

POSTERS THURSDAY, MAY 29, AND FRIDAY, MAY 30, 2008

P1

PREEMPTIVE ANALGESIA PRODUCED BY PERISURGICAL ADMINISTRATION OF AMITRIPTYLINE

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AIM: Many surgical interventions can damage nervous tissue and lead to long-term chronic pain following surgery (Lancet 367:1618, 2006). There are a number of effective treatments for acute post operative pain, but persistent neuropathic pain still remains a problem. In this study, we examined the ability of amitriptyline, a tricyclic antidepressant, to modulate the development of persistent neuropathic pain using the spared nerve injury model.

METHODS: Spared nerve injury was performed on male sprague-dawley rats. Noradrenaline and $\alpha\beta$ -methylene-ATP (used to mimic sympathetic nerve stimulation) were co-administered into the lateral hind paw of male Sprague Dawley rats with nerve injury; pain was recorded by the expression of flinching behaviors in response to the chemogenic stimulus. Capsaicin and noradrenaline were also administered in the same fashion. Behavioral testing was carried out between 2 and 6 weeks post nerve injury.

RESULTS: Subjects that received amitriptyline 10mg/kg i.p. before and after surgery, followed by a 7 day oral drug regime, exhibited significantly less flinching at 2, 4 and 6 weeks following surgery. Caffeine (~8 mg/kg/day for 7 days) and morphine (20mg/kg/day for 3 days) co-administered with amitriptyline had no effect on the preemptive action of amitriptyline. Subjects that received a further 2 weeks oral drug regime prior to surgery exhibited significantly less pain at 2, 4 and 6 weeks following nerve injury but this was no different from the 7 day regime. One-week amitriptyline treatment also prevented development of hyposensitivity to subcutaneous capsaicin and noradrenaline at 21 days post nerve injury.

CONCLUSIONS: The present study demonstrates that amitriptyline is capable of preventing long-term chronic pain resulting from nerve injury.

FOOTNOTES/REFERENCES: Lancet 367:1618, 2006

P2

CHARACTERISTICS OF INJURED CHRONIC PAIN WORKERS IDENTIFIED BY WORKERS SAFETY AND INSURANCE BOARD (WSIB) STAFF AS MANAGEMENT PROBLEMS

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AIM: To describe demographic and other characteristics of WSIB-referred workers to a tertiary care university based pain clinic in downtown Toronto.

METHODS: Cross Sectional Retrospective study including 184 consecutive WSIB-referred patients over a 6-year period.

RESULTS: Male-Female ratio was 2:1 with mean age of 48 years (range: 23-73); 39% were foreign born. Based on DSM IV TR 2000 classification of Pain Disorders, 17% were identified as suffering from a medical problem only, 45% as having a mixed presentation with both medical and psychological factors and 35% had no identifiable physical pathology while psychological factors were judged as primary contributors to their complaints. This group had significantly lower levels of physical pathology and higher levels of psychological factors contributing to their complaints compared

to patients referred to our program from their physicians. Furthermore, WSIB-referred females were significantly more likely to present with lesser physical pathology and more psychological factors as compared to males in the same group ($p < 0.005$). The commonest pain area was the low back for both sexes (57% of males and 53% of females). Additionally, women were more likely to present with neck/head complaints than men ($p < 0.005$). Of notice, 45% of all patients had large areas of non anatomical sensory loss at the site of worse pain with significantly higher prevalence in women ($P < 0.05$).

CONCLUSIONS: Injured workers, and particularly females, identified by WSIB staff as having problematic management seem to have high levels of psychological factors contributing to their presentation. Factors contributing to poor management will be discussed.

P3

CHANGES IN COPING STYLE AND PATIENT GENDER PREDICT OUTCOME IN PAIN SELF-MANAGEMENT GROUP TREATMENT

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AIM: A number of studies have examined the relationship between coping strategies, depression, and pain (Robinson et al., 1993; Rosenstiel & Keefe, 1983), as well as gender differences in the experience of pain (Robinson, 2003; Keefe et al., 2000; Unruh, 1996). Gender has been found to influence mood in patients with chronic pain (Rollink et al., 2003), as well as coping strategies (Affleck et al., 1999), including catastrophic thinking (Sullivan et al., 2000). This study examined whether coping strategies and gender were related to changes in outcomes in a chronic pain self-management program.

METHODS: Twenty-four patients with chronic pain (83% female) completed a visual analog scale (VAS), the Pain Disability Index (PDI), the Beck Depression Inventory-Second Edition, and the Coping Strategies Questionnaire (CSQ) before and after a 10-week, cognitive-behavioural group treatment program.

RESULTS: Reductions in pain intensity were related to reductions in depression ($p < 0.01$), catastrophic thinking ($p < 0.05$) and passive coping strategies ($p < 0.05$). Reductions in pain disability were associated with increases in ignoring pain sensations ($p < 0.05$) and pain-related activity level ($p < 0.05$). Reductions in depression were related to reductions in passive coping strategies ($p < 0.05$). Female gender was related to reductions in depression ($p < 0.05$) and catastrophic thinking ($p < 0.01$).

CONCLUSIONS: These results support past research demonstrating that gender is a significant factor in the experience pain, and furthermore in chronic pain treatment. Future research should investigate the relationships between gender, chronic pain experience, and coping, with an eye to improving treatment outcome.

P4

DESCRIPTIVE STUDY ABOUT ASSESSMENT PROCESS, MANAGEMENT AND DOCUMENTATION OF POSTOPERATIVE PAIN

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AIM: Several studies suggest that patients often receive inadequate treatment of postoperative pain. The aim of this descriptive study was to measure pain perception, quality of the environment and general satisfaction of pain treatment in postoperative patients ($n = 40$).

METHODS: Home made VAS Pain questionnaires were completed every hour by patients to assess the pain intensity and unpleasantness during their first three postoperative days. A questionnaire about quality of hospital environment and a questionnaire assessing the mood were given to patients at third postoperative day. A post-hoc analysis of patients' records

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allowed verifying the medical history, prescription and administration of analgesics and pain assessment by nurses for each patient.

RESULTS: The results indicate that postoperative pain is rarely assessed with a valid scale and little documented by nurses. Fifty percent of patients had 3 assessments or less of pain documented by nurses at their first postoperative day. In addition, when nurses assess and document the pain with a numeric scale, their results are very different from the assessment made by the patient. There is no significant relationship between pain intensity assessed by nurses and the intensity of the pain reported by the patient using the VAS ($r=-0.49$). Moreover, there is no significant correlation between nurse evaluations of pain and analgesic administration.

CONCLUSIONS: This study confirms the need to revise the assessment process, management and documentation of postoperative pain. It is more than necessary to put in place mechanisms for training nurses on assessment and management of pain.

P5

Research Presentation

ONCE-DAILY TRAMADOL (TRIDURAL®): MINIMUM THERAPEUTIC CONCENTRATIONS AND ONSET OF ANALGESIC EFFECT IN THE TREATMENT OF ACUTE LOW BACK PAIN

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AIM: The pharmacokinetic profile of Tridural® demonstrates a sharp initial absorption slope similar to immediate release formulations of tramadol suggesting that onset of analgesic effect may be comparable. Although the efficacy and safety of Tridural® have been previously established in Phase III trials, this study specifically examined onset of analgesic effect and its relationship to plasma concentrations after single dose administration of Tridural® 200 mg.

METHODS: This open-label, single-dose study was conducted in acute low back pain patients. After informed consent, patients were screened and had analgesic wash-out. A single Tridural® 200 mg tablet was administered. Time to onset of pain relief was determined (stopwatch method). Pharmacokinetic sampling, pain intensity and pain relief ratings occurred prior to dosing, at the onset of pain relief, and 3 and 6 hours post-dose.

RESULTS: Forty-seven patients were enrolled. Onset of perceptible pain relief occurred at 47 minutes post-dose in almost half of patients and up to 1 hour post dose in 83% of patients. At onset of analgesic effect, more than half of patients (59%; 29/46) achieved a notable decrease in pain intensity ('mild' or 'no pain') and 63% (27/46) achieved clinically meaningful pain relief ('moderate', 'a lot of' or 'complete'). Mean plasma concentrations were 56 ± 38 ng/mL at onset of analgesic effect. Adverse events were typical of tramadol.

CONCLUSIONS: The majority of low-back pain patients administered Tridural® in this study appeared to achieve onset of meaningful analgesia within 1 hour of administration and at plasma concentrations of 56 ± 38 ng/mL.

P6

BLOCKADE OF GLUTAMINE NEURONAL TRANSPORT ATTENUATES CENTRAL SENSITIZATION IN TRIGEMINAL SUBNUCLEUS CAUDALIS (MEDULLARY DORSAL HORN)

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AIM: The aim of this study was to test if intrathecal (i.t.) superfusion of

methylamino-isobutyric acid (MeAIB, a selective inhibitor of the neuronal system A transporter of glutamine), attenuates the mustard oil (MO)-induced central sensitization (CS) of trigeminal subnucleus caudalis (Vc).

METHODS: In urethane/alpha-chloralose-anesthetized adult male rats, single neuronal activity was recorded in nociceptive-specific (NS) neurons in Vc. The spontaneous activity, mechanical activation threshold, and pressure- or pinch-evoked responses were assessed at baseline. Then MeAIB (0.5 mM) or phosphate-buffered saline (PBS, as control) was continuously superfused (i.t., 0.6 ml/hr) onto Vc, and MO was applied to the first maxillary molar pulp, and assessments of neuronal properties were made at 10 min intervals.

RESULTS: After PBS pretreatment (control group), MO application produced prolonged and significant neuroplastic changes reflecting CS, i.e., increases in neuronal spontaneous activity, pressure- or pinch-evoked responses and a decrease in threshold (all $P<0.001$, $n=6$). Following pretreatment with MeAIB, MO no longer produced significant changes in spontaneous activity, threshold and pressure- or pinch-evoked responses (all $P>0.2$, $n=6$).

CONCLUSIONS: These results indicate that the integrity of the neuronal system A transporter of glutamine may play an important role in the initiation of CS in nociceptive dorsal horn neurons.

FOOTNOTES/REFERENCES: Supported by NIH DE-04786 and by CIHR MOP-82831.

P7

BRIEF COGNITIVE-BEHAVIOURAL INTERVENTION FOR INDIVIDUALS WITH SLEEP DISRUPTION AND CHRONIC PAIN

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AIM: To determine whether a brief educational session that incorporated sleep hygiene and cognitive-behavioural strategies would help individuals with chronic pain improve their sleep.

METHODS: A consecutive convenience sample was recruited in the Multidisciplinary Pain Centre at the University of Alberta Hospital. Participants were randomized to either a treatment or a control group. At the time of recruitment, the treatment group received a brief session outlining sleep hygiene strategies and cognitive-behavioural methods aimed at improving sleep. All participants completed a daily sleep diary for 30 days that recorded number of hours slept, sleep onset delay, night time wakings, and overall sleep quality. Measures of sleep quality, beliefs and attitudes about sleep, pain, pain-related disability, and mood were recorded. Control participants completed all pre- and post-study measures along with daily sleep diaries but did not receive the sleep improvement teaching session until they had completed the 30-day study period.

RESULTS: Individuals in the treatment group had significantly reduced sleep onset latency compared to controls. No significant differences existed between groups on number of wakings, number of hours slept, or sleep quality.

CONCLUSION: The results of this initial study suggest that a brief teaching session based on an educational cognitive-behavioural approach to sleep hygiene has the potential to help individuals with chronic pain improve their sleep onset latency. The association between chronic pain, sleep disruption, mood, and pain-related disability is complex. However, our findings suggest that there is potential for a brief educational intervention to have a positive impact on sleep in this population.

P8

Student Presentation

THE RELATIONSHIPS BETWEEN MATERNAL EMOTIONAL AVAILABILITY AND INFANT PAIN EXPRESSION DURING ROUTINE IMMUNIZATIONS

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AIM: The goals of this study were to explore the relationships between infant pain expressions and several dimensions of maternal emotional availability during routine infant immunizations.

METHODS: Fifty-nine mothers (M=31.4 years old, SD=4.76 years) and their infants (M=9.14 months old, SD=4.66 months; range 3 to 20 months) were recruited from three paediatric clinics in Toronto and videotaped during routine infant immunizations. Maternal emotional availability was coded during the immunization procedure using the Emotional Availability Scales (EAS; Biringen, 2000), which includes four dimensions of maternal interactive behaviour: sensitivity, structuring, non-intrusiveness and non-hostility. Infant pain expressions both immediately (pain distress reactivity) and 1 minute (pain distress regulation) after the needle were coded using the Neonatal Facial Coding System (NFCS; Grunau and Craig, 1987).

