated with methadone can improve patient care in an ambulatory setting.

## P34
## TOWARD A DESYNCHRONIZATION MODEL OF PAIN IN FIBROMYALGIA

**Dorothée Ialongo Lambin, B.Sc, Department of Psychology, Université de Montréal, Montréal, Quebec, Pascal Thibault, B.Sc, Department of Psychology, Université du Québec à Montréal, Montréal, Quebec, Michael JL Sullivan, Ph.D., Department of Psychology, McGill University, Montréal, Quebec**

**AIM:** This study examine the synchronization of the different dimensions of the pain experience of patients suffering from fibromyalgia.

**METHODS:** *Twenty-six* patients with a musculoskeletal condition (M=41, SD=12) and twenty-six patients (M=49, SD=10) with fibromyalgia were asked to complete the McGill Pain Questionnaire (MPQ; Melzack, 1975), the Pain Disability Index (PDI; Pollard, 1984), the Tampa Scale of Kinesophobia (TSK; Kori et al., 1990), the Pain Catastrophizing Scale (PCS; Sullivan et al., 1995) and the Beck Depression Inventory (BDI-II, Beck, 1996) and to participate in a protocol designed to elicit pain behaviours.

**RESULTS:** Scores of psychosocial measures, pain intensity and pain behaviours were computed to derive an index of synchronization of the pain experience. Patients with musculoskeletal condition and patients with fibromyalgia were compared with regard to the synchronization of their pain experience. Results revealed that the different components of the pain experience are significantly less synchronized in patients with fibromyalgia in comparison to patients with a musculoskeletal condition.

**CONCLUSION:** Theoretical implications of the findings are discussed in the light of studies investigating the differences between patients with fibromyalgia and patients with a musculoskeletal condition. The clinical implications of a desynchronized pain system in patients with fibromyalgia are also addressed.

## P35
## STEREOTYPING IN CHRONIC PAIN: PERCEPTIONS OF WOMEN WITH RHEUMATOID ARTHRITIS AND FIBROMYALGIA

**Susan Lavoie, B.A. & Diane LaChapelle, Ph.D., University of New Brunswick**

**AIM:** This study investigated the impact of stereotypes related to physical attractiveness, diagnostic ambiguity, and visibility of disability on perceptions of women with Rheumatoid Arthritis (RA) and Fibromyalgia (FM). Inclusion of these three independent variables within a single study enabled us to evaluate their relative contributions as well as their interactive contribution to perceptions.

**METHOD:** Seventy-five undergraduate female judges viewed photographs of 12 women (selected on the basis of attractiveness ratings) paired with either a diagnosis of RA or FM (diagnostic ambiguity). Half of the photographed women in each diagnostic/attractiveness group were also paired with a cane (visibility of disability). The judges rated each woman on seven pain- and seven personality-related variables. Two 3 (attractive vs. neutral vs. unattractive) × 2 (RA vs. FM) × 2 (cane vs. no cane) MANOVAs were conducted to examine the pain and personality ratings.

**RESULTS:** Examination of the main effects revealed that *attractive* women and women *without* a visible disability were perceived as having *less* pain and disability. Furthermore, *attractive* women and women *with* a visible disability were perceived *more* positively on personality factors. Examining the interaction effects, however, revealed that having the more ambiguous diagnosis of FM negatively impacted pain and personality ratings.

**CONCLUSION:** The implications of these findings including the potential impact of these stereotypes on the decision making process of health professionals will be discussed.

## P36
## AN INTERDISCIPLINARY GERIATRIC PAIN CLINIC

David Lussier, MD[1]; Guylaine Bachand, RN[1]; Denise Haché, Pht[2]; Marie-Josée Rivard, PhD[3]; Gary Inglis, MD[1]
[1]Division of Geriatric Medicine, [2]Department of Physiotherapy, [3]Pain Center, McGill University Health Center, Montreal, Quebec

**INTRODUCTION:** Pain is a frequent, debilitating and under-treated problem in older persons. Even though older patients can benefit from interdisciplinary pain clinics, their multiple comorbidities and frailty often make them more difficult to treat. The interdisciplinary Geriatric Pain Clinic of the McGill University Health Center, developed in 2004, is among the first clinics WITH AN INTERDISCIPLINARY TEAM COMBINING EXPERTISE IN PAIN AND GERIATRIC MEDICINE.

**AIM:** Describe the population and interventions of the Geriatric Pain Clinic, to determine whether it serves a different role than general pain and geriatric clinics

**METHODS:** Retrospective review of the initial evaluation of the first 88 patients assessed at the Geriatric Pain Clinic

**RESULTS:** The average age of the patients was 80 years old. 14 patients had an MMSE Score lower than 24, suggestive of cognitive impairment. Most presented impairments in activities of daily living (average Barthel Score 88). The average number of medications taken was 11,3. In addition to management of pain, 9 patients were diagnosed and treated for dementia, 3 for depression and 9 for other diseases. Referral to CLSC for assistance at home was done for 10 patients.

**CONCLUSION:** Patients referred to the Geriatric Pain Clinic represent a very old population with a high prevalence of cognitive and functional impairment. They often require a specialized expertise in assessment and management of other diseases and disabilities. An interdisciplinary Geriatric Pain Clinic seems to address specific needs of this population.

## P37
## THE INJURY-STROOP-IMAGE TEST: A MEASURE OF ATTENTIONAL DISENGAGEMENT DEFICITS ASSOCIATED WITH PAIN

Marc Olivier Martel[1] & Michael J.L. Sullivan[1], [1]Department of Psychology, McGill University, Montreal, Quebec

**AIM:** It seems that hypervigilance to pain may be particularly explained by an impaired attentional disengagement from pain signals. Given the potential utility of measures of disengagement in the assessment of patients with persistent pain conditions, we wanted to develop a new instrument providing a robust index of attentional disengagement deficits associated with pain.

**METHOD:** 30 pain-free volunteers (8 men and 22 women) completed the Pain Catastrophizing Scale (Sullivan et al., 1995), the Anxiety Sensitivity Index (Reiss et al., 1985) and performed a computerized modification of the Stroop Task. In our new task, a pain-related (or control) image was presented in the centre of the monitor for 500 ms, followed by the presentation of a word (e.g. *green* written in yellow) at the top or the bottom of the computer screen. Participants were instructed to read out loud the ink color of the word as fast and as accurately as possible.

**RESULTS:** Preliminary analysis revealed that in overall, participants were significantly slower in naming the colour of words following pain-related pictures than control pictures, indicating a general attentional disengagement deficit from pain. However, disengagement deficits were not associated with pain-related psychological variables. Pain catastrophizing, but not anxiety sensitivity, was significantly associated with participants' evaluation of pain-related pictures level of unpleasantness.

**CONCLUSION:** These results suggest that disengagement deficits might be a distinct dimension of psychological factors associated with pain outcomes. Pain catastrophizing might be more related to the affective (unpleasantness) rather than to the cognitive (attentional) component of the pain experience.

## P38
## ROLE OF INFLAMMATION AND INJURED VS. UNINJURED SENSORY FIELDS IN α,β-METHYLENEATP/NORADRENALINE (NA) INTERACTIONS ON NOCICEPTIVE SIGNALING

Jason Meisner BSc.[1], Allison Reid BSc.[1], Daniel Marsh PhD.[2] and Jana Sawynok PhD.[1], [1]Dept. of Pharmacology, [2]Dept. of Anatomy and Neurobiology, Dalhousie University, Halifax, NS

**INTRODUCTION:** The partial sciatic nerve ligation (PSL) model of nerve injury has become a common experimental tool to investigate neuropathic pain. In examining the effects of ATP and NA (which are co-released from sympathetic nerves) on sensory function following PSL, injury was found, paradoxically, to decrease sensitivity to α,β-MethyleneATP (α,β-MeATP) alone and α,β-MeATP/NA combination. This observation prompted the current investigation wherein: (a) the inflammatory component of PSL was investigated using the L5 neuritis model, and (b) the role of injured vs uninjured fibres was examined using the spared nerve injury (SNI) model to inject drugs into injured or uninjured sensory fields. When distinct changes were observed between sensory fields, dorsal root ganglia in SNI rats were assessed for differences in $P2X_3$ and $\alpha_1$-adrenergic receptors using ATF-3 to distinguish injured from uninjured neurons.

**RESULTS:** Effects of injury on flinching responses to drug treatment are shown below.

| Model (injection site) | NA | a,b-MeATP | a,b-MeATP/NA |
|---|---|---|---|
| PSL (*central*) | ↔ | ↓ | ↓ |
| L5 Neuritis (*central*) | ↔ | ↑ | ↔ |
| SNI (*medial*) | ↔ | ↓ | ↓ |
| SNI (*lateral*) | ↑ | ↑ | ↑ |

*(↔= no difference vs sham, ↑= increased flinching vs sham, ↓= decreased flinching vs sham)*

**CONCLUSIONS:** The L5 neuritis data indicates inflammation is not the primary cause of decreased sensitivity to α,β-MeATP/NA following PSL. The increased sensitivity to α,β-MeATP in the lateral hindpaw after SNI indicates responses in uninjured sensory field differs from those in injured. These differences suggest that in some cases the more clinically relevant phenomenon of increased pain sensitivity following nerve injury may be obscured in models of neuropathic pain wherein the sensory field is composed of injured and uninjured fibres. (Supported by CIHR)

## P39
## DEFICIENT PAIN SENSITIZATION IN SCHIZOPHRENIA DURING A TEMPORAL SUMMATION TEST

Stéphane Potvin (PhD) [1,2], Emmanuel Stip (MD, MSc) [1,3], Adrien Tempier (BA) [1], Tania Pampoulova (MD) [1], Lahcen Aït Bentaleb (MD, PhD) [3], Pierre Lalonde (MD) [3], Olivier Lipp (MD)[3], Philippe Goffaux [2], Serge Marchand (PhD) [2, 1] Centre de recherche Fernand-Seguin, University of Montreal; Montreal, Canada; [2] Department of neurosurgery, Faculty of medicine, University of Sherbrooke; Sherbrooke, Canada; [3] Hôpital Louis-H Lafontaine, Department of psychiatry, Faculty of medicine, University of Montreal; Montreal

**BACKGROUND:** Pain is a dynamic phenomenon resulting from the activity of both excitatory (e.g. sensitization) and inhibitory (diffuse noxious inhibitory control or DNIC) endogenous modulation systems. Preliminary experimental studies have shown diminished pain sensitivity in schizophrenia patients. The objective of the study was to investigate the role of excitatory and inhibitory systems on pain perception in schizophrenia.

**METHODS:** Participants were 23 patients with a schizophrenia-spectrum disorder (DSM-IV criteria) and 29 healthy volunteers, who did not differ in age, sex or ethnicity. Excitatory and inhibitory systems were elicited using a temporal summation test (Peltier thermode) administered before and after activation of the DNIC by means of a cold-pressor test.

**RESULTS:** Positive correlations were found between COVA scores and time in patients and controls ($p < 0.01$). That is, pain ratings increased in time in both groups. However, when correlation coefficients (between time and pain ratings) for patients and controls were compared [statistical

procedure from Meng et al. (1991)], the correlation coefficient emerged as significantly stronger in the control group (Z=34.96; p=0.0001), suggesting that pain sensitization is less pronounced in schizophrenia. DNIC was similar in magnitude in both patients and controls.

**CONCLUSIONS:** The fact that pain sensitization was less pronounced in schizophrenia during a temporal summation test is consistent with previous reports of hypoalgesic responses in these patients. As such, this result implies that diminished pain sensitivity in schizophrenia may be related to abnormal excitatory mechanisms. Further studies are required to replicate our findings and rule out the potential role of antipsychotics.

## P40

## ANALGESIC PROPERTIES OF NABILONE: ELECTROPHYSIOLOGICAL EVIDENCE OF DECREASED CENTRAL SENSITIZATION.

**William John Redmond (M.Sc.)[1], Philippe Goffaux Ph.D.[1](c), Serge Marchand, Ph.D.[1]**

**1. Université de Sherbrooke (Faculté de Médecine)**

**AIM:** We investigated how the administration of different dosages of nabilone (Cesamet®), a synthetic analog of $\Delta^9$-tetrahydrocannabinol, may affect the experience of pain. By measuring subjective pain ratings, spinal withdrawal reflexes (WR) and somatosensory evoked potentials (SEP), it was possible to investigate how nabilone affects spinal sensitization caused by repeated electrical stimulations of the sural nerve.