RESULTS: Exploratory correlations revealed that maternal intrusiveness was related to increases in infant pain distress reactivity and lower pain distress regulation. In addition, maternal insensitivity, and overall emotional unavailability were related to lower pain distress regulation.

CONCLUSIONS: Mothers who are insensitive, intrusive and emotionally unavailable may disregard lower-level infant distress signals, which forces infants to mount higher distress signals in order to elicit distress-reducing responses from their caregivers. In addition, maternal intrusiveness may impede on the infant's autonomy and thus act as an additional stressor for the infant, which may be inhibiting an infant's regulation of distress post immunization. The results suggest that maternal intrusiveness influence both infant pain distress reactivity and regulation, and that maternal insensitivity and overall emotional unavailability can hinder infant pain distress regulation.

P9

Student Presentation

DEVELOPMENT OF A NEW RAT MODEL OF BONE CANCER PAIN

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AIM: The primary aim of the study was to correlate pain development during bone cancer growth with tumor-induced changes in bone morphology.

METHODS: The induction of bone cancer in the rat was produced by the injection of syngeneic malignant mammary carcinoma cells (MRMT-1) in the medullar space of the femur. As opposed to existing models, here absolutely no damage is performed to the knee joint (no arthrotomy nor ligament cut), allowing the rat to recover its full locomotion. Behavioral signs indicative of pain were evaluated over a 3-week period by measuring difference of weight bearing between hind paws, mechanical allodynia and mechanical hyperalgesia. The development of the bone tumor and structural damage to the femur was monitored by radiological analysis and histology.

RESULTS: The inoculation of 3×10^4 cells provoked a progressive reduction in the response frequency of hind paw withdrawal to von Frey filament stimulation, beginning on day 10-12 following MRMT-1 injection. The cancer cell administration also induced the gradual development of mechanical hyperalgesia and limited the weight bearing on the affected limb. Accordingly, X-Ray radiographs and MRI images showed extensive

damage to the cortical bone by day 10 post-inoculation, and by day 21, the bone destruction was threatening the integrity of the femur. Histological analysis (H & E, TRAP) indicative of the tumor development, bone destruction and osteoclastic activity was also significantly correlated with pain behavior.

CONCLUSIONS: In summary, the successful establishment of a novel model of bone cancer pain will be useful to explore physiological mechanisms implied in the genesis of cancer pain and also lead to novel intervention strategies.

P10

FIBROMYALGIA: PREDICTING OPENNESS TO COUNSELLING REFERRALS

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AIM: Fibromyalgia (FM) is a chronic pain condition that challenges patients and physicians. The purpose of this study was to investigate how referrals to counselling relate to patients' ratings of their relationship with their physicians, and to examine if self-reports of illness distress, emotional problems, and practical problems can predict openness to counselling referrals.

METHODS: Data from 190 people were collected through an online survey. Patients were categorized based on whether or not they agreed with their physician regarding the potential benefit of counselling. Analysis of variance was used to determine if there was a significant difference between how these two groups rated their physician-patient relationships. Discriminant analysis was further used to determine if self-reports of illness distress, emotional problems, and practical problems could determine when patients would be open to counselling referrals.

RESULTS: Results indicated that referrals made in accord with patients' perceptions that they would benefit from counselling may have a positive influence on how patients rate their physician-patient relationships. Finally, self-reported scores on the aforementioned psychosocial measures accurately predicted who would be open to counselling referrals in 67% of cases.

CONCLUSIONS: The results of this research indicate that physicians who make referrals in accord with patients' desired treatment approaches are likely to have better relationships with their patients. Moreover, psychosocial measures can be used to help determine when patients with FM will be open to counselling referrals.

P11

MATERNAL SKIN-TO-SKIN CARE FOR HEEL LANCE IN PRETERM NEONATES: IT WORKS BUT DO THE MOTHERS LIKE TO DO IT?

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AIM: The purpose of this study is to understand mothers' attitudes about providing skin-to-skin care during the painful procedure of heel lance for routine blood procurement.

METHODS: Design: Secondary qualitative descriptive design. Mothers of infants (n=173) participating in randomized cross-over trials of skin-to-skin care to reduce pain during heel lance were asked 3 questions "1) How did you feel about holding your baby during heel lance? 2) Would you do it again and 3) Would you recommend it to other mothers?"

RESULTS: Only one mother stated that she would not do it again during painful event and one mother pulled out her twins from the study because she felt the babies were more irritable because of the extra interventions. Mothers expressed feeling like they were comforting their baby and described the it as "moving", "Amazing experience", "Like having him in the womb again". Most stated that they would not want their baby to have a heel lance without their being able to hold them in skin-to-skin care.

CONCLUSIONS: Mothers almost unanimously supported skin-to-skin care during heel lance, the most commonly occurring painful event in the NICU. Mothers should be given the opportunity to provide comfort for their infant during this frequent procedure through skin-to-skin care.

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P12

Oral Presentation

BEHAVIOURAL REACTIONS TO A PAINFUL PROCEDURE IN CONSCIOUS AND UNCONSCIOUS MECHANICALLY VENTILATED ADULTS: SIMILAR OR DIFFERENT?

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AIM: The objectives of this report was to describe the behavioural reactions to a painful procedure in conscious and unconscious mechanically ventilated adults and to examine the association between behavioural reactions and patients' self-reports of pain (yes or no).

METHODS: A total of 257 ICU patients (144 conscious and 113 unconscious) with various diagnosis (trauma, surgery, medical) from four settings of the province of Quebec participated. Patients were observed before, during a nociceptive procedure (turning with or without other care) and 20 minutes post-procedure. The Critical-Care Pain Observation Tool, a validated instrument with a total score ranging from 0 to 8, was used to detect the behavioural reactions including facial expressions, body movements, compliance with the ventilator, and muscle tension.

RESULTS: Conscious patients showed more intense behaviors compared with unconscious patients ($F, p < 0.001$) at all measurements. Unconscious patients were more likely to be sedated with agents such as propofol or midazolam. Patients with head injury were also different in their facial expressions (tearing, open eyes) during the painful procedure compared with other patients. Patients who self-reported being in pain (yes) during the painful procedure showed higher CPOT scores compared with patients without pain (no) ($F, p < 0.001$).

CONCLUSIONS: The use of behaviours is strongly recommended for pain assessment in nonverbal patients. Results from this report supported the validity of behavioural indicators associated with a painful procedure. However, further research is needed with head injury patients as they reacted differently which may be due to their cerebral injury.

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P13

PRECEPTORSHIP PROGRAM IN PAIN AND ADDICTION AT THE WASSER PAIN MANAGEMENT CENTRE

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AIM: Those practitioners involved with chronic pain management often find the greatest challenge in dealing with patients who have associated pain and either problematic use and/or frank addiction to controlled substances. The Wasser Pain Management Centre (WPMC) has developed a two day clinical preceptorship program focussed on supporting clinicians who assess and manage these challenging individuals

METHODS: Physicians are given the opportunity to attend this preceptorship with the requirement that they send in a CV, and a needs assessment, along with 2 challenging cases to be discussed. During these two days, they receive interactive lectures on how a Multidisciplinary Pain Program operates, the Seven Stages of Opioid Prescribing, the Five Pillars of Pain Management, Universal Precautions in Pain Medicine, as well as an interactive half day focussed on clinical pharmacology and boundary setting in this often challenging patient population. In addition, there is an interactive discussion of their difficult cases as well as the opportunity to observe WPMC patients in the initial consultation phase as well as in routine follow-up. The preceptorship ends with a program evaluation which includes a completed 'readiness to change document' related to their two patients that were discussed, and an undertaking by the doctors to return the document in 3 months time as a follow up summary of what is different in their pain practices as a result of attending (Study approved by hospital REB).

RESULTS: At the time of this writing six physicians attended and later filled out and returned the 'readiness to change document'. Most were concerned about patients with potential addiction issues. They learned about risk assessment, boundary setting, patient-centred urine drug testing, when to refer on and how to avoid getting into trouble. The difficulty in dealing with these patients is exemplified by what happens when they begin to set healthy limits around the prescription of controlled substances.

CONCLUSIONS: Most practitioners felt that the 2 day session was well worth the time spent away from their practices and felt they could and would apply the principles learned and/or reinforced through participation in this program. Unfortunately, as with the patients they serve, it is often difficult to get even the most motivated clinician to complete paperwork, even the minimal amount required by this program. We are exploring means of encouraging an improvement in the follow up form completion for past and future attendees.

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P14

EXPRESSION OF TUMOR NECROSIS FACTOR-ALPHA RECEPTORS (P55 AND P75) ON RAT MASSETER MUSCLE GANGLION NEURONS

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AIM: It has been found that injection of TNF-alpha into skeletal muscle results in prolonged mechanical sensitization without gross inflammation. To determine whether a peripheral mechanism could underlie this effect, in the present study the expression of TNF-alpha activated receptors (P55, P75) by trigeminal ganglion neurons that innervate the masseter muscle was undertaken.

METHODS: Fast blue dye was injected into the masseter muscle to identify trigeminal ganglion neurons that innervate this muscle. Rats were euthanized seven days after injection with an overdose of pentobarbital.

Trigeminal ganglia were removed and cut into sections with a vibratome. Immunohistochemistry was then performed to identify expression of P55 and P75 receptors by masseter ganglion neurons.

RESULTS: In 6 ganglia (n=3 males) P55 expression was found in 31% (n=155 of 374 cells), and P75 expression was found in 62% (n=212 of 347 cells) of masseter ganglion neurons, respectively. The expression of P55 receptors was slightly higher in small neurons (36%; <600um2) than in medium (31%; 600-1200 um2) and large neurons (20%; >1200 um2). In contrast, the expression of P75 receptors was substantially higher in large (89%) and medium (69%;) neurons compared with small neurons (49%).

CONCLUSIONS: These findings indicate that there is a much higher expression of P75 than P55 receptors by masseter ganglion neurons and that these receptors are not uniformly distributed amongst ganglion neurons of different sizes. Further, the results support the hypothesis that a peripheral mechanism could underlie TNF-alpha-induced non-inflammatory mechanical sensitization of skeletal muscle.

P15

Student Presentation

EFFECTS OF DEPRESSIVE SYMPTOMS ON PAIN-RELATED HEALTHCARE VISITS AND MEDICATION USE

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AIM: Depressive symptoms are higher in people with chronic pain than in the general population (Banks & Kerns, 1996). Robinson and Riley (1999) reported that depression is predictive of pain-related health care costs. The aim of the present study was to investigate the impact of depressive symptoms on pain-related healthcare visits and pain-related medication use in a sample of community-living individuals reporting persistent pain (i.e., pain lasting greater than 3 months) from Southeastern Ontario.

METHODS: This study was completed as part of a larger study investigating the prevalence of chronic pain and depressive symptoms in Southeastern Ontario. A random sample of households in the region was contacted by telephone and a response rate of 49% provided 1,067 completed questionnaires. Of the total sample, 378 participants indicated that they had pain lasting longer than 3 months (i.e., persistent pain). Depressive symptoms were screened with the short version of the Primary Care Evaluation of Mental Disorders Patient Health Questionnaire (PHQ; Spitzer, Kroenke, & Williams, 1999). Depressive status was screened and classified as: no depressive disorder (NDD), other depressive disorder (ODD), or major depressive disorder (MDD). To measure health care visits, the number of pain-related health visits in the last 6 months was recorded. Medication use was assessed by recording the number of times pain-related medications were used per week.

RESULTS: Two 2 (Gender) \times 3 (Depressive Disorder Status) ANCOVAs were conducted to evaluate the effects of gender and depressive status on pain-related healthcare visits and on pain-related medication use, using age as a covariate. Results were evaluated with an alpha level of .01 due to the violation of the homogeneity of variance assumption (Tabachnick & Fidell, 2007). Individuals classified as having MDD (M = 18.34, SD = 20.95) or ODD (M = 14.71, SD = 21.16) reported more pain-related healthcare visits in the last 6 months than did individuals who were classified as NDD (M = 8.23, SD = 13.29), $F(2, 367) = 8.83, p < .001$. Individuals classified as having MDD (M = 9.28, SD = 7.92) reported greater weekly pain-related medication use than did individuals who were classified as ODD (M = 6.00, SD = 9.50) or NDD (M = 4.78, SD = 6.15), $F(2, 361) = 8.68, p < .001$. There were no significant effects or interactions involving gender.

CONCLUSIONS: The current data are consistent with previous literature showing that depression is related to negative health outcomes. For example, in patients with low back pain, increased depressive symptoms also predicted increased healthcare utilization and pain medication refills (Bair, Robinson, Katon, & Kroenke, 2003). The present study extends these results to a sample of pain patients suffering from a persistent pain in a variety of locations in a Canadian sample. These results are also consis-

tent with a wide body of literature showing that psychological factors are important to consider in the assessment and treatment of pain (e.g., Tripp et al., 2006), thus implicating the importance of biopsychosocial models in pain treatment. Future research might investigate the roles of other psychological variables (e.g., anxiety, catastrophizing) in pain experience in this Southeastern Ontario population.

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WITHDRAWN

P17

ACCEPTANCE OF PAIN AND CHRONIC PAIN MANAGEMENT OUTCOMES: A PROSPECTIVE STUDY

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AIM: Acceptance of chronic pain has recently emerged as an important concept in understanding how individuals adjust to their chronic pain. The purpose of the present study was to a) Investigate the relationships between acceptance as measured by the Chronic Pain Acceptance Questionnaire (CPAQ) and outcomes as measured by standardized questionnaires in a four-week chronic pain management program and b) to determine whether acceptance increases from admission to discharge. This is the first study to examine whether acceptance can change at discharge from a CBT-based pain management program.

METHODS: Participants were 184 consecutive patients admitted to the 4-week Chronic Pain Management Unit at Chedoke Hospital in Hamilton, Ontario between September 2006 and July 2007. The research was approved by the Ethics Review Board. Patients completed a program evaluation package consisting of several standardized questionnaires measuring pain intensity (Pain Intensity Scale, PIS), depression (Center for Epidemiologic Studies-Depressed Mood Scale, CES-D), catastrophizing (Pain Catastrophizing Scale, PCS), anxiety (Clinical Anxiety Scale, CAS), number of bothersome symptoms (Patient Questionnaire, PQ of the Prime MD), acceptance (CPAQ), readiness to adopt a self-management approach to chronic pain (Pain Stages of Change Questionnaire, PSOCQ), coping (Chronic Pain Coping Inventory, CPCI), program satisfaction (Pain Program Satisfaction Questionnaire, PPSQ) and goal accomplishment (Self Evaluation Scale, SES). The latter two scales were administered at discharge only.

RESULTS: Data analyses were performed with T-tests, ANOVAs, ANCOVA and correlations. Admission-discharge changes as well as difference scores were examined. Results revealed that a) the Activities Engagement component of acceptance and total CPAQ score were associated with reductions in catastrophizing and contemplation and an increase in exercise/stretch. The total CPAQ score was also associated with a reduction in contemplation and an increase in exercise/stretch. Increases in Activities Engagement, Pain Willingness and total score were associated with increases in action and maintenance, exercise / stretch and coping self-statements, better goal accomplishment and program satisfaction as well as reductions in catastrophizing and guarding.

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b) Significant increase in Activities Engagement and total acceptance score but not in Pain Willingness.

c) Significant reductions in pain intensity, depression, anxiety and guarding, and increases in action, maintenance, relaxation, exercise / stretch, and coping self-statements.

CONCLUSIONS: Study hypotheses were generally supported. Participants in a CBT-based interdisciplinary pain program demonstrated a statistically significant increase in their acceptance scores, associated with overall improvement in patient functioning. Program outcomes were consistent with our previous findings in this program (Hapidou & Abbasi, 2004; Williams et al., 2007). Results on acceptance were consistent with previous cross-sectional studies by McCracken and associates of the relationships between acceptance and well-being. This was the first study to measure acceptance and chronic pain management outcomes in a cognitive-behaviorally-oriented chronic pain management program. Results provide further support for the relationship between acceptance and patient functioning over time as well as chronic pain management outcomes. Moreover, the present results come from a center in Canada and therefore illustrate that the relationships between acceptance and patient functioning are not limited to selected circumstances but can be generalized to different pain programs around the world. However, the current results do not support earlier findings of acceptance as a unique predictor of patient functioning in comparison to pain intensity as indicated in McCracken and Eccleston's (2005) prospective study. These findings suggest that the CPAQ by itself may not be sufficient to explain the process of acceptance and adjustment to chronic pain. Further research is needed to elucidate the role of acceptance in chronic pain.

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P18

PEER INFLUENCES IN ADOLESCENT PAIN BEHAVIOR: SOCIAL MODELING IN THE COLD-PRESSOR PARADIGM

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BACKGROUND: Recurrent pain complaints are common among adolescents and are often debilitating. Two psychological mechanisms account for how children learn to express pain – modeling and reinforcement – yet little is known about how these mechanisms impact adolescents' pain experiences.

OBJECTIVE: To assess the impact of peer influence, via modeling, on adolescents' pain behavior following a cold-pressor task.

SETTING: IWK Health Centre, Halifax, Nova Scotia.

PARTICIPANTS: 120 adolescents (45 male, mean age 14.9yrs; 75 female, mean age 14.5yrs)

PROCEDURE: Participants were randomly assigned to view 1 of 4 cold pressor videos: a male or female peer exaggerating pain; a male or female peer minimizing pain. Participants rated the peers' pain and the likeability of the peer. Participants then completed the cold pressor task and rated their own pain.

RESULTS: 38% of males and 40% of females reported ≥ 1 peer pain model; 44% of males and 61% of females reported ≥ 1 family pain model. There were no significant gender differences. Neither experimental condition nor gender impacted participants' pain ratings following the cold pressor task. Self pain ratings were significantly correlated to peer pain ratings ($r=.365, p<.05$) and peer likeability ($r=.302, p<.05$), but only for male participants.

CONCLUSIONS: The impact of peer pain models was most apparent for male participants and can be understood within the context of the socialization of pain behaviors. Gender role expectations and social display rules encourage males to be cautious about expressing pain; as a result they look to peers for information about appropriate pain behaviors.

P19

STUDENT INTERPROFESSIONAL EDUCATION EXPERIENCE (IPE) IN PAIN MANAGEMENT

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AIM: The overall aim of this presentation will be to describe the research findings from a twelve week Student IPE Project in Pain management held within the Regina Qu'Appelle Health Region in Regina, Saskatchewan from September to November, 2007.

METHODS: The authors will present research findings concerning student perceptions of the IPE Pain Management project. Student completed questionnaires assessing various aspects of the IPE Pain Management project, as well as a videotaped focus group on interprofessional education at the undergraduate level, are the research methods utilized.

RESULTS: Preliminary data indicates that students have found the seminar discussions stimulating and that they have valued the interactive nature of learning and sharing with students from other disciplines. Students have favourably evaluated all teaching-learning methods including problem-based learning, case-based discussions, and guest presentations.

CONCLUSIONS: Currently waiting further results. Research will be completed by Dec, 2007.

P20

IMPROVING DISTRACTION AS A PAIN MANAGEMENT STRATEGY: EXPLORING THE ROLE OF CAREGIVER – PRELIMINARY DATA

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AIM: Using Attachment theory as a theoretical foundation, the purpose of this study was to examine the role that caregiver identity plays in the effectiveness of distraction (using a hand held toy) for pain management during a routine infant immunization procedure.

METHODS: A randomized control trial study is underway, with data to be collected on 100 mother-infant dyads by April 2008. Currently data from 25 mothers and their healthy infants between the ages of 12 and 20 months was available. Dyads were recruited from a paediatrician's office during a routine immunization procedure. Each subject was randomly assigned to one of three conditions; typical care (no distraction), research assistant lead distraction or mother lead distraction. Using the Modified Behavioural Pain Scale, 3 infant behaviours (facial expression, cry, and body movements) were coded for the 15 second period immediately after the last immunization.

RESULTS: A one-way MANOVA was used to analyze infant pain reactivity immediately post immunization on the preliminary sample. The mean pain reactivity scores for infants post immunization were lowest in the research assistant led distraction condition. Results for the total sample will be presented in May.

CONCLUSIONS: The preliminary results of this study suggest that the role of caregiver identity and the importance of understanding the caregiver-infant relationship cannot be ignored when developing effective pain management strategies. The results of this study will contribute to the area of infant pain management by clarifying conditions that impact the efficacy of distraction.

P21

INFANTS' OBSERVATIONS OF MOTHERS' FACES, MATERNAL EXPRESSIONS OF PAIN AND FEAR AND INFANTS' EXPRESSIONS OF PAIN DURING ROUTINE IMMUNIZATION

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AIM: Although it is now widely accepted that infants experience pain, pediatric pain remains largely under managed. As such, research goals are to identify factors contributing to infant pain in order to improve pain management practices. The goal of the present study was to examine maternal facial expressions of pain and fear in relation to infant facial expressions of pain among infants younger and older than 12 months.

METHODS: Fifty seven mothers and their infants between the ages of 4 and 20 months ($M = 10.56$ months, $SD = 4.55$) were videotaped during a routine immunization visit at a pediatric office in Toronto. Maternal facial expressions of pain and fear were measured during the 10 second period immediately prior to needle using the Facial Action Coding System (FACS) and infant facial expressions of pain were measured during the 10 second period immediately after needle and the 10 second period 1 minute after needle using the Neonatal Facial Coding System (NFCS).

RESULTS: Infants whose mothers expressed fear spent more time observing mothers' faces. Mothers who expressed fear were also more likely to express pain. Multiple regression analyses revealed that FACS pain scores predicted higher NFCS scores 1 minute after immunization, but only for infants younger than 12 months.

CONCLUSIONS: Mothers who display facial expressions of pain may prolong distress in younger infants. Consideration of the caregiver-infant relationship within the context of development may prove beneficial when developing clinical interventions for infants in pain.

P22

ASSESSMENT OF NEUROPATHIC PAIN PATIENTS USING QUANTITATIVE SENSORY TESTING AND DN4 / PAIN DETECT QUESTIONNAIRES

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AIM: Quantitative sensory testing (QST) involves the use of computer-assisted technology to measure thermal (cold/hot) detection/ pain thresholds. Recent research has validated the use of such systems including the provision of normative data [R.Rolke, Pain 2006] and reliability in patient groups i.e. diabetic peripheral neuropathy [S.J.Bird, Muscle Nerve 2006]. Most testing has largely been confined to pharmaceutical trials [V.Brill, Muscle Nerve 1998]. Applications of QST are now emerging outside of such studies. For example, cold hyperalgesia predicted a higher level of pain and disability in motor vehicle accident patients [M.Sterling, Pain 2005]. The aim of this study was to compare QST and EMG-Nerve conduction testing to the established neuropathic pain questionnaires and determine sensitivity and specificity of such testing.

METHODS: 12 consecutive patients referred by family MDs for EMG consultation were studied. Diagnoses included peripheral and central neuropathic pain conditions (2 diabetic neuropathy, 2 post-herpetic neuralgia, 2 sciaticas, 5 failed surgical syndromes, 1 multiple sclerosis) who scored 4 or more on the DN4 scale [D.Bouhassira, Pain 2005] or 19 or more on the Pain Detect Questionnaire [R.Freyhagen, Curr Res Med Opin 2006]. Patients underwent EMG-nerve conduction studies and QST (Medoc). Several were also on Health Canada approved medications: Pregabalin for painful diabetic neuropathy and post-herpetic neuralgia [NB.Finnerup, Pain 2005] and THC-CBD spray for multiple sclerosis associated neuropathic pain [D.J.Rog, Neurology 2005].

RESULTS: QST had greater sensitivity (90% vs. 25%) than traditional EMG (including the sural-radial amplitude ratio) [BUH.Overbeek, Muscle Nerve 2005] in correlating with the DN4 and Pain Detect neuropathic pain questionnaires.

CONCLUSIONS: These preliminary observations suggest that QST may

be helpful in the primary care setting, particularly in the early diagnosis and management of neuropathic pain.

P23

INFRA-RED THERMOGRAPHY IN THE EVALUATION OF CHRONIC PAIN FOLLOWING ELECTROCUTION

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AIM: Survival after severe electrocution in itself is uncommon and the development of chronic pain following severe electrocution is rare. We present a case of severe electrocution in which infra-red thermography is the only modality that provides objective information regarding the injury. LH, a 33 year old female was electrocuted between a stove and refrigerator operating at 250 volts. The patient lay on the floor without loss of consciousness for approximately 30 minutes. On assessment in the emergency room there were no entry or exit wounds, a normal ECG. A neurological examination was normal and an MRI and nerve conduction studies of the median, ulnar, tibial and peroneal nerves were normal. Somatosensory evoked potentials were normal. On entry into the Chronic Pain Clinic she complained of pain in her left hand and left foot that radiated into her left knee.