**METHODS:** 20 healthy volunteers participated in this project and were seen three times, corresponding to the double-blinded administration of placebo, 0.5mg and 1mg doses of nabilone. At the beginning of each experimental session, painful electrical stimulations of the sural nerve were given every 7 seconds for a period of 10 minutes (time 1). The administration of the drug followed and, immediately after a 2 hour waiting period, stimulations of the sural nerve were performed again (time 2). Repeating the stimulation procedure after 2 hours of rest normally produces spinal sensitization. Differences between pre and post - administration were then analysed.

**RESULTS:** Analyses showed that the effect of nabilone significantly decreased the subjective hyperalgesia that occurs at time 2 (0.5 mg and 1mg for unpleasantness, 0.5mg for intensity; $p<0.05$).Difference in SEP P220 amplitude for the 1 mg dose parallel those observed for subjective pain ratings. Although a dose - response trend showing a decrease on the sensitization of the WR is observed, high response variability make it difficult to see a link between WR activity and nabilone induced analgesia.

**CONCLUSION:** Nevertheless, nabilone (1mg) successfully attenuated SEP activity and perceived pain.

## P41

## MULTI-MODAL REHABILITATION FOR FAST-TRACKING AFTER LAPAROSCOPIC COLON SURGERY: A COMMUNITY HOSPITAL'S EXPERIENCE

**Mona Sawhney, RN, MN, ACNP[1]; David E. Smith, MD, MSc, FRCS(C) [1], [1]North York General Hospital, Toronto, Ontario**

**AIM:** The aim of this study was to evaluate the feasibility and outcomes following the implementation a multi-modal rehabilitation fast tracking protocol with patients undergoing laparoscopic colon resection for the surgical management of colon cancer in a community hospital.

**METHODS:** Since February 2006, patients undergoing elective laparoscopic colon resection were started on a multimodal rehabilitation protocol including: pre-emptive analgesia, post-operative care with no naso-gastric tube, early ambulation, early feeding and balanced analgesia. Pre-emptive analgesia was provided using acetaminophen and gabapentin two hours pre-operatively. Post-operative multimodal analgesia was provided using acetaminophen, NSAID's, gabapentin and prn opioids. Post-operative pain, ambulation, diet, adverse effects and length of stay were evaluated.

**RESULTS:** To date, 11 patients with a mean age of 69 have participated in the multi-modal rehabilitation program. All patients were assisted out of bed and started a clear fluids diet on the day of surgery; no patients required a naso-gastric tube post-operatively. Average pain score at rest was 3/10 and on movement was 4/10 with a mean length of stay in hospital of 4.5 days (median 3 days). One patient experienced post-operative complication unrelated to the prescribed rehabilitation protocol (DVT) and 1 patient who went home on post-operative day 4 and was re-admitted with an abdominal hematoma on post-operative day 9.

**CONCLUSIONS:** Implementation of a multimodal rehabilitation protocol for fast tracking patients after colon resection is possible in a community hospital setting. Preliminary results have shown a decreased length of stay and improved post-operative pain management for patients undergoing laparoscopic colon resection.

## P42

## A RANDOMIZED DOUBLE-BLIND PLACEBO CONTROLLED TRIAL ASSESSING THE EFFECT OF THE ORAL CANNABINOID NABILONE ON PAIN AND QUALITY OF LIFE IN PATIENTS WITH FIBROMYALGIA

**Ryan Quinlan Skrabek, MD[1] and Lena Galimova, MD, FRCPC[1], [1]Section of Physical Medicine and Rehabilitation, University of Manitoba, Health Sciences Centre, Winnipeg**

**AIM:** The purpose of this study was to determine the benefit of nabilone in pain management and quality of life improvement in patients with fibromyalgia.

**METHODS:** A randomized, double-blind, placebo-controlled trial was conducted with 40 fibromyalgia patients. After a baseline assessment, the treatment group was titrated up on nabilone, from 0.5 mg PO at bedtime to 1 mg BID over 4 weeks. At the 2 and 4 week visits, the primary outcome measure, visual analogue scale (VAS) for pain, and the secondary outcome measures; number of tender points, the average tender point pain threshold, and the Fibromyalgia Impact Questionnaire (FIQ) were evaluated. Patients in the control group received a placebo. Following a 4 week washout period, patients returned for a reassessment of the outcome measures.

**RESULTS:** There were no significant differences in population demographics between the two groups at baseline. There was a significant decrease in the VAS (–2.04, $p<0.02$), improvement in function on the FIQ (–12.07, $p<0.02$), and decrease in anxiety (–1.67, $p<0.02$), in the nabilone treated group at 4 weeks. There was no significant improvement in the outcome measures in the placebo group. The nabilone treated group experienced more side effects per person at 2 and 4 weeks of treatment (1.58, $p<0.02$ and 1.54, $p<0.05$) respectively.

**CONCLUSION:** Nabilone appears to be a beneficial, well tolerated, treatment option in patients with fibromyalgia, with significant benefits in pain relief and functional improvement.

## P43

## ADAPTATION AND VALIDATION OF THE PAIN CATASTROPHIZING SCALE FOR FRANCOPHONE ADOLESCENTS : CLINICAL AND SCIENTIFIC IMPACTS

**Tremblay, I.[1], Beaulieu, Y.[2], Bernier, A.[1], Crombez, G.[3], Laliberté, S.[4], & Thibault, P.[6], Velly, A.M.[5] & Sullivan, M.J.L.[6], [1] University of Montreal, [2] Montreal Children's Hospital, [3] Ghent University, [4] Centre de Réadaptation Lucie-Bruneau, [5] Jewish General Hospital, [6] McGill University**

In the present study, the French version of the "Pain Catastrophizing Scale" was adapted for Francophone adolescents and psychometric properties of the Pain Catastrophizing Scale for Adolescents (PCS-Ado) were assessed. In this context, the French version of the "Pain Catastrophizing Scale" (French et al., 2005) has been modified by a group of experts. The format of the questions has been modified to be appropriate for francophone adolescents aged between 12-18 years. To assess the validity of the PCS-Ado, 139 males and 206 females with a mean age of 14.31 years (SD= 1.39) were recruited in a French high school. Participants were asked to complete the PCS-Ado, the French version of the A-Trait scale of the State-Trait Anxiety Inventory (STAI) (Spielberger et al., 1973), the Children's Depression Inventory (CDI) (Kovacs, 1992) and an index of abdominal pain (Walker & Greener, 1989). Results have shown that the factorial structure of the PCS-Ado is similar to the original PCS (Sullivan

et al., 1995) as well as to the French version for adults (French et al., 2005). In addition, PCS-Ado has a good construct validity as well as a good internal consistency and test-retest reliability. The clinical and scientific impacts of these results will be discussed.

## P44

### THE MULTIDIMENSIONAL EXPECTANCIES QUESTIONNAIRE: A NEW TOOL FOR ASSESSING PATIENT'S EXPECTANCIES FOR RECOVERY FOLLOWING MUSCULOSKELETAL INJURY

**Pascal Thibault B.Sc, Department of Psychology, Université du Québec à Montréal, Marc-Olivier Martel B.Sc, Department of Psychology, McGill University, Michael J.L. Sullivan Ph.D, Department of Psychology, McGill University, Montréal, Québec**

**OBJECTIVES:** Although the role of expectancies has been discussed as an important determinant of pain-related outcomes, little research attention has been paid to the development of reliable and valid measures of recovery expectancies. To date, most research in this area has relied on single-item measures of unknown reliability and validity.

**METHODS:** 75 pain patients (27 men and 48 women) with a mean age of 40 years were asked to complete the Multidimensional Expectancies Questionnaire (MEQ; Thibault et al), the McGill Pain Questionnaire (MPQ, Melzack., 1975), the Pain Catastrophizing Scale (PCS, Sullivan et al., 1995), the Tampa Scale of Kinesophobia (TSK, Kori et al., 1990) and the Beck Depression Inventory (BDI-II, Beck., 1996). The MEQ is a 15-item self-report questionnaire where respondents are asked to report the probability of different outcomes associated with their pain condition. The MEI addresses expectancies for 6 domains of pain outcomes addressing the probability that 1) pain will increase, 2) pain will worsen, 3) social and recreational activities will be resumed, 4) work activities will be resumed, 5) medication will be reduced, and 6) sleep will improve.

**RESULTS:** The MEQ showed good psychometric qualities in term of reliability (Cronbach's alpha = .91) and validity. Initial analyses reveal that scores on the MEI are significantly correlated with other psychological correlates of pain including pain intensity ($r = -.53$), pain catastrophizing ($r = -.64$), depression ($r = -.64$) and fear of pain ($r = -.64$).

**CONCLUSION:** A reliable and valid measures of expectancies for pain-related outcomes will promote both theoretical and clinical advance in this area.

## P45

### PAIN ASSESSMENT AND FLOWSHEET SPECIFIC TO A COMPLEX REHABILITATION AND CONTINUING CARE CENTRE: EVALUATION OF RELIABILITY AND VALIDITY, OUTCOME MEASUREMENT POST BEST PRACTICE IMPLEMENTATION.

**Susan Oates, RN MScN, Advanced Practice Nurse, Professional Practice, Dr. P Derkach, Chief of Staff, Tim Pauley, PhD (candidate), Clinical Evaluation & Clinical Evaluation & Research Unit, Abel Cheng, BA, Practice Analyst, Institute affiliation: West Park Healthcare Centre, Toronto, Ontario**

Guided by the 2005, Canadian Council of Health Services Accreditation (CCHSA) standards and the 'best practice' evidence provided by the Registered Nurses Association of Ontario (RNAO), Best Practice Guideline (BPG), Assessment and Management of Pain (2004), this rehabilitation and complex continuing care centre began to examine improvements in pain assessment and management.

Pain assessment is the first step in pain management and is a critical component of high quality patient care. A literature search supported the health care professionals' observations that pain effects rehabilitation and complicates recovery.

The Centre identified the need for a quantitative assessment tool that would quickly and reliably measure the plethora of pain the patients presented with, nociceptive, neuropathic, phantom limb pain, and chronic pain syndromes, reflex sympathetic dystrophy (complex regional pain syndrome, type 1) and causalgia (complex regional pain syndrome, type 2). The tool needed to capture the patient's self-report, behaviour and physiological reactions.

The Pain Assessment and Flowsheet developed provides staff with a screening tool, based on systematic, validated pain assessment tools, the Short-Form Brief Pain Inventory (BPI-SF) and the short-form McGill Pain Questionnaire (MPQ-SF). The tool uses the Numeric Rating Scale (NRS) and the Faces Scale which allows for screening all persons at risk for pain.

The aim of this poster is to present the development of a Pain Assessment and Flowsheet, which is specific to the needs of a rehabilitation and complex continuing care patient population. The outcome of the research project, which tested for validity and reliability, will be presented as well as the outcome of the implementation of the RNAO, BPG, Assessment and Management of Pain (2004).

The Cronbach alpha was used to determine internal consistency for the tool, while an intraclass correlation coefficient (ICC) was calculated to examine test-retest reliability for total score. Kendall's tau-b statistic was used to assess test-retest agreement retest reliability for total score. Kendall's tau-b statistic was used to assess test-retest agreement for individual items.

Outcome evaluation, based on admission and discharge statistics from National Rehabilitation Reporting System (NPS) has indicated major success for staff and patients. Stats indicate a 31% reduction in the prevalence of severe pain intensity at discharge for patients in Rehabilitation after the implementation of the RNAO, BPG, Assessment and Management of Pain (2004), using the Centre's Pain Assessment and Flowsheet.

When pain is managed effectively post surgery or injury it prevents complications, longer rehabilitation stays, greater disability, and potentially long-term pain. Staff clearly articulated that the challenges of increased patient acuity, combined with increasingly complex patients, reflects in increased workloads and the tool needed to be administered in a short period of time or it would not be functionally useful.

With staff input, based on clinical experience and supported by the literature, the development of a standardized assessment tool specific to the rehabilitation and complex continuing care patient population was developed. The Pain Assessment and Flowsheet developed quantifies the patient's pain experience; assesses intensity, location, duration, sensory qualities, and cognitive and affective aspects, as well as situations which may influence measuring patient's pain experience. Patient safety is supported by documentation of side-effects.

Also presented will be 'pocket cards', which are available in all units and therapy rooms, translated into ten different languages to support pain assessment and management in our rich multicultural patient population.