METHODS: Infra-red thermography was undertaken using the Meditherm Med2000 with WinTES software on a Toshiba personal computer with standard protocols.

RESULTS: There were significant reductions in thermal findings in the areas of pain in both the left hand and arm. No other abnormalities were observed.

Site	Average Temp		Delta Temp
	Right	Left	
Arm prone (1)	30.67°C	29.67°C	1.0°C (1)
Leg anterior (1)	29.97°C	29.03°C	0.94°C
Arm prone (2)	28.43°C	27.52°C	0.91°C
Leg anterior (2)	25.44°C	24.35°C	1.09°C

(1) 2003 06 21; (2) 2006 05 01

CONCLUSIONS: Infra-red thermography helps to document altered physiological state as a consequence of severe electrocution when other neurological tests are normal.

P24

CAN DRY NEEDLE ACUPUNCTURE ALONG WITH REHABILITATION EXERCISE BE AN ALTERNATIVE TO THE TRADITIONAL PHYSIOTHERAPEUTIC MEANS ON PATIENTS WITH LOW BACK PAIN?

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AIM: To investigate the analgesic effect of dry acupuncture needles along with rehabilitation exercise on low back pain compared to traditional physiotherapeutic means.

METHODS: In an experimental study, 72 patients (25-70 y) with low back pain without sign of nerve root compression were randomly divided in two groups. First group was treated by dry acupuncture needles, inserted bilaterally in GB34, B11, B23, B40, B60, B62, SI3, St36 and LI4, and in GV20 plus rehabilitation exercise. The second group was treated with ultrasound and thermotherapy. The treatments' duration for both groups was 14 sessions of 45 minutes. Visual Analogue Scale and McGill pain questionnaires were used before the first and after the last sessions. Unpaired t-test was used (significant level: $p \leq 0.05$).

RESULTS: Significant differences ($p < 0.02$) in pain reduction and relaxation were observed. McGill pain questionnaires showed a remarkable improvement in pain qualities in the first group.

CONCLUSIONS: Dry needle acupuncture along with exercises during the course of the treatment showed an improvement in pain relief and quality of life. It is suggested that acupuncture has great advantage to be considered for pain reduction in patients with low back pain.

P25

COMFORT MEASURES FOR PROCEDURAL PAIN IN CANADIAN NEONATAL INTENSIVE CARE UNITS: HAVE WE IMPROVED OVER THE PAST DECADE?

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AIM: To determine the number of painful procedures and both pharmacological and non-pharmacological interventions used to manage the pain.

METHODS: A week long prospective survey using both chart review and staff completion of questionnaires for every infant in 14 participating NICU's across Canada. Demographic data, medical data, and any tissue damaging or invasive procedures were collected as well as continuous or bolus analgesic administration or nonpharmacological interventions. A descriptive analysis has begun and there will be general comparisons to results of a similar study conducted 10 years ago.

RESULTS: The 14 NICU's participation resulted in data from 583 infants. Preliminary analyses indicate that the total number of procedures are down and there is a much greater use of non-pharmacological interventions such as sucrose and swaddling.

CONCLUSIONS: After a decade of research on the consequences of unmanaged pain in neonates as well as several studies and meta-analyses of non-pharmacological interventions that show effectiveness of these interventions for frequent minor but painful procedures, there is a greater use of these strategies.

P26

THE INFLUENCE OF MATERNAL DEPRESSION ON POST-IMMUNIZATION SOOTHING BEHAVIOURS AND FEELINGS TOWARD HER INFANT

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BACKGROUND: Being a positive and sensitive caregiver is thought to have important developmental consequences for infants' social and emotional development. Since maternal caregiving is particularly important during high distress situations, it is important to investigate the factors that could interfere with sensitive caregiving in a pain context.

AIM: The purpose of the present study was to conduct an exploratory analysis examining the relationship between maternal reports of depressive symptoms (Brief Symptom Inventory [Depression subscale]; Derogatis, 1993), maternal soothing behaviour post-immunization (Parental Regulatory Behaviour Categories; Jahromi et al., 2004) and maternal feelings toward her infant (Maternal Postnatal Attachment Scale; Condon et al., 1998).

METHODS: Seventy-seven mother-infant dyads were recruited from a pediatrician's clinic in mid-town Toronto. Dyads were video recorded during a routine immunization appointment and then mothers were interviewed by phone within 2-weeks of the clinic appointment.

RESULTS: Exploratory correlational analyses revealed that maternal caretaking following the immunization was negatively related to maternal depression scores, while maternal feelings of hostility toward their infant, was found to be positively related. Follow up t-tests further suggested that mothers with higher versus lower levels of depression significantly differed in their level of hostility towards their infants. Moreover, mothers that reported depression were more likely to report not having enough time to themselves.

CONCLUSIONS: This study indicates that depressive symptoms may not only influence maternal cognitions toward her infant, but also that depression may influence how she responds to her infant after a painful procedure.

P27

EVIDENCE THAT PREGABALIN REDUCES NEUROPATHIC PAIN BY INHIBITING THE SPINAL RELEASE OF GLUTAMATE

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AIM: Pregabalin is an anticonvulsant that successfully treats many neuropathic pain syndromes, although the mechanism of its antihyperalgesic action remains elusive. This study aims to help delineate pregabalin's antihyperalgesic mechanisms in an animal model of neuropathic pain.

METHODS: Thus, we compared the effectiveness of pre- or post-treatment with systemic or intrathecal (i.t.) pregabalin at reducing the development and maintenance of the neuropathic pain symptoms. We also examined pregabalin's effects at inhibiting hindpaw formalin-induced nociception in naïve rats and formalin-induced release of excitatory amino acids (EAAs) in the spinal cord dorsal horn (SCDH) both in naïve rats and in rats with neuropathic pain.

RESULTS: Pregabalin successfully decreased mechanical and cold hypersensitivity, as a pretreatment, but was less effective at relieving cold hypersensitivity when administered as a post-treatment. Furthermore, both i.t. and systemic post-treatment with pregabalin were effective in reducing the behavioral hypersensitivity, with the exception of systemic post-treatment on cold hypersensitivity. While systemic pregabalin dose-dependently reduced nociceptive scores in the formalin test, i.t. pregabalin was not effective in this test. Nonetheless, we present the first evidence that pregabalin reduces the formalin-induced release of glutamate in SCDH. Furthermore, i.t. pregabalin reduces the enhanced noxious stimulus-induced spinal release of glutamate seen in neuropathic rats.

CONCLUSIONS: These data suggest that pregabalin reduces neuropathic pain symptoms by inhibiting the release of glutamate in the SCDH.

P28

A RETROSPECTIVE STUDY COMPARING FEMORAL-POSTERIOR CAPSULE BLOCK VERSUS FEMORAL-SCIATIC NERVE BLOCK IN PATIENTS WHO UNDERWENT TOTAL KNEE ARTHROPLASTY

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AIM: For Total Knee Arthroplasty (TKA), femoral block combined with either sciatic nerve block (SNB) or posterior capsule infiltration (PCB) with local anesthetic provide effective immediate postoperative pain control. However, from the literature we do not know which technique is best regarding duration or quality of pain relief.

In this retrospective chart review we aimed to examine the difference in pain control and analgesic consumption in the initial 48 hrs after TKA in patients with femoral-sciatic nerve block (FSNB) or femoral-posterior capsule block (FPCB).

METHODS: After REB approval, all charts of patients submitted to unilateral TKA in 2005 were reviewed. The study included both sexes from all ethnic backgrounds, between 18 and 80 yr old, mentally capable and under no chronic pain treatment.

Exclusion criteria were major psychological problems, previous drug dependency and revision surgery. The knee arthroplasty was performed through a standard medial parapatellar approach.

Patients were allocated to one of four groups:

Group I, General Anaesthesia (GA) plus FSNB (n=15)

Group II, GA plus FPCB (n=25)

Group III, Spinal Anaesthesia (SA) plus FSNB (n=36)

Group IV, SA plus FPCB (n=29).

The following data were collected:

(a) Maximum pain score, assessed using a verbal pain-rating scale from 0 to 10,

(b) cumulative analgesic consumption (IV Morphine equivalent)

T-Test was used to compare two different groups; $p < 0.05$ was considered significant. Data are presented as mean \pm standard deviation.

RESULTS: IV Morphine equivalent consumption in the first 24 hr was significantly less in groups with FSNB, Group I (GA+FSNB 10.5 ± 9.6 mg; $p=0.05$), and Group III (SA+ FSNB 9.0 ± 11.0 mg; $p=0.01$), than in Group II (GA+FPCB 20.5 ± 22.5 mg) and Group IV(SA+FPCB 23.0 ± 27.0 mg).

In GA group, the mean of pain scores was significantly less in FPCB on POD2 (5.1 ± 2.6), comparing to FSNB (6.9 ± 1.6) $p=0.03$.

On the contrary, in SA group, the mean of pain scores was significantly higher in FPCB (5 ± 3.7) than in FSNB (2.7 ± 2.5) $p=0.006$ only on POD0

CONCLUSIONS: Our retrospective study confirms that GA and SA combined with FSNB significantly reduces opioid consumption in the initial 24 hrs in patients after TKA.

In terms of pain score, SA in combination with FSNB demonstrated significantly lower pain score in the same time frame (24 hrs).

Further prospective randomized investigations are required to provide more information regarding these two analgesic modalities.

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P29

PERCEPTIONS OF MEN WITH RHEUMATOID ARTHRITIS AND FIBROMYALGIA

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AIM: Previously we found that more attractive women and women without a visible disability were perceived as having less pain/disability (P/D). We also found that attractiveness became more salient when the woman's diagnosis was ambiguous whereas the presence of a visible sign of disability reduced the impact of attractiveness and diagnostic ambiguity. In the present study we investigated whether these findings would be replicated when the target patient was male.

METHODS: 41 undergraduates viewed photographs of 8 men and made ratings on seven P/D-related variables. Each photograph was selected on the basis of attractiveness and then paired with a diagnosis of Rheumatoid Arthritis (RA) or Fibromyalgia (FM; diagnostic ambiguity) and with or without a cane (visibility of disability). A 2 (attractive vs. unattractive) \times 2 (RA vs. FM) \times 2 (cane vs. no cane) MANOVA was completed.

RESULTS: There was a main effect only for visibility of the disability; men with a cane were perceived to have more P/D than men without a cane. The interaction effects revealed that visibility of the disability had the strongest impact on P/D ratings followed by level of attractiveness; less attractive men pictured with a cane were rated as having the highest level of P/D while more attractive men picture without a cane were rated as having the least amount of P/D.

CONCLUSIONS: It appears that for both men and women with chronic pain, visibility of the disability is a key determinant of perceptions and that attractiveness has a stronger effect for women than men.

P30

CHECKING IT TWICE: EVALUATION OF TWO DOUBLE-CHECKING METHODS FOR OPIOID INFUSION DEVICES IN THE POST-ANESTHESIA CARE UNIT

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AIM: High-risk medication such as chemotherapy, blood products and opioids are increasingly being subject to double-checking protocols to reduce human error. Despite the adoption of double-checking protocols by many institutions, infusion errors continue to occur, sometimes resulting in fatal patient outcomes. Little attention has been devoted to validating the effectiveness of double-checking protocols. This poster will describe the approach and outcomes of the laboratory comparison of two methods of double-checking.

METHODS: Using an experimental design, our research focused on comparing two double-checking methods in two high-risk drug delivery settings: an outpatient chemotherapy unit with ambulatory infusion pumps (AIPs) and a post-anesthetic care unit (PACU) with intravenous patient-controlled analgesia (IVPCA) pumps. These patient care areas were simulated in a controlled human factors laboratory where nurse participants were presented with a series of deliberate programming errors during realistic patient care scenarios. Errors included incorrect pump programming, incorrect patient identification, incorrect drug insertion, and inappropriate drug protocols ordered for the patient. Each nurse checked pumps with

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their current double-checking practice as well as with a new method developed for the study.

RESULTS: We discovered that double-checks (regardless of how they are done) are not failsafe. Overall, 61% of all types of errors, and 92.5% of pump programming errors were identified by nurses. Although there was no statistical difference between the new method and the current practice in PACU, we observed a trend that more identification errors were caught with the new method.

CONCLUSIONS: We conclude that double-checking is fairly effective and should be used, but with caution.

P31

GESTATIONAL HOMEOSTASIS DISREGULATIONS MODIFY THE OFFSPRING'S PERCEPTION OF PAIN

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AIMS: Normal central nervous system development during embryogenesis is crucial for the organization of nociceptive perception in the newborn. Pain transmission is modulated by neuronal descending pathways, which project mainly from the brainstem to the dorsal horn of the spinal cord. Serotonin (5-HT) depletion and/or gestational stress can modify the perception of pain. 5-HT regulates cell differentiation and stresses modify development of brain and behaviors. Thus, impairments in the formation of the brain circuit associated with early development can modify pain sensitivity.

METHODS: The aims of this study were to determine (1) the effects of 5-HT depletion on postnatal pain sensitivity during neurogenesis of the brainstem nuclei involved in descending pain modulation, and (2) the consequences of prenatal and postnatal stress on offspring's pain perception.

RESULTS: Control pups tested for thermal pain (plantar test) were less sensitive for the forepaw than the hindpaw only at P7 and the response latency increased at P14 and P21 compared to P7. Following pCPA injections at E10, the forepaw became less sensitive than the hindpaw at P14. When pCPA was injected at E14, latency responses of both paws increased in comparison to controls at P14. Significant differences were observed between male and female born from stressed dam and submitted to postnatal stress.

CONCLUSIONS: Gestational 5-HT depletion increases acute thermal nociception. Prenatal and postnatal stresses alter pain perception in a gender-specific manner. Indeed, studies focusing on perturbation in 5-HT expression or prenatal stress during development are important to clarify our understanding of pain disorders in offspring.

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P32

SURVEY OF GENERAL PRACTITIONERS IN REGARDS TO THEIR DEMOGRAPHIC CHARACTERISTICS, PAIN PATIENTS AND ATTITUDES TOWARDS REFERRALS TO PAIN CLINICS.

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AIM: To identify demographics of general practitioners (GPs) and their practices as well as the physicians' perceptions in regards to factors and barriers that influence referring their patients to chronic pain clinics.

METHODS: A questionnaire was sent by mail to a random sample of 148 Ontario GPs who referred patients to the Comprehensive Pain Program

(CPP) over a period of 3 years. Information was collected regarding the GPs' gender, age, ethnic background, types of ethnic groups seen and their rationale/barriers influencing their referrals to our clinic and other pain clinics. The questionnaire was returned via a pre-paid stamped envelope or filled out online. A follow-up phone call was made as a reminder. The responses were tabulated and analyzed using descriptive statistics.

RESULTS: The response rate was 32% (55% males and 47% females). The average responder was 50 years old with 2/3 of the physicians falling into the 36-55 age range and practicing for >20 years. In terms of ethnic affiliation, 46.8 % of the physicians identified themselves as Canadian, 10.6 % as Asian (80% Chinese) and 23.4 % as European with mixed ethnic identification in 12.8%. In regards to the ethnic constitution of the GP practices in general, Canadians were identified as the most prevalent ethnic group (70.2%), followed by Asian (25.5%) and British (17%) patients. Females of Canadian origin 40 - 60 years old were perceived to present more often with chronic pain, whereas males and Asians were identified as having the least chronic pain problems. The 3 most frequent reasons that prompted referral to pain clinics were: 1. expertise of the program. 2. request for nerve blocks/other injections, and 3. concerns regarding opioids, while barriers to pain clinic referrals included: 1. long waiting list. 2. patient preference for specialized treatments outside the context of a formal pain clinic, and 3. long distance from the clinic.

CONCLUSIONS: This survey provides some preliminary information in relationship to general practitioners and pain clinics. Further well designed studies need to explore both patient and physician related variables (i.e., ethnicity, gender, age, patient preferences, etc.) that influence the provision of pain services.

P33

THE SUCCESSFUL MANAGEMENT OF PATIENTS WITH CHRONIC ALLODYNIA POST-PAROTIDECTOMY WITH SATIVEX

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AIM: We report a case study of a patient with a 14 year history of chronic allodynia following parotidectomy who was successfully treated with Sativex® buccal spray.

METHODS: A 46-year-old Caucasian female presenting with burning, aching, stabbing pain affecting the right neck and shoulder girdle radiating to the inferomedial border of the scapula associated with hypersensitivity to clothing in the same area. She has a benign tumour resection from the right parotid gland (14 years ago) and post-surgically developed Frey's syndrome, with right facial nerve palsy and numbness in the distribution of the right V2, V3 trigeminal nerve with sympathetic nervous system involvement. Six months later developed hyperesthesia to clothing involving right trapezius and parascapula region with muscle spasm. Allodynia was specific to clothing (not cold, touch, temperature variation or water). Trials of Amitriptyline, Gabapentin and Cyclobenzaprine were not effective. The patient could not wear clothing above the T2 level due to allodynia. Neurological exams revealed dysesthesia affecting the right V2 dermatome.

RESULTS: In 5 weeks time, the patient returned fully clothed. Allodynia resolved. Sativex 1 spray at 8 am, at noon and at 6 pm. Side effect was transient, decreased alertness one hour after each spray. Otherwise fully functional and working.

CONCLUSIONS: Sativex is effective in the management of Chronic Allodynia associated with central neuropathic pain.

P34**PAIN MANAGEMENT PRACTICES IN A PEDIATRIC EMERGENCY ROOM: INTERVENTIONS WITH NURSES**

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OBJECTIVES: Children's pain in Emergency Departments (ED) is poorly managed by nurses, despite evidence that pain is one of the most common presenting complaints of children attending the ED. Our objectives were two fold: To verify the efficacy of tailored educational interventions with emergency pediatric nurses on their knowledge of pain management, and to verify the efficacy and effectiveness of these interventions on nurses' pain management practices (documentation of pain, administration of analgesics, nonpharmacological interventions).

METHODS: This interventional study with a pre-post design (Baseline, immediately following the intervention (T-2), and 6-month post-intervention (T-3)), used a sample of nurses (n=50) and retrospective chart reviews of children (n =450) who presented themselves in ED. Principal outcomes: nurses' knowledge (PNKAS) and nurses' clinical practices of pain management (PMEE).

RESULTS: Response rate on the PNKAS was 84% (42/50) at Baseline and 50% (21/42) at T-2. Mean score on PNKAS was 28.2 + 4.9 (max.of 42.0) at Baseline, and 31.0 + 4.6 at T-2. T-test yielded a significant difference between both times ($t = -3.129$, $p = 0.005$). Nurses improved their documentation of pain by 18% at T-2 and by 33%, from Baseline to T-3. Application of nonpharmacological interventions and administration of analgesics improved by 92% and by 23% respectively, from Baseline to T-3.

CONCLUSIONS: The interventions proved to be effective in the improvement of pain management practices over time. We believe that an intervention tailored to nurses' needs and schedules has more impact than just passive diffusion of educational content.

P35**EVIDENCE OF DESCENDING INHIBITION DEFICITS IN ATYPICAL TRIGEMINAL NEURALGIA**

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AIM: Trigeminal neuralgia (TN) is a rare neuropathic facial pain disorder. Two forms of TN, classical TN (CTN) and atypical TN (ATN), are reported and probably have different aetiologies. Patients with CTN experience paroxysmic sharp pain lasting from seconds to minutes whereas ATN patients tend to report a more constant and diffuse type of pain which is, clinically, often more difficult to treat. The aim of the present study was to compare the efficacy of the diffuse noxious inhibitory control (DNIC), a central pain inhibitory mechanism, between CTN and ATN patients in order to determine if a failure of this system could modify pain perception in patients with TN.

METHOD: Nine patients with CTN (mean age 67 years, 6 males) and ten with ATN (mean age 66 years, 4 males) were recruited. Three temperatures (46, 47 and 48 degrees Celsius) were applied in a random order for 5 seconds on the facial skin of the patients (ipsilateral, affected branch of trigeminal nerve) using a 1 cm² thermode (Medoc, Advanced Medical Systems, Minneapolis). After each thermal stimulation, patients were asked to evaluate the intensity of their perceived pain using a 0 to 100 numerical scale. Patients were then asked to immerse their right arm in cold water (10 degrees Celsius) for five minutes, a procedure known to activate DNIC, and after which the three thermal stimulations were immediately repeated.

RESULTS: We found a significant DNIC effect in CTN compared with ATN patients ($p < .01$). Specifically, patients with CTN showed a 15% reduction for thermal pain following immersion in cold water ($p < .01$), whereas there was no significant decrease for patients with ATN ($p = 1.0$). **CONCLUSIONS:** The present results suggest that the underlying pathophysiology differs between CTN and ATN and that a deficit in the DNIC systems may further contribute to the pain experienced by patients with ATN.

P36**CONFRONTING THE CHALLENGES OF CHRONIC PAIN: PATIENT EXPERIENCES IN AN INTERDISCIPLINARY PAIN MANAGEMENT PROGRAM**

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AIM: This study presents patient responses from an interdisciplinary pain management program and explores the therapeutic experiences from a qualitative perspective. Particular emphasis is directed in highlighting patient beliefs and internal cognitive changes to address program benefits, limitations and future developments. Analysis of such qualitative data provides a greater understanding of the attitudes and perspectives of patients participating in the program, as well as addresses possible inefficiencies between program implementation and knowledge uptake.

METHODS: The responses of 101 patients (31 to 74 years of age) enrolled in the Chronic Pain Management Unit (CPMU) at Chedoke Hospital of Hamilton Health Sciences from October 1998 to July 2000 were subjected to qualitative analysis in which comments provided were extracted for common themes. The four-week day program schedule involved psychoeducation, training in stress and pain management techniques, fitness, functional activity, nutritional counseling, case management, group and individual therapy. Using Giorgi's (1) phenomenological approach, the authors evaluated the open-ended sections of program satisfaction questionnaires (2) to interpret how patients' beliefs and cognitive changes may reflect accomplishment of goals and effectiveness of pain management training.

RESULTS: Patients' responses reflect their attitudes, behavioural changes and daily interactions in the program. Those who understood that the program was for management and not for a cure derived the greatest benefits from the CPMU. Resources from peers, health professionals and family comprise crucial support for clients. Those who forge an intrinsic commitment to accept and manage pain effectively were more successful at discharge than those who relied on others. In particular, program success emerges from its goal to increase self-esteem and confidence in patients, that once attained, assisted patients to uptake and sustain their skills acquisition beyond the program duration.

CONCLUSIONS: Qualitative evidence further reinforces the effectiveness of cognitive-behavioural therapy in pain management. These findings may assist clinicians and chronic pain professionals in evaluating or devising pain management initiatives that aim to achieve similar program goals.

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P37

A PILOT TRIAL OF QIGONG FOR TREATMENT OF FIBROMYALGIA

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AIM: Initial work has suggested that Qigong may be helpful in the treatment of fibromyalgia.

Qigong refers to a class of traditional Chinese energy exercises and therapies that facilitate the flow of qi (vital energy). It refers to a self-training method involving body posture, movement, breathing and mind status leading to an optimal state of body-mind function. This pilot trial uses a specific type of qigong [CFQ qigong, www3.nbnnet.nb/cfq] which involves performance of a series of gentle exercises that are intended to allow for optimal flow of qi throughout the body in an effort to facilitate healing. There are two published trials examining Qigong in the treatment of fibromyalgia. The first study was a pilot study involving the use of external Qigong (Chen, Hassett et al. 2006), the second trial was a randomized controlled trial comparing Qigong with a waiting list control (Haak and Scott 2007). Both trials found that Qigong led to significant decreases in pain and distress, with improvements in psychological health including cases of complete recovery. The present study was designed as a pilot trial to examine whether CFQ qigong leads to improvements in pain, and physical and psychological function in patients with fibromyalgia.

METHODS: A group of 23 patients meeting the American College of Rheumatology criteria for fibromyalgia (Wolfe, Smythe et al. 1990) and who agreed to practice the technique for 45 minutes per day were trained in the technique of CFQ Qigong. Training was done over 2 half-day sessions (Sept 07). The training was followed up by 4 further weekly review sessions and all participants were also provided with a DVD video reviewing the technique. Patients returned at 4 weeks, 3 and 6 months for completion of outcome measures which include a numeric rating scale for pain intensity, the Fibromyalgia Impact Questionnaire the SF-12, participants rating of global change and satisfaction and adverse events.