# POSTERS PRESENTED SATURDAY MAY 26, 2007

## P50

### INTRA-INDIVIDUAL STRENGTHS AND WEAKNESSES IN COGNITIVE FUNCTIONING AMONG CHILDREN AND ADOLESCENTS WITH CHRONIC PAIN

**Greenly Hoe-Yan Ho, MA, Department of Psychology, Simon Fraser University, Burnaby, British Columbia, Susan M. Bennett, PhD, R.Psych., Integrated Pain Service, BC Children's Hospital, Vancouver, British Columbia; Department of Psychology, The University of British Columbia, Vancouver, British Columbia, David Cox, PhD, R.Psych., Department of Psychology, Simon Fraser University, Burnaby, British Columbia, Gary Poole, PhD, Department of Health Care and Epidemiology, The University of British Columbia, Vancouver, British Columbia**

**AIM:** In adults, chronic pain has been associated with cognitive deficits in attention, memory, executive function, and processing speed. Little is known about cognitive factors associated with chronic pain in pediatric samples. This study examined intra-individual strengths and weaknesses in cognitive functioning in a clinical sample of children and adolescents seen at a tertiary-care interdisciplinary pain program.

**METHODS:** The results of cognitive testing (using the Wechsler scales) of 57 pediatric chronic pain patients, aged 6 to 18 years (mean age=14.64; 81% female), assessed between 1998 and 2004 were reviewed. Individual score profiles were analyzed to determine whether significant discrepancies existed among the index and subtest scores.

**RESULTS:** Of the 40 to 50% of participants with significant discrepancies among their index scores, 63 to 88% had higher Verbal Comprehension Index scores while 86 to 88% had lower Working Memory Index scores compared to other index scores. On the subtest level, some participants displayed relative strengths on verbal subtests such as Similarities (14%) or Vocabulary (12%), as well as nonverbal subtests such as Picture Completion (12%). Subtests sensitive to attention, working memory, and psychomotor speed such as Digit Span (32%) and Coding (18%) were the most common areas of relative weakness.
**CONCLUSIONS:** No single cognitive profile describes this sample of children and adolescents with chronic pain. Approximately half showed significant variability within their cognitive profiles. The most common strengths were in verbal expression. The areas of relative cognitive weakness, when present, are similar to those documented in the adult chronic pain literature.

## P51
## EXPLORING OVER- AND UNDER-ACHIEVEMENT IN CHILDREN AND ADOLESCENTS WITH CHRONIC PAIN

**Greenly Hoe-Yan Ho, MA, Department of Psychology, Simon Fraser University, Burnaby, British Columbia, Susan M. Bennett, PhD, R.Psych., Integrated Pain Service, BC Children's Hospital, Vancouver, British Columbia; Department of Psychology, The University of British Columbia, Vancouver, British Columbia, David Cox, PhD, R.Psych., Department of Psychology, Simon Fraser University, Burnaby, British Columbia, Gary Poole, PhD, Department of Health Care and Epidemiology, The University of British Columbia, Vancouver, British Columbia**

**AIM:** There is unsubstantiated speculation in the literature that children with chronic pain are either perfectionistic overachievers, or underachievers with undiagnosed learning disabilities. This study explored the validity of these speculations, using standardized testing and an operational definition of over- and under-achievement, in a sample of pediatric chronic pain patients seen at a tertiary-care interdisciplinary pain service.
**METHODS:** Psychology charts were reviewed for 57 children and adolescents with chronic pain, 6 to 18 years (mean age = 14.64; 81% female), who completed psycho-educational assessments between 1998 and 2004. A regression model was used to determine ability-achievement discrepancy by comparing the participants' actual achievement with predicted achievement, based on their intellectual scores.
**RESULTS:** The majority of participants' achievement scores were commensurate with their intellectual ability. An underachievement pattern emerged in 2-15% of participants on reading measures, and 2-10% on writing measures. These rates are comparable to the population prevalence of Reading and Written Expression Disorders. Eight to ten percent of participants achieved below expectation in mathematics, slightly higher than the population prevalence of Mathematics Disorders. Those participants who exhibited a pattern of overachievement showed it in reading (4-10%) and writing (2-10%).
**CONCLUSIONS:** No single profile of over- or under-achievement emerged in this pediatric chronic pain sample. Thus, clinical stereotyping is not supported. The need for an intra-individual perspective in evaluating cognitive and achievement factors is highlighted. Future research should include school grades and expectations for achievement to broaden the definition of over- or under-achievement.

## P52
## CHRONIC PAIN AFTER SPINAL CORD INJURY (SCI): CLINICIAN'S KNOWLEDGE AND ATTITUDES

**J.P. Hunter, PhD[1,2,6], S. Hitzig, MA, PhD(c)[1,4], K. Boschen PhD[1,3,6], J. Katz PhD[4,5]**
**1. Toronto Rehab, Lyndhurst Centre**
**2. Department of Physical Therapy, University of Toronto**
**3. Department of Occupational Science and Occupational Therapy, University of Toronto**
**4. Department of Psychology, York University**
**5. Dept. Anesthesia, Toronto General Hospital and University of Toronto**
**6. Graduate Department of Rehabilitation Science, University of Toronto**

**AIM:** Our previous work showed that individuals obtain information about chronic pain and its management from clinicians at the rehabilitation centre. The purpose of this study was to determine the pain knowledge and attitudes of clinicians who currently work at Toronto Rehab.
**METHODS:** 23 rehabilitation staff members currently working at Toronto Rehab completed a Rehabilitation Professionals' Pain Knowledge and Attitudes Survey (Rochman & Herbert, 1999). The scale was adapted into two versions for SCI rehab professionals: Version 1 (V1) – for MDs, pharmacists, and nurses (n=8); and Version 2 (V2) for physiotherapists, occupational-therapists (n=15). V2 did not contain questions on opioids. Additional questions probed satisfaction with pain knowledge.
**RESULTS:** In general, rehabilitation staff demonstrated strong knowledge about pain. The total mean score was 33.25 (SD = 4.23) or 71% for V1 and 31.37 (SD = 3.63) or 82% for V2. Analysis of individual questions revealed that the error rates on questions about opioids ranged between 50-75%. Other error rates > 40% were on questions about: heat/ cold treatment, coping behaviours; and the validity of numerical scales for rating pain intensity. 87.5% of V1 and 27% of V2 respondents were satisfied with their current knowledge. 87.5% of V1 respondents and 47% of V2 respondents were comfortable dealing with persons with SCI-related chronic pain. All professions wanted more education about SCI pain management for themselves and for patients during their initial rehabilitation.
**DISCUSSION:** These results highlight the need for improved knowledge translation about pain that is specifically directed to SCI-related chronic pain.

## P53
## WHIPLASH-ASSOCIATED DISORDER: COPING TO MAINTAIN ENGAGEMENT IN ACTIVITES DESPITE CHRONIC PAIN

**Irene J. Jaster, B.A. Hon. (Kin), M.Sc., OT, Lisa Klinger, M.Sc., OT Reg (Ont.), The University of Western Ontario, London, Ontario**

**AIM:** Most of what is known about the coping strategies used by individuals with chronic pain from whiplash-associated disorder comes from quantitative research. This pilot study was undertaken to explore these strategies from a qualitative perspective and to determine if the Coping Strategies Questionnaire-Revised (CSQ-R; Riley & Robinson, 1997) would support the findings.
**METHODS:** Six individuals participated in semi-structured, in-depth interviews, and completed the CSQ-R. The qualitative data was analyzed using an inductive, constant-comparative approach based on grounded theory methodology, and the quantitative data was analyzed using simple descriptive statistics.
**RESULTS:** Five interrelated themes emerged from the qualitative data: modifying or finding new activities; making trade offs to maximize participation and minimize pain; rationalizing threat to identity; dealing with disruptions in lifestyle; and hoping coupled with the use of active coping strategies. Quantitative analysis of participants' CSQ-R responses indicated praying was the most widely used coping strategy. This however, was not identified during the interviews.
**CONCLUSION:** The CSQ-R did not support the qualitative findings or capture the complex, multi-dimensional coping strategies and decision-making processes required to maintain engagement in activities. This pilot

study suggests qualitative methodology can reveal information about coping that is quite different from that engendered by the CSQ-R.

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## P54

## A SYSTEMATIC REVIEW OF THE PREVALENCE OF NEUROPATHIC PAIN

**Fatima Lakha[1], Andrea Furlan[1,2,3], Balaji Yegneswaran[1] and Angela Mailis-Gagnon[1,2,4]**

**1. Comprehensive Pain Program, Toronto Western Hospital, Toronto, ON, Canada**

**2. University of Toronto Centre for the Study of Pain**

**3. Institute for Work & Health, Toronto, ON, Canada**

**5. Krembil Neuroscience Center, Toronto Western Hospital**

**AIM:** To identify the prevalence of different types of neuropathic pain (NeP) according to world regions, settings and population.

**METHODS:** We searched MEDLINE and EMBASE from 1990 onwards for epidemiological studies reporting on prevalence data published in English. Methodological quality was assessed for risk of biases. The influence of potential effect modifiers will be assessed using meta-regression.

**RESULTS:** The searches yielded 2490 titles/abstracts and 33 studies met inclusion criteria. Seventeen studies were conducted in Europe, 9 in the USA, 4 in Asia and 3 in Australia (including 149,980 males and females). Sample sizes varied from 31 to 121,523. Two studies only were conducted in the general population, one in the USA (reporting prevalence of CRPS I 0.021% and CRPS II 0.009%) and one in the UK (detecting NeP in general in 8.2% of the population). Four studies were conducted in primary care settings and 27 in specialized or rehabilitation clinics, in patients with spinal cord injury, multiple sclerosis, herpes zoster, diabetes, AIDS, stroke, low-back pain and general chronic pain. The prevalence rates ranged from 1 to 80.5%.

**CONCLUSION:** The variable prevalence rates for specific disorders vary widely due to differences in population and settings. The prevalence of NeP in the general population seems to be higher than previously thought. If this holds true for Canada, based on current population statistics, the number of Canadians with NeP could exceed 2.5 million. High quality epidemiological studies in Canada are needed to confirm the above rates.

## P55

## PARSING THE HIGHLY VARIABLE RESPONSE OF HUMAN SUBJECTS TO CAPSAICIN RECEPTOR ACTIVATION FOR GENE MAPPING AND QST

**William R. Lariviere, Ph.D. [1], Krystle J. Englehart, B.S. [1], Lauren M. Taylor, B.S. [1], Kristie McVay[1], Donald H. McBurney, Ph.D. [2]; Carey D. Balaban, Ph.D[3]**

**University of Pittsburgh, Departments of Anesthesiology[1], Psychology[2] and Otolaryngology[3]**

Accurate assessment of fundamental pain traits/phenotypes is essential to detect significant genotype-phenotype associations. Despite widespread use of capsaicin application as an experimental pain model, no method has been developed to address the inherent marked variability in reported pain responses.

The current study applies common psychophysical methods and a novel dynamic mathematical model with phasic, tonic, and integrator components that has successfully parsed variability in the response to oral capsaicin stimuli to detect three common dynamic response patterns in human subjects. We determined the temporal response patterns to intraoral and topical capsaicin application in and out of the trigeminal region in the same subjects to test the effect of stimulation site and the trigeminal nerve. Sex differences in mean responses to both cheek and ankle stimulation can be accounted for by a greater gain in the tonic mechanism. Mean responses to ankle stimulation showed a greater integrator component than responses to cheek stimulation, a negligible phasic component, and required a time delay. In addition, ratings of capsaicin stimulation using a 10 cm visual analogue scale (VAS) vary independently from capsaicin responder type (tonic, phasic, or integrator types), indicating that our model provides a unique method of quantitatively phenotyping the response to capsaicin receptor activation. Within subjects, a significant degree of similarity of temporal response occurred across stimulation site. Application of this model is expected to facilitate our current efforts to detect underlying genetic mechanisms, and be useful for the interpretation of quantitative sensory testing (QST) results in the clinic and laboratory.