RESULTS: The study is ongoing; week 4 measures have been completed, and the data for 3 and 6 months will be complete and analyzed by March 2008. Complete study results will be presented in the final poster.

CONCLUSIONS: Conclusions to date (4 weeks) are that 21 of 23 patients have been able to continue with regular practice of Qigong for 45 minutes per day and are reporting significant benefit. Final conclusions will be presented following data analysis and will be presented in the poster.

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P38

EXPLORING THE QUESTIONS THAT INDIVIDUALS WITH SPINAL CORD INJURY HAVE REGARDING THEIR CHRONIC PAIN: A QUALITATIVE STUDY

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AIM: To explore the questions that individuals living with a traumatic spinal cord injury (SCI) have regarding their chronic pain and identify their preferred methods of acquiring this information.

METHODS: Semi-structured interviews were conducted with 12 individuals (7 female and 5 male) between the ages of 29 and 70 years who volunteered from urban and rural locations in Ontario. All participants reported experiencing pain related to a traumatic SCI for greater than 6 months. Analysis involved the identification of themes and the development of a taxonomy of questions about chronic pain.

RESULTS: A total of 61 questions regarding chronic pain were identified and categorized into six themes: (a) cause, (b) communication, (c) expectation, (d) getting information, (e) management, and (f) other's experience with chronic pain. Participants described using a variety of sources to obtain information about chronic pain including health care providers, other SCI consumers and the Internet. The majority of participants were not satisfied with their physician as an information source. Participants preferred to have chronic pain information available to them on an as needed basis.

CONCLUSIONS: SCI individuals have numerous questions about their chronic pain and use a variety of information sources to answer them. Many are dissatisfied with the level of knowledge health care professionals have about pain related to SCI. This study provides valuable information from the perspective of SCI consumers, which could be used to develop informational tools for health care professionals and consumers to improve the management of chronic pain related to SCI.

P39

PRESCRIPTION OF OPIOIDS AND OTHER PSYCHOTROPIC DRUGS IN INJURED CHRONIC PAIN WORKERS IDENTIFIED BY WORKERS SAFETY AND INSURANCE BOARD (WSIB) STAFF AS MANAGEMENT PROBLEMS

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AIM: To describe the patterns of opioid and other pain related drug prescriptions to WSIB-referred workers with management problems to a tertiary care university based pain clinic in downtown Toronto.

METHODS: Cross Sectional Retrospective study of 184 consecutive WSIB-referred patients over a 6-year period. Patients were classified as Non Opioid Users (NOU), Low Dose Opioid Users (LDOU) or High Dose Opioid Users (HDOU) with 300mg Morphine Equivalents (ME) daily as cutoff point between the two opioid groups. DSM-IV TR2000 classification of Pain Disorders was used as follows: Group I patients had a medical problem only, Group II mixed presentation with both medical and psychological factors and Group III primarily psychological factors

RESULTS: Opioids were prescribed in 79% of the patients. MEs were not available in 8 cases. 75% of opioid users were LDOU (mean: 80mg ME daily) and 20% HDOU (mean: 681mg ME daily when an outlier of 2270mg was excluded from calculations). Opioid users were prescribed 2 or more additional psychotropic medications more often than non opioid users (37% vs 24%). Diagnostic categorization was as follows:

	Group I	Group II	Group III	UD
NOU	18%	37%	37%	8%
LDOU	20%	45%	33%	2%
HDOU	3%	59%	35%	3%

UD: Unclear Diagnosis

CONCLUSIONS: While 4/5 of injured workers with problematic management, were on opioids, 25% of opioid users were on high doses (often combined with other psychotropic drugs) with poor pain control despite the presence of significant psychological factors. Possible reasons for these findings will be discussed.

P40

WAITING TO GET WELL: QUALITY OF LIFE AND FUNCTIONAL STATUS OF TOTAL HIP AND TOTAL KNEE REPLACEMENT PATIENTS

Student Presentation

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AIM: Over 20,000 Canadians are waiting for hip or knee replacement surgery (Arthritis Society, 2004). This study aimed to address the gap in knowledge regarding patients' preoperative and postoperative perceptions of quality of life and functional status.

METHODS: Using a retrospective, longitudinal design, available patient records (October 2004 to May 2007) were drawn from a regional joint replacement registry. Guided by the Symptom Management Model (Dodd et al., 2001), the study explored the impact of the preoperative wait on patients' quality of life and functional status during the wait and postoperatively. Measures of quality of life (SF-12) and functional status (Oxford-12) were collected at one year preoperative, one month preoperative, and one year postoperative.

RESULTS: A total of 1643 (43.0% hip, 57.0% knee) patient records were included. The sample was composed of 46.3% males, 53.7% females, with a mean age of 65.2 years (SD 11.6), and a mean body mass index of 30.7 (SD 6.4). Patients had waited on average 48.4 weeks (SD 29.1) for surgery. Initial findings support that better mental ($r=.694$, $p<.01$) and physical ($r=.64$, $p<.01$) health at one year preoperative predicted significantly better outcomes at one month preoperative. One month preoperative mental outcomes ($r=.474$, $p<.01$) also predicted better mental outcomes one year postoperative.

CONCLUSIONS: This study provides novel longitudinal insights into the quality of life and functional status of these patients. Findings underscore the critical importance of health optimization preoperatively to enhance postoperative outcomes.

P41

OBJECTIVE ASSESSMENT OF JOINT NOCICEPTION REVEALS A DISCONNECT BETWEEN DISEASE SEVERITY AND PAIN SENSATION IN OSTEOARTHRITIS

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AIM: Anecdotal evidence indicates that the level of pain reported by osteoarthritis (OA) patients does not reflect the severity of joint destruction.

This study examined the relationship between joint nociception and joint pathology in the Dunkin-Hartley guinea pig model of naturally-occurring OA.

METHODS: Dunkin-Hartley guinea pigs were grouped according to age (young animals: 2-5 months; old animals: 17-37 months). Joint pain was objectively assessed in these animals by electrophysiologically recording from knee joint nociceptors in response to normal and noxious rotation of the knee. Joint pathology was then determined in the same knees by histomorphology and micro-computerized tomography (micro-CT). A principal components analysis was used to determine if any correlation exists between each of the measured variables.

RESULTS: In old animals, 33% of recorded fibres were spontaneously active whereas young knee joint mechanosensory nerves remained silent at rest. Afferent activity was significantly greater in older animals during noxious rotation of the knee ($P<0.01$ unpaired Student's t test). While OA severity increased with age, there was no correlation between the level of joint degeneration and nociceptor sensitivity.

CONCLUSIONS: The degree of joint destruction correlates well with increasing age in the Dunkin Hartley model of spontaneous OA. Joint nociceptor activity is also enhanced in aged animals indicating a heightened pain response during senescence. The lack of correlation between OA pathology and nociceptor activity provides the first objective evidence that pain is a poor predictor of disease severity in OA.

P42

DEFINING AND QUALIFYING CHRONIC PAIN IN AN EXPERIMENTAL OSTEOARTHRITIC (OA) CANINE MODEL: STRUCTURE/FUNCTION ACQUISITION USING 1.5T MRI AND COMPUTED RADIOGRAPHS COUPLED TO PRESSURE PLATFORM GAIT ANALYSIS

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AIM: To explore relationships between induced structural damages in the OA dog model, as assessed on high-field magnetic resonance imaging (MRI) and computed radiographs (CR), and limb function over a 26-week period.

METHODS: In a blinded, randomized, prospective study, OA was surgically induced by right cranial cruciate ligament transection in 5 dogs. Peak vertical force (PVF) and contact area (CA) were acquired at baseline, W4, W8, and W26 post surgery in parallel to MRI and CR of the dog's right stifle. Osteophytosis, subchondral sclerosis and joint effusion were scored (0-3, each) based on MRI and CR findings. Cartilage defect (0-4), synovial thickening and subchondral bone marrow lesions (BML) (0-3, each) were scored while loss of cartilage volume (mm³) was computed. Clinical signs of OA were scored (0-4). Animals were sacrificed at W26, and joint lesions histological evaluation was performed.

RESULTS: Significant limb impairment, as well as OA features detected with MRI and CR, were induced. CA significantly correlated with clinical signs of OA. Limb impairment was better reflected by PVF. The increase in PVF at W26 over W4 correlated significantly ($P<0.05$) with less severe cartilage defect, osteophytosis, joint effusion and BML, while being positively associated with cartilage volume loss. CR findings were poorly correlated with limb function. Histological cartilage and osteophytes lesions corresponded to MRI findings.

CONCLUSIONS: The combined use of MRI and gait analysis in the experimental dog OA model offers a reliable and innovative tool to assess the evolution of disease, highlighting the structural source of limb impairment.

P43

EFFECTS OF EARLY PAIN EXPERIENCES ON PAIN MODULATORY MECHANISM OF ADOLESCENTS

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AIM: Preterm infants undergo several painful procedures in the neonatal intensive care unit, which in the long-term can have undesirable consequences. Term born babies who underwent surgery right after birth may also experience unwanted effects later in life. These early nociceptive insults occur at a critical time during development, and they may alter the development of endogenous pain control mechanisms (DNIC) and lead to differences in the modulation of pain perception during adolescence.

METHODS: We measured heat pain threshold, heat pain sensitivity and the strength of DNIC in children between 12 and 18 years of age. Participants were divided into 4 groups, according to their birth status : term-born (n = 18), term-born with cardiac surgery (n = 9), born preterm and exposed to numerous painful procedures (n = 15) or born preterm and exposed to few painful interventions (n = 10). Heat pain threshold was measured by using a method of limits while pain sensitivity was measured using a 2 min. thermode stimulation at constant temperature on the forearm. Heat pain sensitivity was evaluated before and after having recruited their DNIC.

RESULTS: Result showed that our four groups had comparable pain thresholds. Preterm adolescents that were exposed to numerous painful interventions at birth did not show a significant DNIC response ($p>0.05$) and this was the case for both boys or girls. Term-born girls who underwent surgery at birth also failed to trigger their inhibitory response ($p>0.05$) which was not the case for boys ($p<0.05$).

CONCLUSIONS: These findings suggest that exposure to painful procedures at birth impaired the development of DNIC if you are born prematurely or if you are a term-born girl. Term-born boys appeared immune against this developmental change.

P44

SUPRASPINAL ACTIONS OF PENTOBARBITAL ON TRANSMISSION THROUGH THE SPINOTHALAMIC TRACT

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AIM: Microinjections of pentobarbital (PB) into the mesopontine tegmental anesthesia area (MPTA) of conscious rats induces a classical, reversible, general anesthesia-like behavioral state characterized by unconsciousness, analgesia and atonia (Pain 94:101-112, 2001). The present study examined the neurophysiological basis underlying the 'analgesia' which accompanied the state of general anesthesia induced by PB microinjections into the MPTA (ibid).

METHODS: Extracellular recordings of 18 antidromically identified L1 spinothalamic tract (STT) neurons in isoflurane-anesthetized rats were assessed for changes in their spontaneous firing rate (SFR), antidromic firing index (FI) and sciatic (Sc) or sural (Su) nerve-evoked responses, following bilateral microinjections of PB (200 micrograms/microliter/side) into the MPTA.

RESULTS: The group mean (\pm SEM) SFR and FI of 12 STT neurons was suppressed by $\sim 36\%$ from 15 ± 2.8 to 10 ± 3.3 spikes and by $\sim 33\%$ from

89.1 ± 3.7 to 56.1 ± 11.1 , respectively, within 2-15 min of PB microinjection. Similarly, group mean response magnitudes of both Sc and Su nerve-evoked STT responses were suppressed by $\sim 27\%$ from 9.7 ± 1.8 to 6.9 ± 1.7 and $\sim 27\%$ from 9.3 ± 1.7 to 6.3 ± 1.7 spikes/trial, respectively. Pb suppression for each index of STT neuron excitability was significant ($p<0.05$, paired Student's t test) and recovered toward baseline values within 60 min. Microinjections of vehicle, control solution did not alter STT neuron activities ($p>0.05$).

CONCLUSIONS: These findings indicate that the analgesia following microinjections of PB into the MPTA (Pain 94: 101-112, 2001), may be due to attenuation of sensory inflow through the STT. Supported by NIH and CIHR.

P45

KEY CUES UNDERLYING CAREGIVERS' PAIN JUDGMENTS: COMPARING PARENTS, NURSES AND PAEDIATRICIANS

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AIM: The purpose of this study was to elucidate the basis for pain judgments made by different types of caregivers.