## P56

## THE INTERACTION BETWEEN THE EXPERIENCE OF PAIN AND THE PERCEPTION OF PAIN IN OTHERS

**To Nhu Ly[1], Philip Jackson, Ph.D[2] , Jean Decety, Ph.D.[3] Emma Jakmajian[1], and Pierre Rainville, Ph.D[1]**

**[1]Department of Stomatology, Faculty of Dentistry, Université de Montréal, C.P. 6128, Succ. Centre-ville, Montréal, Québec, [2]École de psychologie Faculté des Sciences Sociales, Université Laval, CIRRIS & CRULRG, Québec, Québec, [3]Department of Psychology, University of Chicago, Il**

**INTRODUCTION & OBJECTIVE:** Recent brain imaging studies have demonstrated a partial overlap between the brain activity related to the experience of pain and that of the perception of pain in others, also referred to as pain empathy. However, it is still unclear whether this "shared representation" for pain, influences our perception of pain. The objective of this study is to assess whether our own experience of pain modulates our perception of pain in others. We hypothesized that experiencing pain while observing facial expression of pain would increases subjects' rating of the latter.

**METHODS:** Thirty-four healthy right-handed subjects viewed and rated series of 1-sec movie clips of actors depicting three levels of pain expressions (low, medium, high). During each clip, subjects received either non-painful thermal stimuli (WARM) or moderately painful stimuli (PAIN) on the leg. Subjects completed 3 sessions: Session 1 = all WARM; Sessions 2 and 3 = 50% WARM and 50% PAIN stimuli, counterbalanced.

**RESULTS:** A 2 (WARM, PAIN) X 3 (Pain Expression Level) repeated measures ANOVA performed on the ratings of the facial expressions showed a significant main effect of Pain Level as well as a significant interaction. Compared to WARM stimuli, PAIN increased pain expression ratings attributed to the low and medium facial displays but decreased ratings of the high pain expressions.

**CONCLUSIONS:** These findings suggest that the perception of pain in others is affected not only by the level of pain expressed but also by the congruency between self and other's pain.

## P57

## MOTHERS' PRACTICES AND ATTITUDES REGARDING ANALGESIA DURING ROUTINE IMMUNIZATIONS

**Jennifer Manley BA[1,2], Leah Potash BA[1], Vibhuti Shah MD[3], Moshe Ipp MD[4], Michael Sgro MD[5], Anna Taddio PhD[1,2] ,**

**[1] Department of Pharmacy and Population Health Sciences, The Hospital for Sick Children, Toronto, Ontario, [2] Graduate Department of Pharmaceutical Sciences, Leslie Dan Faculty of Pharmacy, University of Toronto, Toronto, Ontario[3] Department of Pediatrics, Mount Sinai Hospital, Toronto, Ontario, [4] Department of Pediatrics, The Hospital for Sick Children, Toronto, Ontario, [5] Department of Pediatrics, St. Michael's Hospital, Toronto, Ontario**

**BACKGROUND:** Routine immunizations are the most common source of iatrogenic pain in healthy children. Although previous studies demonstrated that the pain from immunization can be managed with topical local anesthetics,[1,2,3,4,5] analgesic utilization in clinical practice has not been investigated.

**OBJECTIVE:** To assess mothers' analgesic practices during routine immunizations in their children.

**DESIGN:** Prospective interview.

**SETTING:** Postnatal ward at Mount Sinai Hospital, Toronto, Ontario.

**SUBJECTS:** Mothers of newborn infants, with at least one older child.

**PROCEDURES:** Participants were asked questions about their analgesic practices during routine immunization in their children.
**RESULTS:** 200 women participated; mean age was 34 (±4.5) years, median number of children was 2 (range 2 to 7). 25.5% of mothers reported using analgesia prior to immunization in their children; acetaminophen was chosen most frequently (86.3%), followed by ibuprofen (7.8%) and topical local anesthesia [i.e., EMLA® (5.9%)]. The most commonly reported reasons for not using analgesia were that the physician did not recommend it (47.7%) and not knowing about the option (45.0%). Interestingly, however, 51% of mothers reported that analgesics should be used prior to immunizations.
**CONCLUSIONS:** Mothers reported that analgesia should be used prior to immunizations for the treatment of pain; however, the majority did not utilize this option. Strategies to increase mothers' use of analgesics should be implemented.

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## P58
## CHARACTERISATION OF PAIN-RELATED BEHAVIOUR IN A RAT MODEL OF OSTEOARTHRITIS: IMPLICATIONS FOR TRPV1 INVOLVEMENT

**Martino G., Puma C., Théberge Y., Perkins M.N., Laird J.M.**

Osteoarthritis (OA), is a degenerative joint disease, characterised by destruction of articular cartilage and associated with chronic pain and impaired function.
There are few animal models of OA relating specifically to pain. Vanilloid receptor1 (TRPV1) may be involved in disease progression and pain-related behaviour associated with intra-articular (i.a.) injection of monosodium iodoacetate (MIA) and FCA. TRPV1 expression in joint afferents is increased following MIA (Fernihough J et al 2005), and a VR1 antagonist, reverses MIA-induced deficit in weight bearing (Honore P et al 2005). In TRPV1 knockout mice, Freund's complete adjuvant (FCA)-induced deficit in weight bearing and joint swelling was reduced (Barton NJ et al 2006), and both referred heat and mechanical hyperalgesia in the paw were absent (Keeble J et al 2005).
This study has developed and characterised pain endpoints in rats with MIA-induced OA, and investigated the role of TRPV1 in the development and maintenance of joint pain.
Intra-articular injection of MIA in rats produced a robust, dose-dependent, and persistent deficit in weight bearing in the injured limb and a redistribution of weight to uninjured limbs including the tail (Tekscan™ system). Moreover, MIA-treated rats showed a weak and, interestingly, a delayed referred mechanical (von Frey threshold) and heat (plantar test) hyperalgesia. Naproxen and a TRPV1 antagonist were effective in the early, inflammatory, stage of the disease but were ineffective in the late stage.
This data suggests that this rat model of MIA-joint inflammation can provide insight into the mechanisms of pain in degenerative joint disease, and the development of novel therapeutic intervention.

## P59
## COST OF ILLNESS FOR CHRONIC STABLE ANGINA PATIENTS

**Michael McGillion RN PhD[1], Ruth Croxford PhD[2], Peter Coyte PhD[1], Judy Watt-Watson RN PhD[1], Sandra LeFort RN PhD[3], Bonnie Stevens RN PhD[1] [1]University of Toronto, [2]Institute for Clinical Evaluative Sciences, [3]Memorial University of Newfoundland**

**AIM:** Chronic stable angina (CSA) is a ubiquitous, cardinal symptom of coronary artery disease (CAD) with a major negative impact on health-related quality of life (HRQOL) including pain, poor general health status and inability to self-manage. CSA accounts for 16% of all CAD-related physician visits in Canada and is among the top 3 most common cardiovascular reasons for hospital admission. To date, lack of minimum cardiovascular data sets has precluded estimation of the economic impact of CSA. As part of a larger randomized controlled trial, this study evaluated the cost of illness for CSA patients.
**METHODS:** Cost data were collected on 117 participants using the Ambulatory Home Care Record. Median annualized direct, indirect and system-related CSA costs (2003 – 2005) were estimated. The total cost of care from a societal perspective for each participant was calculated as the sum of these costs.
**RESULTS:** The mean age of participants was 68, 80% were male. Direct out-of-pocket CSA costs, including money paid for healthcare, travel to appointments, medications, equipment and home support were $1,495. Indirect costs, reflecting the estimated value of all unpaid time spent by angina participants and unpaid caregivers engaged in angina-related care were $7,542. System costs, including costs paid by public and private insurers were $2,035. Total estimated annual societal CSA costs were $12,615 per participant.
**CONCLUSION:** These data indicate that CSA imposes a major economic burden to society. Advancements in secondary prevention are required to address CSA as a major societal cost burden.

## P60
## A REGIONAL PAIN STRATEGY: PROVIDER ENGAGEMENT PROJECT

**Janice Muir, RN, MSc(N), Providence Health Care, Gerry O'Hanley, PT, MHA, Vancouver Coastal Health, Michael Negraeff, MD, FRCPC, FFPMANZCA, Vancouver Coastal Health, Brian Warriner, MD, FRCPC, Vancouver Coastal Health**

The aim of this Regional Pain Strategy provider engagement project was for Vancouver Coastal Health, in collaboration with Providence Health Care, B.C. Cancer Agency, B.C. Children's Hospital and B.C. Women's Hospital to embark on a major initiative to improve services and quality of life for people living with pain across the continuum of care. This was done by identifying current service coverage against health needs and desired health outcomes of people living with pain.
The methods used were focus group interviews and questionnaires to learn more from the care providers about the services they provide, the current status of pain management and what improvements should be made to meet the needs of people living with pain. The results from the focus group interviews and questionnaires were collated and common themes outlined. The conclusions then were used to recommend an optimal service model of care that meets the needs of people living with pain encompassing acute, cancer, palliative and non-cancer chronic pain in all care settings for patients/individuals across the lifespan.

## P61
## AMPUTATION FOR COMPLEX REGIONAL PAIN SYNDROME AT THE WORKSAFEBC.

**Noertjojo K, MD MHSc MSc(1); Martin C, MD MHSc(1) and Dunn C, MD(1), 1. Evidence Based Practice Group, Clinical Services, WorkSafeBC**

**BACKGROUND:** Complex regional pain syndrome (CRPS) type I and CRPS type II are debilitating pain syndromes that have been recognized, perhaps, since the 5th century BC as described in the story of Philocetes written by Sophocles. Despite the lengthy history of these disorders, the

natural history and pathophysiology of CRPS type I and type II are still unclear. As a result, the treatment of patients with these disorders remains controversial and frequently ineffective. One of the most drastic and dramatic surgical treatments occasionally considered for these patients is that of amputation of the affected body part.

**AIM:**

- to conduct a systematic literature review on amputation of the affected extremity as a treatment for selected patients with CRPS.
- to describe a case series of eight injured workers covered by WorkSafeBC that underwent limb amputation for treatment of their CRPS condition.

**METHODS:**

- narrative systematic literature review
- case series

**RESULTS:** A systematic literature search, conducted in various commercial medical databases in October 6, 2006, identified 90 published papers. Of these, 9 papers were relevant to the purpose of the systematic review. The results of these papers will be described and compared with the results of amputation among WorkSafeBC claimants diagnosed with CRPS. The characteristics of the patients, treatments prior to amputation, indication for amputation and outcomes of the surgical procedure will be described.

**CONCLUSIONS:** Amputation is a rare and drastic surgical procedure that is unlikely to be of benefit to patients with CRPS.

## P62

**MOVED TO FRIDAY (45)**

## P63

### EXAMINING THE IMPACT OF CATASTROPHIZING SUBSCALES ON INTERDISCIPLINARY CHRONIC PAIN PROGRAM OUTCOMES

**Lorraine Overduin, Psy.D [1,2], Joyce L. D'Eon, Ph.D [1,2,3], [1]The Ottawa Hospital – General Campus, [2]The Ottawa Health Research Institute, [3]University of Ottawa**

**AIM:** The present study aimed to examine the impact of the three components of catastrophizing (helplessness, magnification and rumination) and behavioural coping strategies on treatment outcomes in an interdisciplinary treatment program for chronic pain patients.

**METHOD:** Participants eligible for inclusion completed a six-week treatment program (N = 70). Pre-post evaluations included measures of catastrophizing (Pain Catastrophizing Scale; PCS), depression (BDI-II), disability (Rolland Scale), behavioural coping (Chronic Pain Coping Inventory; CPCI), client ratings of change, and pain ratings.

**RESULTS:** Significant reductions in pre-post PCS total scores and for each of the three components were found. Only reductions in helplessness and PCS total scores were correlated with reductions in disability. Helplessness and magnification were significantly correlated with patient ratings of the positive changes they experienced in the program

Significant improvements in behavioural coping strategies were noted (Coping, Social Support, Guarding, Relaxation, Exercise/stretch and Pacing; CPCI). Reduction in guarding was significantly and inversely correlated with changes in helplessness and the PCS total score. No other CPCI or PCS change scores were significantly correlated.

**CONCLUSIONS:** Results suggest that the helplessness component of catastrophizing is a primary contributor to the positive changes noted in catastrophizing in interdisciplinary treatment programs. Changes in helplessness are also highly correlated with changes in guarding which previous research has indicated is related to good outcomes. These data suggest that helplessness, as a component of catastrophizing, warrants further investigation in influencing chronic pain outcomes.

## P64

### CAN SODIUM CHANNEL BLOCKERS MODULATE SPONTANEOUS ACTIVITY ORIGINATING FROM THE RAT SAPHENOUS NERVE NEUROMAS?

**M Paré, PhD MN Perkins PhD and CQ Cao PhD. AstraZeneca R&D Montreal, St-Laurent, Quebec**

A neuroma is formed following peripheral nerve damage where the regeneration process is impeded. The sprouts form a tangle mass accumulating sodium channels that are believed to underlie neuronal hyperexcitability and ectopia (Devor et al. 1993). A neuroma could sustain neuropathic pain in 2 ways, contributing to direct afferent signal, which is felt as ongoing pain, as well as triggering and maintaining central sensitization. We investigated the ability of sodium channel blockers to modulate the generation of ectopic action potential at the lesion site of a neuroma. Neuromas were induced by lesioning the saphenous nerve of Sprague-Dawley rats (male, from 175g to 225g). After 10 to 75 days, the saphenous nerve was excised, perfused with synthetic interstitial fluid and electrophysiological recordings performed using the fiber teasing method. Surprisingly, high doses of lidocaine, mexiletine and tetrodotoxin were necessary to inhibit, partially, ongoing discharge. Up to 2mM lidocaine were required to block completely spontaneous activity whereas doses up to 5 µM tetrodotoxin did not inhibit spontaneous activity in some afferents. The data suggest that TTX-insensitive sodium channel provide a major contribution to the generation of ectopic action potentials in the neuroma.

## P65

### EVALUATING NURSING STUDENT'S KNOWLEDGE OF PAIN MANAGEMENT IN A COLLABORATIVE BSCN PROGRAM

**Maurine Parzen BScN, MScT[(1)]**

**[1]Mohawk College of Applied Arts and Technology, Hamilton, Ontario**

**AIM:** Despite the advances in treatments for pain, pain is still largely under treated. The literature suggests that the reason for inadequate treatment is the result of insufficient knowledge about pain management, which originated from the lack of focus on pain in nursing curriculum [(1-3)]. There are limited studies conducted evaluating Canadian nursing programs for gaps in pain content subsequently this research was conducted to gain further insight into nursing students knowledge of pain management in a BScN Program in Ontario.

**METHOD:** Students in year 2, 3, and 4 were invited to participate by email to complete Ferrell's and McCaffery's[(4)] "Nurses knowledge and Attitude Survey Regarding Pain" online. The survey was accessible from March 2006-May 2006. A repeat invitation was sent midway through the study.

**RESULTS:** 185 students accessed the survey with a response rate of 23%. Data analysis reflects knowledge gaps about pain in all 3 levels of the program with a mean average score of 24.91(SD= 3.82) out of 39. No significant differences were found as students advanced through the program nor did clinical experiences improve scores except for those students who had a palliative care placement. Topics showing greatest knowledge gaps were surrounding common effects of analgesics, attitudes and perception of pain.

**CONCLUSION:** These results strongly reflect insufficient focus on pain in this nursing program. Ensuring students have an opportunity to work in palliative care can provide a meaningful learning experience about pain. It is strongly recommended that nursing curriculum be reviewed and update to ensure that effective pain management content is being incorporated throughout a nursing program.

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## P66

## CHARACTERIZATION OF PEDIATRIC MULTIDISCIPLINARY PAIN TREATMENT FACILITIES (MPTF) IN CANADA: STOPPAIN PROJECT-STUDY II

**Philip Peng[1] FRCPC, Jennifer Stinson[2] PhD, Manon.Choiniere[3] PhD, Dominique Dion[3] MD, Chelsea Maddock BSc[1], May Ong[4] FRCPC, Saifee Rashiq[5] FRCPC, Gregg Tkachuk[6] PhD, Howard Intrater[7] FRCPC, Yves Veillette[8] FRCPC, Mary Lynch[9] FRCPC, Sandra Lefort[10] PhD, STOPPAIN investigators group. From [1]Wasser Pain Management Center, Toronto, [2]Hospital for Sick Children, [3]Montreal Heart Institute, Montreal, Pain Treatment Center, [4]Vancouver St Paul Hospital, [5]Multidisciplinary Pain Center, Edmonton Health Science Center, [6]Chronic Pain Center, Saskatoon Health Region, [7]Health Science Center Pain Clinic, Winnipeg, [8]Clinique Anti-douleur, Montreal, [9]Pain Management Unit, Queen Elizabeth II Health Center, [10]School of Nursing, Memorial University, Nfld.**

**OBJECTIVE:** To describe the services offered in MPFT exclusively for pediatric populations in Canada.

**METHODS:** MPTF was defined as a clinic that advertised specialized multidisciplinary services for the diagnosis and management of patients with chronic pain and had a minimum of three different health care disciplines (including at least one medical speciality) whose services were available and integrated within the facility. The search method included approaching all hospital administrators in Canada, the Insurance Bureau of Canada, the Workman and Safety Board or similar body in each province and several large drug companies for their knowledge of pain clinics. Designated investigators were responsible for identifying true MPTF from this preliminary list in their provinces. Eligible MPTF were asked to complete the questionnaire on their infrastructure, clinical, research, teaching and administrative activities.

**RESULTS:** There were five pediatric MPTF (NS, QC, ON, AB, BC) in Canada, with one recently established in April 2006. Workload and wait times are shown in Table 1. Headache was the most commonly treated pain syndrome. All of the pediatric MPTF consisted of anesthesiologists, nurses and psychologist. Each of these programs provided teaching for residents or students from various medical specialties and other healthcare professions. Only four provided specialty fellowship training. Government funding was the major source of funding for patient services and overhead except for one MPTF that relied on a compensation agency as a major source of funding for patient services.

**Table 1.**

**Median MPTF workload and wait times**

| WORKLOAD/WAIT TIME | MEDIAN (RANGE) |
|---|---|
| Days of operation/week | 1 (0.5-5) |
| Number of new consultations in last 12 months | 31 (21-90) |
| Number of follow up visits in last 12 months | 450 (53-1308) |
| Number of patients waiting | 10 (0-20) |
| Wait time (weeks) | 4 (1.5-36) |

**CONCLUSION:** Our survey showed a wide geographic disparity in the chronic pain services available to children in Canada.

## P67

## ROLE OF NON-PHYSICIAN HEALTHCARE PROFESSIONALS IN CANADIAN MULTI-DISCIPLINARY PAIN TREATMENT FACILITIES (MPTF): STOPPAIN PROJECT-STUDY II

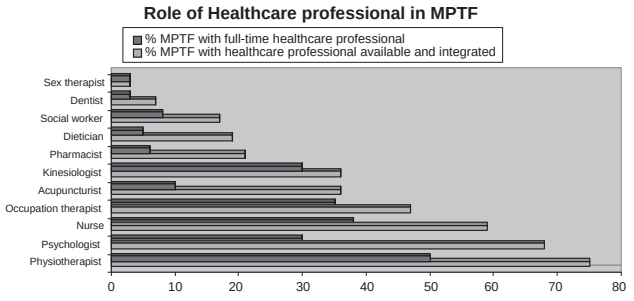
**Philip Peng[1] FRCPC, Jennifer Stinson[2] PhD, Manon.Choiniere[3] PhD, Dominique Dion[3] MD, Chelsea Maddock BSc[1], May Ong[4] FRCPC, Saifee Rashiq[5] FRCPC, Gregg Tkachuk[6] PhD, Howard Intrater[7] FRCPC, Yves Veillette[8] FRCPC, Mary Lynch[9] FRCPC, Sandra Lefort[10] PhD, STOPPAIN investigators group. From [1]Wasser Pain Management Center, Toronto, [2]Hospital for Sick Children, [3]Montreal Heart Institute, Montreal, Pain Treatment Center, [4]Vancouver St Paul Hospital, [5]Multidisciplinary Pain Center, Edmonton Health Science Center, [6]Chronic Pain Center, Saskatoon Health Region, [7]Health Science Center Pain Clinic, Winnipeg, [8]Clinique Anti-douleur, Montreal, [9]Pain Management Unit, Queen Elizabeth II Health Center, [10]School of Nursing, Memorial University, Nfld.**

**OBJECTIVE:** To describe the role of non-physician healthcare professionals in MPTF in Canada.

**METHODS:** MPTF was defined as a clinic that advertised specialized multidisciplinary services for the diagnosis and management of patients with chronic pain and had a minimum of three different health care disciplines (including at least one medical speciality) available and integrated within the facility. The search method included approaching all hospital administrators in Canada, the Insurance Bureau of Canada, the Workman and Safety Board or similar body in each province and several large drug companies for their knowledge of pain clinics. Designated investigators were responsible for confirming MPTF from this preliminary list in their provinces. Administrative leads at each eligible MPTF were asked to complete a detailed questionnaire on their infrastructure, clinical, research, teaching and administrative activities. Data concerning the activity of non-physician health professionals was extracted.

**RESULTS:** 101 MPTF completed and returned the questionnaires (response rate 88%). The representation of various healthcare professions that were integrated in MPTF or worked as full-time staff (4-5 days/week) is shown in Figure. The three most common non-physician professionals were physiotherapists, psychologists and nurses with 50% of MPTF staffed with at least one full-time physiotherapist. The three top services provided by physiotherapists were patient assessment, individual physiotherapy or exercise and TENS. The three most common services provided by psychologists were individual counseling, cognitive behavioral therapy and psychodynamic therapy. The major roles of nurses were patient assessment, assisting in interventional procedures and patient education.

**CONCLUSION:** Our survey showed that non-physical healthcare professionals play a variety of important roles in MPTF in Canada.



## P68

### REDUCTION OF ANION REVERSAL POTENTIAL SUBVERTS THE INHIBITORY CONTROL OF FIRING RATE IN SPINAL LAMINA I NEURONS: TOWARDS A BIOPHYSICAL BASIS FOR NEUROPATHIC PAIN

**Steven A. Prescott, MD, PhD[1], Terrence J. Sejnowski, PhD[1,2], and Yves De Koninck, PhD[3]**

**[1]Computational Neurobiology Laboratory, Salk Institute for Biological Studies, La Jolla, CA, USA**

**[2]Division of Biological Sciences, University of California, San Diego, La Jolla, CA, USA**

**[3]Division de Neurobiologie Cellulaire, Centre de Recherche Université Laval Robert-Giffard, Québec, QC, Canada**

**AIM:** Disinhibition of spinal neurons is an important mechanism contributing to neuropathic pain. Peripheral nerve injury reduces the transmembrane chloride gradient in lamina I neurons, compromising GABA/glycine-mediated hyperpolarization by reducing anion reversal potential ($E_{anion}$); however, GABA/glycine-mediated shunting remains intact. Without knowing the relative contribution of hyperpolarization and shunting to inhibition's modulation of firing rate, it remains unclear whether reduction of $E_{anion}$ causes cellular hyperexcitability leading to allodynia and hyperalgesia. Our goal was to explore how reduction of $E_{anion}$ affects cellular excitability.

**METHODS:** Effects of varying $E_{anion}$ were tested with computer simulations of a lamina I neuron.

**RESULTS:** Reduction of $E_{anion}$ not only decreases GABA/glycine-mediated hyperpolarization, but it also indirectly compromises shunting. Shunting reduces depolarization (causing slower spiking) but it also shortens the membrane time constant (causing faster spiking); the latter effect predominates when average depolarization is suprathreshold. Therefore, both hyperpolarization- and shunting-mediated modulation of firing rate are subverted by reduction of $E_{anion}$. Small reductions may be compensated for by increased inhibitory input, but the system decompensates as reduction of $E_{anion}$ exceeds a critical value; hyperexcitability necessarily develops once disinhibition becomes incompensable. Compensation also causes instability, rendering the system increasingly prone to abrupt decompensation and paradoxical excitation.

**CONCLUSIONS:** Reduction of $E_{anion}$ dramatically compromises inhibitory control of firing rate and, if compensation fails, likely contributes to allodynia and hyperalgesia. These data help explain the relative intractability of neuropathic pain and illustrate how it is important to choose therapies not only based on disease mechanism, but based on quantitative understanding of that mechanism.