METHODS: One hundred and twenty-three participants were recruited (41 parents, 41 nurses and 41 paediatricians) for a video judgment study. All participants assessed the pain instigated by immunization injections of healthy infants aged either 2 or 18 months. They also were asked to rate how important 12 different cues were to their pain judgments.

RESULTS: Two one-way MANOVAs were used to analyze the relationship between caregiver groups and the importance of cues ratings. Certain cues were found to have importance ratings that were significantly different between groups, with paediatricians' ratings significantly different from parents, and nurse's ratings falling in between these two groups. Two Discriminant Function Analyses (DFAs) were used to analyze whether the pattern of endorsement for all the cues simultaneously distinguished the three groups and also which cues contributed to this discrimination. The DFA reliably discriminated the parents from both nurses and paediatricians. However, there was an age group difference in the type of cues that discriminated the three groups; at 2 months this was based mostly on environmental cues, whereas at 18 months, cues requiring inference into the infant's cognitive abilities also contributed.

CONCLUSIONS: As a group, the importance ratings of the cues distinguished parents from both groups of health care professionals. In particular, older babies tended to elicit judgments that factored in cognitive capability more than younger infants. These findings suggest that different groups of caregivers may have different heuristics of judging infant pain.

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EVALUATION OF THE IMPLEMENTATION OF A NEW PAIN ASSESSMENT TOOL FOR NON-VERBAL PATIENTS IN THE TRAUMA/NEUROSURGICAL CRITICAL CARE UNIT

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AIM: Accurate pain assessment and management in nonverbal or cognitively impaired patients is challenging. Poorly managed pain is associated with a number of adverse outcomes. Currently there is no widely accepted assessment tool in place for pain assessment in non-verbal patients. A formalized assessment tool may aid in pain management, increasing patient satisfaction with pain management, and will provide a measurement tool for future projects. The objectives of the study were to A) evaluate the effect of implementing a new pain assessment tool in a Trauma/Neurosurgical Critical Care Unit and B) evaluate the inter-rater reliability of the tool. Outcome measures were patient satisfaction, frequency of pain documentation, amount of analgesia administered and inter-rater reliability.

METHODS: Part A) To evaluate the impact of implementation of the tool, retrospective chart reviews and patient satisfaction questionnaires

were utilized pre- and post-implementation of the Critical Care Pain Rating Scale (CCPRS). The CCPRS is a compilation of three separate rating scales (Numerical Pain Rating Scale; Wong Faces Pain Scale; Adult Non-Verbal Pain Scale, ANVPS) developed for the purpose of this study. The CCPRS can be used with conscious, verbal patients as well as sedated and/or intubated patients. The questionnaire responses, frequency of pain documentation by nurses, and amount of pain medication given were compared pre- and post-implementation using t-tests. Part B) To evaluate inter-rater reliability of the ANVPS, patients pain was evaluated by two independent raters using the ANVPS tool.

RESULTS: Part A) Implementation of the tool increased the frequency of pain assessment documentation. Patients reported decreased retrospective pain ratings and a decrease in amount of time required to receive pain medication. Part B) There is some inter-rater reliability when using the ANVPS scale to evaluate patients' pain. The inter-rater reliability was greater in evaluation of conscious, verbal patients than non-verbal or cognitively impaired patients.

CONCLUSIONS: The CCPRS is a comprehensive pain assessment tool that can be used with conscious, verbal patients as well as sedated and/or intubated patients. Implementation of the CCPRS in a critical care setting improved pain management, frequency of documentation, and patient satisfaction scores. There is some level of inter-rater reliability of the ANVPS tool.

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EVALUATION OF PAIN MANAGEMENT EDUCATION MODULES FOR NURSING

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BACKGROUND: In 2005, the Canadian Council for Health Care Services Accreditation (CCHSA) implemented new criteria for pain management for health care organizations. One of the criteria included providing staff with education on pain relief strategies that are up to date and evidenced based. A set of educational modules (Nursing Pain Management Resource Centre) was developed in 2006 with the intent to present the modules across Canada. The module topics included: myths and misconceptions, pathophysiology of pain, assessment, pharmacological treatments, non-pharmacological treatments, addiction and accreditation criterion. These educational modules were distributed for use to nurses with an interest in providing pain management education.

AIM: The purpose of this study was to evaluate the utilization and initial impact of the educational modules.

METHODS: In 2007, a questionnaire was distributed electronically to all nurses who received the education modules to assess the utilization and ability to impact practice change.

RESULTS: There were 69 educational programs presented between 2006 and September 2007. Audience members for presentations were mostly staff nurses (70%) and other health care professionals (57%). Participant comments indicated positive practice changes.

CONCLUSIONS: Initial evaluation of the educational modules indicated positive practice changes. Future directions include continuing education sessions and evaluating future presentations for their ability to increase nurses' pain management knowledge.

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VALIDATION OF POSTOPERATIVE PAIN ASSESSMENT METHODS IN EXPERIMENTAL MALE BEAGLE DOGS

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AIM: To investigate the reliability and validity of different methods of surgical pain assessment in dogs.

METHODS: To minimize inter-individual variability, general anaesthesia and trochleoplasty surgery were standardized. Dogs were exposed to 3 different levels of analgesia: Gr1 (placebo; n=10); Gr2 (pre-emptive oral test drug (OTD); n=10); and Gr3 (pre-emptive, multimodal analgesia with epidural 0.1 mg*kg⁻¹ morphine and 1 mg*kg⁻¹ ropivacaine, 25-50 µg*h⁻¹ transdermal fentanyl, 4 mg*kg⁻¹ SC tolfenamic acid, and OTD; n=5). Blinded treatments were maintained during the 2-day postoperative follow-up.

Mean systemic arterial pressure (MAP) and heart rate (HR) were used to assess intra-operative analgesia. Automated video-analysis of behaviour (gold standard) was compared to a composite pain scale (4A-VET), visual analog scale (VAS), and electrodermal activity (EDA) measurements, all performed at regular intervals. Telemetric chips monitored locomotor activity.

Data were analyzed using ANOVA/ANCOVA and Dunnett's t-test except when non-parametric analyses were necessary.

RESULTS: Intra-operative MAP maximal increase = Gr1: +27±15%; Gr2: +08±17%; and Gr3: +02±03% (P=0.02). HR showed identical differences between groups (P=0.003). Automated video-analysis detected behaviours indicative of 3 pain levels: Gr1=high; Gr2=intermediate; Gr3=low. EDA and 4A-VET also demonstrated inter-group differences but for limited duration and with lower sensitivity. Locomotor activity and video-analysis highlighted the interference of sedation induced by analgesics in the evaluation of pain for Gr2 and Gr3.

CONCLUSIONS: 4A-VET's limited sensitivity must be improved by eliminating criteria affected by analgesic-induced sedation before considering future clinical applications. Value of video-analysis and locomotor activity was confirmed in experimental conditions, whereas VAS was inefficient.

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LONG-TERM USE OF SATIVEX IN MULTIPLE SCLEROSIS CENTRAL NEUROPATHIC PAIN; DOSING PATTERNS AND CHANGES IN CONCOMITANT ANALGESIA

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AIM: Central neuropathic pain in Multiple Sclerosis, long term use of Sativex; a description of dosing patterns and concomitant analgesic use.

METHODS: Sativex buccal spray, endocannabinoid system modulator, containing delta-9 tetrahydrocannabinol (THC) and cannabidiol (CBD), was investigated in a randomised-controlled trial of 66 MS patients with CNP. Sixty three patients (95.5%) entered a long-term, open-label extension study. Patients self-titrated their dosage.

RESULTS: In the randomised trial, Sativex achieved significant improvements in pain (0-10 numerical rating scale (NRS), p=0.005, Neuropathic

Poster abstracts

Pain Scale $p=0.044$) and sleep disturbance (0-10 NRS, $p=0.003$) compared to placebo (1). The mean duration of the subsequent open-label treatment was 463 days (range 3-917, SD 378). Twenty-eight patients (44%) completed the extension trial, their mean number of sprays taken in the final six full days of treatment was 6.5 (range 0.5 - 24.8, SD 5.8). Thirteen (46%) patients took <5 sprays, 10 (36%) patients took between five and 10 sprays and five (18%) patients took >10 sprays (per 24 hours). Individual patient's dosing patterns will be presented. Most Sativex was taken between 6pm and midnight. Patients who completed the open-label trial were taking 31 concomitant analgesics at its commencement. Doses of 15 (48%) such medications remained unchanged. New analgesics were commenced during the study by 14 (50%) patients; half of these patients continued these medications at the end of the study. Similar patterns were observed with "non-analgesic" medications which may affect pain.

CONCLUSIONS: Sativex when used long term in MS and CNP has demonstrated flexible dosing and the use of concomitant analgesia remains relatively stable.

FOOTNOTES/REFERENCES:

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SATIVEX (THC:CBD) & FIBROMYALGIA TREATMENT: COMPARING SPRING & FALL TRIALS

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AIM: Observing two cohorts of Fibromyalgia patients with Sativex buccal spray, to assess pain and function benefits, one cohort in late fall, early winter, the other in spring, early summer, to assess possible time of year differences in trial design for FM.

METHODS: 67 FM patients tried Sativex – Fall/06, early Winter/07; 53 patients – Spring/early Summer/07. Assessments: pain with Visual Analogue Scale (VAS); pain, function and mood with Fibromyalgia Impact Questionnaire (FIQ). Patients continued all other medications, without dose alterations in this "real world" trial.

RESULTS: Colder weather cohort: 32/67 patients (47.8 %) reported baseline to Week-4 pain reductions, plus lower FIQ scores; 22 followed to Week-8, 17 continued good FIQ reductions during Weeks 4-8.

Warmer weather cohort: 30/53 patients (56.6%) reported similar positive benefits;

17 followed to Week-8, 15 continued FIQ improvement.

Cold Cohort mean VAS

Baseline: 6.9; Week-4: 5.8; Week-8: 5.8

Warm Cohort mean VAS

Baseline: 7.3; Week-4: 5.5; Week-8: 5.6

FIQ scores Cold Cohort Warm Cohort

Baseline mean: 74.8 (100/33.1) / 74.7 (98.2/30.4)

Week-4 mean: 58.9 (88.3/28.5) / 59.1 (91.2/8.6)

Week-8 mean: 58.3 (81.6/28.2) / 52.1 (77.9/9.0)

Discontinuing Sativex:

Cold Cohort: side-effects: drowsiness, dizziness, altered feeling - 21; insufficient benefits - 14.

Warm Cohort: 15 due to intolerable side-effects; 8 due to insufficient benefits.

CONCLUSIONS: two observational trials up to 8-weeks, using Sativex for FM symptoms, both showed almost identical results for pain and function improvement.

Could warmer temperatures and longer daylight hours answer the 15.5% edge in number of patients benefiting from Sativex? Could time of year influence future FM trial design?

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RESULTS OF A CHART REVIEW REGARDING PAIN MANAGEMENT PRACTICES IN A LONG-TERM CARE SETTING

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AIM: The objective of the chart review was to identify the chronic pain management clinical practice gaps in a long-term care setting.

METHODS: The chart review was conducted by a clinical nurse specialist (CNS) and a physician. Thirty-four (34) charts of patients with a chronic pain profile were reviewed. For each chart, the following items were considered and data was collected:

- nurses' notes
- medical notes
- pain assessment form
- vital signs flow sheet
- medications record

Following the chart review, a content analysis of the data collected was conducted by the CNS and the physician in order to identify trends and gaps in clinical practice. This was done in comparison to the geriatric pain management best practices guidelines recommended by the Registered Nurse Association of Ontario (RNAO), the American Geriatric Society (AGS) and the American Medical Director Association (AMDA).

RESULTS: Five (5) clinical practice gaps were identified:

- Inconsistency in pain assessment and use of assessment tool
- Lack of follow-up on pain assessment
- High rate of per needed meds for the management of chronic pain
- High use of codeine medication although not recommended for geriatric patients
- Lack of communication / documentation on pain

In account of these results, the following actions were taken:

– Awareness campaign targeting the nursing staff on the importance of pain assessment and follow-up.

– A Pain Resource Nurse (PRN) from our pain clinic was made available to support the pain management efforts on the units.

– A per needed meds prescription and administration protocol was developed by a joint committee composed of physicians, nurses and pharmacists.

– The prescription of Codeine is now monitored monthly by pharmacy and the Medical Director.