## P69

### A SYSTEMATIC REVIEW OF TREATMENT INTERVENTIONS FOR WHIPLASH INJURIES

**J. Pretty BA[1], R. Teasell MD[1,2], A.B. Death MD[1,2], A. Bhardwaj MD[1,2], K. Sequeira MD[1,2].**

**[1]Lawson Health Research Institute, Department of Physical Medicine and Rehabilitation, Parkwood Hospital, London, Ontario, [2]Schulich School of Medicine and Dentistry, University of Western Ontario, London, Ontario**

Whiplash-associated disorders (WAD) represent a significant public health problem and socio-economic burden throughout the industrialized world. While many treatments are in use, support for their effectiveness has not been established; therefore, we undertook a systematic review to evaluate the strength of evidence associated with various WAD therapies. Multiple databases were searched to identify all studies published from 1980-2006 evaluating the effectiveness of any clearly defined treatment for acute (< 2 weeks), subacute (2 to 12 weeks), or chronic (> 12 weeks) WAD. Sixty-one studies were identified, of which 30 were RCTs. The majority of studies evaluated treatments initiated in the chronic stage of the disorder (n = 30). Forty-three evaluated non-invasive interventions, 12 evaluated medically-based interventions, and 6 evaluated surgical interventions. For the treatment of acute WAD, strong evidence (> 1 RCT) exists to support early mobilization with a focus on light neck exercises and for pulsed electromagnetic field treatment, while strong evidence suggests that soft collars, rest, and simple educational interventions are ineffective treatments. Interventions supported by moderate (1 RCT) to limited (at least 1 non-RCT) evidence include both high-dose methylprednisolone infusions and advice to "act as usual" in the treatment of acute WAD; progressive strength training and chiropractic manipulation of the cervical spine for subacute WAD; and botulinum toxin-A and sterile water trigger point injections for chronic WAD. Although definitive treatment recommendations cannot be made based on limited to moderate levels of evidence, these are prime areas for future research.

## P70

### ANTINOCICEPTIVE EFFECT OF XANOMELINE, A NON-SELECTIVE MUSCARINIC AGONIST, ON CORTICAL NEUROTRANSMISSION AND ON INFLAMMATORY AND NEUROPATHIC PAIN BEHAVIOURS IN RATS

**C. Puma, PhD; X. Wan, PhD; X.H. Yu, PhD; G. Martino, M.Sc.; M.N. Perkins, PhD; C.-Q. Cao, PhD and J.M.A. Laird, PhD**

Muscarinic acetylcholine receptors have been suggested as pharmacological targets for the treatment of pain. However, studies have focused on effects in acute pain rather than pathological pain states. Here, we have explored a potential role for muscarinic receptors in inflammatory and neuropathic pain in rats using xanomeline, an M1/M4 preferring muscarinic receptor agonist. Inflammatory pain was examined using Freund's complete adjuvant injected into one hindpaw (FCA model). Heat hyperalgesia 24 hrs after FCA injection was measured as paw withdrawal latency. Effects on peripheral neuropathic pain were explored using chronic constriction injury of the sciatic nerve (CCI) and spinal nerve ligation (SNL) models. Heat hyperalgesia was measured in both these models and punctate hyperalgesia (von Frey threshold) tested in SNL. We also investigated the circuitry underlying any in vivo analgesic responses of xanomeline by recording effects on cortical field potentials from rat brain slices maintained ex vivo.

Xanomeline (0.3 to 90 µmol/kg s.c.) produced a dose dependent reversal of both CCI and SNL heat hyperalgesia and punctate hyperalgesia in SNL rats. In the FCA model, xanomeline also produced a robust dose dependent (0.3 to 10 µmol/kg/sc) anti-hyperalgesia. Finally, xanomeline produced a significant attenuation of cortical neurotransmission when superfused over somatosensory cortex slices. The selective M1 antagonist, pirenzepine, blocked this effect.

Taken together, these results suggest that activation of muscarinic M1 receptors is effective in reversing hyperalgesia evoked by both nerve injury and tissue inflammation and that inhibition of the cortical pain pathway may contribute to this effect.

## P71

### α,β-MEATP EVOKED DIFFERENT KINETICS OF P2X CURRENTS IN A DOSE-DEPENDENT MANNER IN NAÏVE AND NEUROPATHIC DRG NEURONS

**Ramakrishnan, N; Wan, X (PhD); Pare, M (PhD); Laird, J (PhD); Perkins, M (PhD) and Cao, CQ (PhD).**

**AstraZeneca R&D Montreal, St-Laurent, Quebec**

**AIM:** To study the kinetics of P2X currents in response to varying concentrations of α,β-meATP in naïve and neuropathic dorsal root ganglion (DRG) neurons.

**METHODS:** DRG neurons were isolated from naïve and neuropathic (Chung model) adult rats and dissociated in culturing media. Whole-cell voltage clamp recordings were performed on the 2-5 day cell cultures.

**RESULTS:** In naïve DRG neurons, α,β-meATP induced inward currents starting at 1µM. Only 20% of the neurons responded to this concentration and the currents were small in amplitude and exhibited either fast desensitizing $P2X_3$-like profiles or slow desensitizing $P2X_{2/3}$-like profiles. At 3µM α,β-meATP, 45% of the neurons responded, with a majority of these currents having a P2X3 profile (75%) with larger amplitude. At 10µM and 30µM α,β-meATP, 90% of the neurons responded, with $P2X_3$ currents (60%) being the main current type.

In neuropathic DRG neurons, 40% of the cells responded to 300nM or

1μM of α,β-meATP, and these currents included $P2X_3$ currents, which were superimposed on $P2X_{2/3}$ currents. At 3μM and 10μM, almost 70% and 90% of the cells responded to α,β-meATP respectively, by exhibiting $P2X_{2/3}$ profiles with larger amplitude. A similar response was observed at 30μM α,β-meATP.

The amplitude of the currents increased with increasing concentrations of α,β-meATP, indicating a concentration-dependent effect in both naïve and neuropathic DRG neurons.

**CONCLUSION:** α,β-meATP evoked P2X currents in DRG neurons in a dose-dependent manner. A majority of cells responded to concentrations of α,β-meATP above 10μM, with $P2X_3$ currents being predominantly observed in naïve neurons and $P2X_{2/3}$ being observed in neuropathic neurons.

## P72

## THE NATURAL HISTORY OF RECOVERY FOLLOWING TOTAL KNEE ARTHROPLASTY: CHANGES IN PAIN SEVERITY AND NEGATIVE MOOD STATE

**Roth, M.L.[1], M.A., Tripp, D.A., Ph.D.[2], Harrison, M., M.D.[3], Sullivan, M.J., Ph.D.[4], [1] Department of Psychology, York University, Toronto, Ontario, [2] Department of Psychology, Queen's University, Kingston, Ontario, [3] Department of Orthopedic Surgery, Kingston General Hospital, Kingston, Ontario, [4] Department of Psychology, Universite de Montreal, Montreal, Quebec**

**BACKGROUND:** Osteoarthritis (OA), a degenerative joint disease, leads to Total Knee Arthroplasty (TKA) for many patients. TKA results in lengthy hospital stays (M=7 days), moderate to severe postoperative pain, and is suggested to impair immediate recovery. Yet, little is known about the changes in pain and negative mood in acute postoperative recovery.

**OBJECTIVES:** This study examined differences in pain, analgesic consumption, and negative mood over the course of acute postoperative recovery from TKA.

**METHODS:** The sample consisted of 50 patients (26 female) with ages between 49-87 (M=71.9). All patients had a history of osteoarthritis, underwent TKA, and received PCA morphine as the primary method of acute postoperative pain control. Patients completed daily questionnaires until they were discharged including pain (SF McGill Pain Questionnaire) and mood (Short Profile of Mood States). Daily analgesic consumption was extracted from medical records.

**RESULTS:** Repeated measures ANOVA examined time effects on pain, analgesic consumption, and negative mood. Results indicated that pain on postoperative day one through three was higher than preoperative pain; analgesic consumption on preoperative, postoperative day two, and postoperative day three was lower than analgesic consumption on postoperative day one; and that negative mood was higher preoperatively than postoperative day two and three, and was higher on postoperative day one than on postoperative day three. In addition, while most patient report decreased pain and negative mood over time, some patients continue to report physical and emotional distress.

**CONCLUSIONS:** The implications of this research for understanding TKA patient acute postoperative experience will be discussed.

## P73

## CAREGIVER RESPONSES TO PAIN IN THEIR CHILDREN IN THE EMERGENCY DEPARTMENT

**Ryan W Smith BASc,[1,2] Vibhuti Shah MD,[3] Ran Goldman MD,[4] Anna Taddio PhD,[1,2]**

**[1] Graduate Department of Pharmaceutical Sciences, Leslie Dan Faculty of Pharmacy, the University of Toronto, Toronto Ontario, [2] Departments of Population Health Sciences and Pharmacy, the Hospital for Sick Children, Toronto Ontario, [3] Department of Neonatology, Mount Sinai Hospital, Toronto Ontario, [4] Department of Emergency Medicine, the Hospital for Sick Children, Toronto, Ontario**

**BACKGROUND:** Children in the emergency department (ED) routinely undergo painful procedures. The impact of this pain on their caregivers, however, is not well studied.

**OBJECTIVE:** To explore physiological (blood pressure and heart rate) and anxiety responses of caregivers that witness a venipuncture being performed on their child.

**DESIGN/METHODS:** Prospective observational study in the ED. Caregiver's blood pressure, heart rate and anxiety were measured during three phases: 1) baseline; 2) venipuncture and, 3) recovery. Pain was measured in the child using the faces pain scale-revised (FPS-R). Child-caregiver interactions were measured using validated measures.

**RESULTS:** 55 children participated (age range: 1 month –16 years old). During the venipuncture there was an increase in caregiver's heart rate compared to baseline (maximum heart rate = 99.8±27.2, baseline heart rate = 85.5±22.9 beats per minute, $p<0.001$). Caregiver anxiety significantly increased, as assessed by a 10cm visual analogue scale [mean difference = 2.3 95%CI: (1.5,3.1)]. Caregiver blood pressure, however, did not significantly increase. A significant correlation was found between caregiver-rating of child pain and; 1) caregiver self-rated anxiety ($r=0.48$, $p<0.001$), 2) caregiver maximum heart rate ($r=0.28$, $p=0.04$), 3) child distress behaviours ($r=0.39$,$p<0.001$), 4) caregiver distress promoting behaviours ($r=0.40$,$p=0.01$), but not 5) nurse distress promoting behaviours ($r=0.20$,$p=0.20$).

**CONCLUSIONS:** There was a significant increase in caregiver heart rate and anxiety but not blood pressure during their child's venipuncture procedure. There was an association between child pain and caregiver maximum heart rate, anxiety, child distress and caregiver distress promoting behaviours but not nurse distress promoting behaviours during children's venipuncture.

## P74

## EFFECTIVENESS OF SELF-MANAGEMENT TRAINING PROGRAM AMONG THAI CANCER PATIENTS WITH PAIN

**Mayulee Somrarnyart, RN, MSN, Ph.D candidate, Faculty of Nursing, Chiang Mai University, Thailand.**

**Achara Sukonthasarn, RN, Ph.D, Assistant Professor of Surgical Nursing Department, Faculty of Nursing, Chiang Mai University, Thailand, Khanokporn Sucamvang, RN, Ph.D, Assistant Professor of Surgical Nursing Department, Faculty of Nursing, Chiang Mai University, Thailand, Tipaporn Wonghongkul, RN, Ph.D, Assistant Professor of Medical Nursing Department, Faculty of Nursing, Chiang Mai University, Thailand**

Cancer pain is a major suffering problem which is commonly found among terminally ill cancer patients. It is a complex and multidimensional experience. Therefore, the management of cancer pain is complicated and enough evidence shows that it is still ineffectively controlled worldwide. This study was conducted to ascertain the effectiveness of the Cancer Pain Self-management Training (CPST) Program on pain intensity, pain interference, and pain control among Thai cancer patients. A quasi-experimental design was employed. The participants were 72 cancer patients attending pain clinic at Maharaj Nakorn Chiang Mai Hospital. The participants were randomly assigned to the control or the intervention group. At the end of the study, there were 37 participants in the control group and 35 participants in the intervention group. The intervention group participated in the 8 weekly training session of the CPST Program. The pain outcomes were pain intensity, pain interference, and pain control which were measured at pre-program and post-program by the use of the Brief Pain Inventory-Short Form, Pain Control Scale, and semistructured interview guide, respectively. Statistics used included descriptive statistics, ANCOVA, and content analysis.

The findings at post program revealed the following: 1) the intervention group had significantly lower pain intensity than those of the control group ($p<.001$); 2) pain interference of the intervention group was significantly lower than those of the control group ($p<.001$); and 3) the intervention group had significantly higher pain control than the control group ($p<.01$). This evidence suggests that the CPST Program integrating the use of pain relief methods has a beneficial effect among Thai cancer patients. The top five pain relief methods that the control group applied were rest and/or lying; rubbing, touching, and applying pressure; distraction; folk treatment; and herbs, whereas, distraction, breathing relaxation, muscle relaxation, foot massage and reflexology, and listening to music were the top five pain relief methods of the intervention group.

These findings contribute to nursing knowledge emphasizing on nursing therapeutic interventions. Structured protocol of the CPST Program should be simplified and applied in all cancer services. Further study on the brief CPST Program with active involvement of the patients' family caregivers needs to be explored.

## P75

## FIBROMYALGIA TYPE I AND TYPE II: USING THE FIBROMYALGIA IMPACT QUESTIONNAIRE

**Souza, J.B.[1]*; Goffaux, P.[1]; Julien, N.[2]; Charest, J.[2]; Marchand, S.[1,2], [1]Faculté de Médecine, Université de Sherbrooke, Sherbrooke (Québec), [2]Département des Sciences de la Santé, Université du Québec en Abitibi-Témiscamingue, Rouyn-Noranda (Québec),**
***Postgraduate scholarships from the CAPES (*Coordenadoria de Aperfeicoamento de Pessoal do Ensino Superior*, subordinate to the Brazilian Ministry of Education and Culture**

**OBJECTIVE:** To identify subsets of fibromyalgia (FM) patients through different FM-related clinical characteristics as psychological and physical symptoms.

**METHODS:** Sixty-one women with the FM diagnostic participated at this study. To built the FM-subgroups we applied an hierarchical cluster analyses on the six visual analogic scale from the Fibromyalgia Impact Questionnaire (pain, fatigue, morning fatigue, stiffness, anxiety and depression). We tested (MANOVA) for group differences on psychosocial functioning (pain-related interference on daily living, perception of life control, support from significant others, all from the MPI; mean catastrophizing on the PCS, and both Component Summary scores from the SF-36), experimental pain variables (pressure pain threshold at tender points, the strength of descending pain inhibition, and pain intensity ratings recorded during shoulder immersion) and demographic profile (age, years since symptom onset, years with FM diagnosis, work status, and presence or absence of an trigger event).

**RESULTS:** Two clusters profiles best fit our data: FM-Type I patients were characterized by considerable pain, fatigue and stiffness and the lowest levels of anxiety, depression and morning tiredness and FM-Type II were characterized by elevated levels of pain, fatigue, morning tiredness, stiffness, anxiety and depression. The scores for the combined set of psychosocial descriptors were significantly affected by FM group membership.

**CONCLUSIONS:** Our data suggest two FM profiles: one with and one without symptoms of depression, anxiety and both with different level of morning fatigue. The presence of pain, fatigue and stiffness are not a discriminate factor between our FM sub-groups.

## P76

## AVERAGE WEEKLY PAIN IN ADOLESCENTS WITH ARTHRITIS: A COMPARISON OF THE E-OUCH ELECTRONIC PAIN DIARY VERSUS RECALLED PAIN INVENTORY

**Jennifer N. Stinson RN, PhD [1,2], Bonnie J. Stevens RN, PhD[1,2], Brian M. Feldman MD, MSc, FRCPC[1,2,3], Patrick J. McGrath OC, PhD, FRSC[5,6], David Streiner PhD, DPsych[1,4], Annie Dupuis PhD[1], Guy C. Petroz MD [1,2], Navreet Gill BScN[2] , [1]University of Toronto, [2]The Hospital for Sick Children, [3]Bloorview MacMillan Children's Centre, [4]Baycrest Centre for Geriatric Care, Toronto, Ontario, Canada; [5]Dalhousie University, and [6]IWK Health Centre, Halifax, Nova Scotia, Canada**

**AIM:** To compare average weekly pain ratings on the e-Ouch pain diary versus Recalled Pain Inventory (RPI) in adolescents with arthritis.

**METHODS:** A descriptive study design with repeated measures was used. A convenience sample of 76 adolescents (M = 13.4 years) who had active arthritis was drawn from a large metropolitan rheumatology clinic. Participants were provided with a brief demonstration of the e-Ouch diary using standardized pain vignettes. Adolescents were then electronically signaled to complete the diary (a) upon waking, (b) after school, and (c) before bed for two weeks. At the end of each week, adolescents were asked to recall their least, average and worst pain over the past week.

**RESULTS:** As predicted, correlations between average weekly pain intensity ($r$ = .55 – .76), unpleasantness ($r$ = .59 – .73) and interference ($r$ = .70 – .84) ratings on the e-Ouch and RPI were positive in direction and moderate to high in magnitude. However, least pain ratings were significantly lower and worst pain ratings were higher on the e-Ouch compared to the RPI. The e-Ouch diary contained no errors of omission. However, adolescents made errors in marking the VAS (81%) and ordering of least, average and worst pain (77%) using the RPI. On average, adolescents who made major (>5mm) errors in ordering on RPI had higher levels of recalled pain than those who made less severe (<5mm) errors.

**SIGNIFICANCE:** A real-time data capture approach should be considered in future pain studies of adolescents with arthritis.

## P77

## BIOPSYCHOSOCIAL PREDICTORS OF INTERSTITIAL CYSTITIS PAIN-RELATED DISABILITY IN WOMEN

**Dean A. Tripp Ph.D.[1], Curtis J. Nickel M.D.[2], Natalie Stechyson, B.A.[3], Mary Pat Fitzgerald M.D.[4], Robert Mayer, M.D.[5], & Annie Hseih, M.A.[3] [1]Departments of Psychology, Anesthesiology & Urology, Queen's University, Kingston, Ontario, [2]Department of Urology, Queen's University, Kingston, Ontario, [3]Department of Psychology, Queen's University, Kingston, Ontario, [4]Department of Urology, University of Rochester Medical Center, Rochester, New York, [5]Department of Obstetrics, Gynecology & Urology, Loyola University Medical Center, Maywood, Illinois**

**AIM:** Chronic, painful, and life disrupting – Interstitial Cystitis/Painful Bladder Syndrome (IC/PBS) affects 67 of 100,000 women in the USA. IC/PBS etiology is unknown and treatment is often marginally effective with less than 50% of patients experiencing pain reduction with medication. "Enigmatic" in nature, urologists are considering expanding the biomedical model for IC/PBS symptom management. Recent ethnographic research implies that understanding and treating IC/PBS pain and its related disability is of central importance. The present aim was to predict pain-related disability in IC/PBS pain using a biopsychosocial model. These data may promote better understanding of disability providing factors that could be targeted in pain management treatments.

**METHODS:** After obtaining approval from respective IRB's, female patients diagnosed with IC/PBS were recruited from three North American multi-institutional NIH-funded centers (1 Canadian / 2 USA) by letter asking them to initiate contact with the urology office if interested in participating in our questionnaire study. After consent, participants were mailed a survey package which included a pre-addressed, pre-paid envelope provided for returning surveys. Disability was assessed using the Pain Disability Index (PDI). Pain was assessed with the McGill Pain Questionnaire, IC/PBS symptoms and bother were assessed using the O'Leary Sant Scale (ICSI, ICPI), and psychosocial measures included measures of catastrophizing (PCS), control over pain (SOPA) and social support (MSPPS). Survey completion was estimated at 35-45 minutes.

**RESULTS:** A total of 88 female patients with IC/PBS participated, the average age was 50.7 yrs (SD=13.7). The majority reported having spouses (75%), a University education (56%), being white (95% were Caucasian, 1% Hispanic, 2% Asian, 2% Black African Canadian), being unemployed, retired, or disabled (52%), and reported being diagnosed on average for 6.2 yrs (SD=5.6). There was no significant association between the PDI and demographic variables, thus none were entered into the regression model. Age was associated with time since diagnosis (r=.33, p=.002). IC/PBS symptoms were associated with greater pain (ICSI;r=.53, p=.000; ICPI;r=.53, p=.000) and disability (ICSI;r=.35, p=.000; ICPI;r=.36, p=.000). Disability was most highly associated with pain (r=.52, p=.000) then followed by catastrophizing (r=.36, p=.000), social support (r=–.30, p=.002) then pain control (–.28, p=004). Hierarchical regression modeling step 1 found pain (beta=.47, p=.000) to be the lone significant predictor of disability while considering ICSI and ICPI ($R^{2\ change}$=.28; F(3,84) change=10.83, p=.000). Step 2 psychosocial variables did contribute significantly to disability prediction over and above pain scores ($R^{2\ change}$=.09; F(3,81) change=3.67, p=.016). In particular, social support a strong significant predictor (beta=–.25, p=.007) with catastrophizing being marginally significant (beta=.19, p=.08).

**CONCLUSIONS:** Results suggest cognitive/behavioral variables (i.e.,

social support, catastrophizing) may have significant impact on IC/PBS disability. Further, it is suggested that pain control and complimentary therapies aimed at increasing social support and decreasing catastrophizing may be helpful in cognitive behavioural treatment in IC/PBS symptom management programs.

## P78

## FIBROMYALGIA: SPINAL HYPEREXCITABILITY DESPITE EVIDENCE OF EXPECTANCY-MEDIATED ANALGESIA

**Karine von Bochmann (M.Sc.), Philippe Goffaux, Ph.D. (c) [1], Juliana Barcellos de Souza, Ph.D.(c) [1], Serge Marchand, Ph.D.[1]**
**1. Université de Sherbrooke (Faculté de Médecine)**

**AIM:** In healthy adults, expectation effects partly depend on the activity of inhibitory bulbo-spinal projections, and can even block the analgesic properties of counter-irritation (a phenomenon that triggers descending inhibition). Since descending inhibition is known to be deficient in FM patients, we hypothesized that expectancy-mediated analgesia would depend only on supraspinal mechanisms. By measuring subjective pain ratings, spinal withdrawal reflexes (WR) and somatosensory evoked potentials (SEP) it was possible to test whether or not expectancy-mediated analgesia involves descending inhibition in FM patients.

**METHODS:** 10 FM participated in this project. Descending inhibition was triggered by immersion of the arm in cold water for 2 minutes. Electrical stimulation of the sural nerve was repeated every 7 seconds for 10 minutes while arm immersion started 4 minutes after testing began. Pain ratings relative to the electrical stimulations were recorded every minute. Prior to testing, expectations regarding the effects of the immersion procedure were measured by having participants rate the anticipated change in sural nerve pain.

**RESULTS:** Analyses indicate that sural nerve pain ratings decrease when FMs expect the immersion procedure to be analgesic ($p>.05$). Concomitant changes in the SEP response further confirm this effect. However, the amplitude of spinal withdrawal reflexes increased ($p>.05$), despite expectations of analgesia. The spinal increase was comparable to the spinal increase observed when FMs expect the immersion procedure to be hyperalgesic ($p<.05$).

**CONCLUSIONS:** These results indicate that FMs are capable of expectancy-induced analgesia but that, unlike healthy subjects, this does not depend on the recruitment of descending inhibitory projections.

## P79

## OTTAWA ACUTE SPINAL PAIN CENTRE – INITIAL RESULTS

**E.K. Wai, MD, MSc*; E. Thompson, MB*; L. Robinson, MD*; R. Karas, B.Sc.**, D. Chow, MD*, *Faculty of Medicine, University of Ottawa, ** Canadian Back Institute**

**INTRODUCTION:** Many low back pain conditions can be effectively managed with specific early interventions. However, the optimal management of low back pain in Canada is significantly confounded by inadequate primary care and prolonged wait in access to tertiary care.

**AIM:** The objectives of this report are to document: (i.) the demographics and presenting conditions, (ii.) the "care-gap" between adequate primary care and that provided by the clinic, and (iii), the access to tertiary interventional care.

**METHODS:** The Ottawa Acute Spinal Pain Centre (OASPC) was established to address many of the above concerns. A multi-disciplinary panel developed an evidence-based algorithm for appropriate primary and interventional care to be followed by the OASPC clinicians. A prospective database of consecutive patients has been created evaluating this.

**RESULTS:** 85% of patients presented with acute, sub-acute or acute on chronic exacerbation of back pain with the lumbar region being the most common. 54% to 98% of patients (based on the intervention) reported not having received the specific primary care intervention as outlined in the developed algorithm, which is significantly improved upon by OASPC clinicians. There are significantly shorter wait times for specialist consultations from the OASPC compared to standard referrals.

**DISCUSSION:** The preliminary results of the OASPC suggest that this type of clinic can provide appropriate primary care and triaging to specialty care for patients with acute back pain. Further research is required to demonstrate the prevention of chronic pain.

## P80

## SMOKED CANNABIS FOR CHRONIC NEUROPATHIC PAIN: RESULTS OF A PILOT RANDOMIZED CONTROLLED TRIAL

**Ware MA[1], Wang T[2], Ducruet T[3], Shapiro S[2], Gamsa A[1], Bennett G[1], Shir Y[1], Collet JP[2], [1]MUHC Pain Clinic and [2]Department of Epidemiology and Biostatistics, McGill University, Montreal, Quebec, [3]Boreal Primum, Montreal, Quebec**

**INTRODUCTION:** An estimated 10-15% of patients suffering from chronic noncancer pain (CNCP) use cannabis for relief of pain, improvement in sleep and mood. Here we report preliminary results of a pilot study of smoked cannabis for CNCP.

**METHODS:** A randomized double-blind placebo-controlled crossover trial compared four strengths of cannabis (0%, 5%, 6% and 9% THC). Otherwise healthy subjects with chronic neuropathic pain with allodynia or hyperalgesia following trauma or surgery, who were not currently using cannabis, were enrolled. Consenting subjects were exposed to all four cannabis strengths in four 14-day cycles; they smoked 25mg of the drug using a pipe three times daily for five days, with a nine-day washout in between cycles. The primary outcome was average daily pain intensity over the five-day exposure period. Secondary outcomes were feasibility, adverse events, quality of life and sleep. Adverse events were recorded throughout.

**RESULTS:** Twenty-three subjects were randomized (mean age 45.4y (SD 12.3), 11 male (48%)) and two were withdrawn within the first week for protocol violations. Twenty-one subjects completed all four cycles. The effect of cannabis on the primary outcome will be reported at the meeting (final analysis is not complete at the time of submission). There were no serious or severe adverse events.

**CONCLUSIONS:** This study has shown that placebo-controlled clinical trials of smoked cannabis are feasible and the drug is well-tolerated at this dose over this short period. A number of lessons from conducting this trial can be learned and will be discussed. Further trials are needed.

## P81

## LONG-TERM BENEFIT OF CONTROLLED-RELEASE OXYCODONE (OXYCONTIN®) IN PATIENTS WITH PAINFUL DIABETIC NEUROPATHY OR CHRONIC LOW BACK PAIN

**CPN. Watson, MD[1], D. Moulin, MD[2], Judith Watt-Watson, PhD[1], A. Gordon, M.D[3], AJ. Clark, MD[4], A. Kelly, MD[5], S. Rashiq, MD[6], J. Sibley, MD[7], EN. Thompson, MD[8], B. Zidel, MD[9], J. Eisenhoffer, MD[10], P. Salem, Hon.BSc[10], Z. Harsanyi, MBA[10], AC. Darke, PhD[10]**
**1. University of Toronto, Toronto, Ontario 2. London Health Sciences Centre, London, Ontario 3. Wasser Pain Clinic, Toronto, Ontario 4. Chronic Pain Centre, Calgary Health Region, Calgary, Alberta 5. Hermitage Medicentre, Edmonton, Alberta 6. University of Alberta, Edmonton, Alberta 7. Royal University Hospital, Saskatoon, Saskatchewan 8. Ottawa Civic Hospital, Ottawa, Ontario 9. Gorway Medical Center, Mississauga, Ontario 10. Purdue Pharma, Pickering, Ontario**

**OBJECTIVE:** Long-term efficacy and safety results from two open-label (OL) extension studies of controlled-release (CR) oxycodone (OxyContin®) in patients suffering from painful diabetic neuropathy (DN) or chronic low back pain (LBP) were evaluated.

**METHODS:** 31 (DN) and 37 (LBP) patients who completed randomized, double-blind studies comparing CR oxycodone and placebo (DN) or CR oxycodone and acetaminophen plus codeine (LBP) were evaluated for a period of up to 12 months and 6 months respectively.

**RESULTS:** Significant improvements in weekly pain scores (ordinal, 0=none to 4=excruciating: 100mmVAS) at the end of the double-blind phases were maintained to the end of OL treatment (DN: 1.1±0.7 vs. 1.3±0.7; p=0.0961 ordinal: 22.8±21.9 vs. 27.3±21.5; p=0.2369 100mmVAS; LBP: 1.5±0.8 vs. 1.6±0.9; p=0.6791 ordinal: 37.2±26.0 vs. 40.5±23.3; p=0.5382 100mmVAS). The mean dose at the start of the OL

treatment was 34±21 mg/day (DN) and 53±23 mg/day (LBP) vs. 42±29mg/day and 57±21mg/day at end of OL, with treatment duration of 280±111 and 145±68 days respectively. 52% and 78% of patients did not increase their dose of CR oxycodone and only 1 and 2 patients required a dose increase greater than 20mg/day during their OL treatment in the DN and LBP studies respectively. 94% of DN and 89% of LBP patients were rated by the investigator as receiving a great deal or moderate benefit from CR oxycodone. The most frequently reported adverse events were constipation (DN:48%, LBP:24%), nausea (DN:35%, LBP:14%) and somnolence (DN:13%, LBP:22%).

**CONCLUSION:** Controlled-release oxycodone is effective for long-term management of diabetic neuropathy and low back pain.

## P82

## ELECTROPHYSIOLOGICAL PROPERTIES OF DORSAL ROOT GANGLION NEURONS IN A DERANGEMENT RAT MODEL OF OSTEOARTHRITIS

**Qi Wu MSc [1] and James L. Henry PhD [1,2]**
**1. Department of Psychiatry and Behavioural neurosciences**
**2. Michael G. DeGroote Institute for Pain Research and Care, McMaster University, Hamilton, Ontario**

Osteoarthritis (OA) is the most common form of arthritis, and pain is a primary symptom, especially during normal range movement of affected joints. Currently, there is not an effective mechanism-based treatment for OA pain. In recent studies on spinal dorsal horn neurone responses to excitatory and inhibitory inputs in a derangement rat model of OA, the buffering capacity of spinal nociceptive mechanisms was found to be lost, resulting in flyaway amplification of excitation. What are not known are the changes in primary sensory neurones in this model that could lead to these alterations in central nociceptive mechanisms and to the pain of OA. Sprague-Dawley rats (180-225 g) were anaesthetized, the anterior cruciate ligament was cut and the medial meniscus was removed. Intracellular in vivo recordings were made in ipsilateral L4 dorsal root ganglion (DRG) neurones 30 days later, when behavioural signs indicated favouring of the OA knee. Dorsal roots were stimulated for determination of electrophysiological properties of DRG neurones. The following statistical differences were observed in DRG neurones from model vs. naïve rats: conduction velocity (CV) was decreased in muscle spindle (MS) but increased in C and Aδ neurones, dorsal root stimulation threshold was lowered in all neurone types; action potential duration was shortened and action potential amplitude was lengthened in Aβ high threshold mechanoreceptor neurones (HTM); maximum rising rate was increased in Aβ HTM; 80% afterhyperpolarization recovery (AHP80) duration was shortened in Aδ neurones, yet increased in C neurones; AHP80 amplitude was increased in MS neurones. In conclusion, it was surprising that all neurone types underwent changes, including muscle spindle afferents which serve major proprioception input. Overall, the changes favoured excitation. Thus, changes in the electrophysiological properties of sensory afferents may contribute to the pain of OA and to changes in the neural substrate of nociception in the spinal cord.

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## P83

## TACTILE AND COLD HYPERSENSITIVITY IN AN ANIMAL MODEL OF CENTRAL POST-STROKE PAIN

**Yashpal, K., Ph.D., V. Pitelka, B.Sc. S. Bouseh, B.Sc. and J.L. Henry, Ph.D., Michael G. DeGroote Institute for Pain Research and Care, McMaster University, Hamilton, Ontario**

An estimated 8% of people who suffer stroke develop a central neuropathic pain that is attributed to the neuronal damage resulting from the stroke. Despite the fact that this syndrome, termed initially thalamic syndrome, was defined 100 years ago, many of those who develop central post-stroke pain are nonetheless faced with a lifetime of pain that is refractory to any present drug or invasive medical treatment. Progress has been slowed due to the lack of any inroads into understanding underlying mechanisms. To address this knowledge gap, we have developed an animal model of central post-stroke pain. A localized haemorrhagic stroke is induced by stereotaxic microinjection of collagenase to interrupt the local vascular barrier in the region of the thalamus on one side. Following recovery, animals are tested in various nociceptive and pain paradigms. While lesions in some regions do not lead to any motor or sensory deficit, lesions in selected regions of the thalamus induce a cutaneous tactile hypersensitivity with no identifiable motor deficit. In some animals, in addition to the tactile hypersensitivity there was also a cold hypersensitivity. These results suggest that this model may provide a vehicle for understanding mechanisms underlying the central neuropathic pain that is due to damage following haemorrhagic stroke.

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## P84

## ACCEPTANCE OF PAIN: IS IT WITHIN THE REALM OF POSSIBILITIES?

**Diane L. LaChapelle[1], Ph.D, Susan Lavoie[1], B.A. & Ainsley Boudreau[2], B.A., [1] University of New Brunswick & [2] Mount Saint Vincent University**

Within the past 10 years, cognitive behavioural pain management models have moved beyond the traditional focus on coping strategies and perceived control over pain, to incorporate mindfulness and acceptance based approaches. Pain acceptance has been described as "giving up the struggle with unyielding pain and learning to live a better life" (McCracken, 1998, p. 22). Acceptance has since been found to be associated with lower levels of pain, disability, and psychological distress. Relatively little is known, however, about how patients arrive at a state of acceptance. This study explored patients' personal definitions of acceptance and the factors that facilitated or hindered acceptance. Eleven focus groups involving a total of 45 women with arthritis and fibromyalgia were conducted. The qualitative analysis revealed that, while the women rejected the word "acceptance", they did agree with the main components of existing research definitions. Examination of the women's responses revealed acceptance was a process of realizations and acknowledgements including: realizing the pain was not normal and help was needed; receiving a diagnosis; acknowledging there was no cure; and realizing they needed to redefine "normal". Diagnosis, social support, educating self and others, and self-care were factors that promoted acceptance. Struggling to retain a pre-pain identity, negative impacts on relationships, others not accepting, and the unspoken message that the pain was "all in their head" were factors that hindered acceptance. The implications of these findings, distinctions between the diagnostic groups, and recommendations regarding how health professionals can facilitate the process of acceptance will be discussed.

## P85

## IMPROVING ACCESS TO INTERPROFESSIONAL PAIN EDUCATION THROUGH TELEHEALTH VIDEOCONFERENCING

**Sharon McGonigle RN MScN[1], Meredith Muscat, RN, MN, ACNP[2], Brendan Purdy RN MN (C)[1], Brenda Laurie-Shaw RN MN[1]**
**1 – Telehealth Program, University Health Network, Toronto, Ontario, 2 – Acute Pain Service, University Health Network, Toronto, Ontario**

**Aim:** Distance, cost, and availability of relevant sessions can be barriers to accessing education for health care professionals. Clinicians at an Academic Health Sciences Centre sought to determine whether Telehealth videoconferencing would be a viable option to reduce these barriers for local and remote health care providers. A pilot study was designed to: a) increase access to pain management education; and b) examine the feasibility of videoconferencing pain management education.

**Methods:** The 6-month pilot study consisted of four videoconferenced sessions of Inter-professional Pain Management Rounds. The host site was the Academic Health Science Centre, which broadcast to multiple locations across the province using a secure Telehealth network. Participants completed post-session, self-report questionnaires (n=227), modified for this study from an existing tool.

**RESULTS:** Findings from the pilot study were as follows:

1) Quality – 90% of participants reported session quality was "very good/excellent".
2) Access – 162 participants used videoconferencing thereby increasing event attendance by 140%. Participating sites increased steadily from 3 to 16 locations.
3) Acceptability – 97% of host site participants "strongly agreed" with videoconferencing educational sessions to other locations. Sign up for the sessions by remote sites was rapid (< 0.5 days to reach capacity).
4) Cost – Costs associated with videoconferencing were negligible to the organization, due to support from multiple partners.

**CONCLUSION:** Telehealth videoconferencing has been integrated into Pain Management Rounds as a dynamic solution to increase access to inter-professional pain education. These pilot study findings have been used successfully to secure funding for ongoing program sustainability.


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