– A lot of emphasis has been put on the importance of communicating among the care team and documenting on pain issues.

CONCLUSIONS: The chart review clearly identifies gaps in clinical practice in regard to pain assessment, utilization of per needed meds and communication and documentation. Corrective measures are underway to correct these gaps and assure better pain management to our patients. Our next step will be to assess the improvement in pain clinical practice following the implementation of the corrective measures.

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PAIN & OTHER ADVERSE SYMPTOMS FOLLOWING INGUINAL HERNIA REPAIR

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AIM: The aim of this study was to review information that was collected as part of the post-operative follow-up telephone call and to identify if pain or other adverse symptoms were acknowledged as a problem experienced by patients as a result of inguinal hernia surgery at a large University affiliated teaching hospital in Ontario.

METHODS: The design for this study was a retrospective chart review. Inclusion criteria included: male patients age 18 or older and were discharged home on the same day as their inguinal hernia surgery. A standardized check list was used to gather information regarding pain and adverse effects from patients on post-operative day 1. The information gathered using this standardized check list was examined.

RESULTS: Charts of 98 male patients who underwent inguinal hernia surgery between March 2006 and March 2007 were examined. Pain was the most commonly reported adverse symptom after inguinal hernia surgery with 81% of patients indicating they experienced pain. Eighty-six patients (87.7%) used their prescribed analgesics to manage their pain. The most commonly prescribed analgesic was 325 mg acetaminophen with 30mg codeine.

CONCLUSIONS: This chart review found that when nurses asked about the presence of specific adverse outcomes during a post-operative telephone call patients identified the presence of pain, bleeding from the surgical site (that resolved within 24 hours), difficulty voiding (that resolved within 24 hours), sore throat, and nausea and vomiting most frequently. The majority of patients used the prescribed analgesics to manage their post-operative pain.

P53 EXPLORING DECISION MAKING REGARDING OPIOID USE POST-OPERATIVELY

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AIM: The purpose of this study is to explore adult patients' decision making processes regarding whether to self-administer an opioid via patient controlled analgesia (PCA) at the time they are experiencing post-operative pain.

METHODS: This qualitative research study was guided using interpretive description as the methodology to explore the phenomenon. Data collection involved a pre-operative interview, a think-aloud technique, and a post-discharge interview.

RESULTS: Decision making was found to be complex, non-linear, often circular, and iterative. Personal beliefs about maintaining control and the need to avoid opioid dependency played a paramount role in decisions made regarding PCA use for post-operative pain. Participant's decision to use PCA was affected by several factors including their personal goals, beliefs, expectations, and several situational and contextual factors.

CONCLUSIONS: The findings demonstrate the potential to more accurately address patient's real pain education needs to more effectively manage surgical pain. The model developed has an added opportunity to provide health care team members a tool to explore and better understand the surgical patients' decision making processes for pain management.

P54 EDUCATIONAL NEEDS OF COMMUNITY HEALTH NURSES CARING FOR CLIENTS WITH CHRONIC NON-CANCER PAIN

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AIM: Community health nurses (CHNs) frequently encounter clients with multiple medical diagnoses including chronic pain. Lack of knowledge regarding chronic pain management among nurses in various clinical settings has been documented in the literature, but little is known about home care settings. The purpose of this pilot project was to evaluate the need for an education program for CHNs who provide home care to clients with chronic non-cancer pain.

METHODS: A cross-sectional design was used to survey all CHNs employed in one health region in Atlantic Canada. An existing valid and reliable tool (modified with the permission of Ferrell and McCaffrey, 1997) was expanded by adding questions based on a review of the literature. The 46-item instrument, "Nurses Knowledge and Attitudes Survey of Chronic Pain in the Community" (NKAS-CPC), addresses the following areas: pain in general, chronic non-cancer pain, and case load and demographic information.

RESULTS: Forty of 64 CHNs responded to the survey, with 80% (n=30) visiting clients with chronic pain daily or weekly. Common conditions included arthritis, osteoporosis, diabetic neuropathy, musculoskeletal conditions and Crohn's disease. Nurses had a moderate level of knowledge

regarding pain in general, but poorer knowledge of pharmacological and non-pharmacological therapy for chronic pain. Few nurses always assessed for chronic pain and only two nurses used a pain assessment tool. Few were fully satisfied with their documentation. All nurses had some knowledge of what community resources are available for chronic non-cancer pain. Only 2.5% of CHNs reported feeling adequately prepared to help their clients with chronic non-cancer pain.

CONCLUSIONS: Based on CHNs' responses to the survey, recommendations for a comprehensive education program were developed.

FOOTNOTES/REFERENCES:

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P55 CONSISTENCY BETWEEN CLINICAL DIAGNOSIS, SELF- REPORTED PAIN, AND VESTIBULAR SENSITIVITY IN PROVOKED VESTIBULODYNIA

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AIM: Provoked vestibulodynia (PVD) is a common cause of dyspareunia (i.e., pain during intercourse). Its diagnosis is based upon self-reported dyspareunia and pain during a diagnostic examination. To date, little research has examined associations between subjective pain ratings and clinical diagnosis. The current study examined the relationship between pain ratings during the diagnostic examination (the cotton-swab test), self-reported pain symptoms, and vestibular pain thresholds assessed via quantitative sensory testing (QST).

METHODS: This study is ongoing; to date, participants are 25 women with PVD and 31 controls who reported gynecological history, including any vulvar pain symptoms, during a telephone interview. Women were subsequently scheduled for a standardized gynecological examination that included the cotton-swab test, and a laboratory appointment that assessed vestibular thresholds using QST. Pain intensity ratings were collected during the cotton-swab test and QST.

RESULTS: The cotton-swab test confirmed 89.3% of self-reported PVD cases and 100% of control cases. Pain ratings during this test distinguished between women with PVD and controls, with PVD women reporting significantly higher pain ratings ($t = -8.53, p < .05$). During QST, pain detection threshold was associated with pain ratings during the cotton-swab test, $r = -.63, p < .05$, indicating that increased pain sensitivity during QST related to higher pain ratings during the examination.

CONCLUSIONS: The QST results are consistent with previous research examining localized vestibular sensitivity in women with PVD. The cotton-swab examination correlated with both patient self-report and QST findings, indicating that this test provides a quick and useful tool for the accurate diagnosis of PVD.

P56 DIETARY ANALGESIA IN NERVE-INJURED RATS COULD BE MEDIATED THROUGH CYTOKINE INHIBITION

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AIM: We have previously shown that certain diets possess analgesic properties in rats undergoing a Partial Sciatic Ligation (PSL) injury (1). Pro-inflammatory cytokines are crucial for the development and maintenance of pain behavior following PSL (2), and other nerve injuries in rats. The production and function of cytokines depend on dietary constituents like protein and fat (3). No previous study has tested whether the analgesic effect of diet could be directly mediated through cytokine inhibition. Therefore, in this study we aimed to test whether dietary manipulations could mediate analgesia through cytokine inhibition in the injured nerve.

METHODS: The study included 3 groups of rats: a) PSL injured rats; b)

rats undergoing sham sciatic nerve injury; c) control rats. Rats of each group were fed either a soy protein/soy oil diet ("analgesic diet" (1) or an albumin protein/canola oil diet ("hyperalgesic diet") for 2 weeks before and 2 days after PSL injury. Rats were tested for their tactile (calibrated Von-Frey hairs) sensitivity before PSL and on day 2 after PSL. Segments from the injured and contra-lateral sciatic nerve were then obtained and analyzed for their pro-inflammatory cytokine content using a Luminex system.

RESULTS: Levels of 4/9 cytokines in the injured sciatic nerve were higher in PSL compared to sham-operated rats. Cytokine levels were significantly lower in PSL-injured rats fed the analgesic soy protein/soy oil compared to rats fed the hyperalgesic albumin protein/canola oil diet (e.g., TNF- α , $p < 0.02$; IFN γ , $p < 0.03$).

CONCLUSIONS: This study is the first to show that dietary-induced analgesia in nerve-injured rats is associated with decreased neuronal cytokine levels at the site of injury. Unveiling this mechanism of dietary analgesia could have clinical implications in humans with neuropathic pain.

FOOTNOTES/REFERENCES:

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DIETARY ANALGESIA IN NERVE-INJURED RATS IS ASSOCIATED WITH FATTY ACID CHANGES IN THE PERIPHERAL NERVE AND SPINAL CORD

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AIM: Pain behavior in rats undergoing the Partial Sciatic Ligation (PSL) model significantly depends on rats' dietary fat and protein content. No study to date has explored possible mechanisms of dietary-induced analgesia in these rats. One such mechanism could be changes in the fatty acid (FA) composition of neural tissue, since: a) dietary FA induced changes in the perception of acute pain in rats (1), and b) there are dynamic changes in the FA composition of neuronal membranes when the oily components of the diet are manipulated (2). Therefore, in this study we aimed to correlating pain behavior with tissue FA composition in PSL-injured rats fed different diets.

METHODS: For 14 days prior to PSL and 20 days thereafter 4 groups of male Wistar rats were fed identical diets but for their fat and protein sources. These sources composed of the 4 possible combinations of canola/soy oil and soy/albumin protein. Rats were tested for their tactile (calibrated Von-Frey hairs) sensitivity before PSL and daily thereafter. The ipsilateral and contralateral sciatic nerves and the L4-5 segment of the spinal cord were analyzed for their FA content using gas liquid chromatography.

RESULTS: There were significant dietary-dependent differences in the FA content of the sciatic nerve in all 4 FA groups. These differences were identical in the injured and intact sciatic nerves. Significant dietary-dependent differences in the FA content of the spinal cord were noted in 2 FA groups. A significant association was found between pain behavior patterns and FA content of the injured nerve. High levels of omega-3 FA in the peripheral nerve and spinal cord were associated with increased pain behavior, corroborating previous data from our lab (3).

CONCLUSIONS: Changes in dietary fat content bring upon significant modifications in the FA profile of peripheral nerves and the spinal cord. These modifications are correlated with pain behavior, indicating that mechanisms of dietary analgesia could be partially mediated through the FA content of peripheral nerves.

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P58

RETROSPECTIVE EVALUATION OF THE ABUSE POTENTIAL OF NABILONE (REASON)

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AIM: Nabilone is a synthetic cannabinoid used to treat chemotherapy-induced nausea and vomiting, and is increasingly being used 'off-label' for a range of pain conditions. Current knowledge regarding the abuse liability of nabilone is very limited. We conducted a Canada-wide review for evidence of the abuse potential of nabilone.

METHODS: We reviewed the scientific literature (PubMed, Science Direct, Eruudit, Cochrane Library), popular press (www.onlinenewspapers.com), internet databases (Google.ca), weblogs (blogsearch.google.com), regulatory databases (Library Information Management System (LIMS), Adverse Drug Reaction Monitoring Program, Criminal Intelligence Directorate, Toronto Drug Squad Pharmacy, Canadian Centre for Substance Abuse and others. We conducted interviews with medical professionals (32), medical agencies (8) and law enforcement agencies (18) across Canada.

RESULTS: Five scientific papers reported a low abuse potential. Fourteen news articles reported that the effects of nabilone are not as pleasant as herbal cannabis. Of 719 internet hits, 2 drug information sites suggested abuse and dependency potential. Seventeen blog posts discussed nabilone of which 8 reported recreational use of nabilone. The LIMS database suggests an increase in nabilone police seizures in the past three years. Toronto Drug Squad reported 6 episodes of nabilone theft (largest 150 pills). Nabilone has no known street value.

CONCLUSIONS: The results of this study suggest that although some cases of abuse and diversion have occurred, they are rare and isolated and do not reflect a national trend. Reasons why nabilone abuse is very low include cost, slow onset/long duration of action, adverse events, formulation, route of administration, lack of reinforcing effects, and easy availability of herbal cannabis.

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METHADONE PROTOCOL FOR CHRONIC NON-CANCER PAIN

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AIM: To describe, using 3 phases, the development and implementation of a standardized protocol to be utilized in methadone treatment including initial prescribing, rotation from other opioids, patient education and ongoing management.

BACKGROUND: Clinical experience has shown us that there has been an increase in the prescribing of methadone for chronic pain in the last several years (1). We have identified the need to implement a standardized methadone protocol for our pain management team. This protocol will benefit health care providers and their patients in establishing a safe, effective treatment option.

METHODS: Phase one is the initiation of methadone de novo or rotation from other opioids, titration, break through analgesic calculation, addiction screening, opiate contract, methadone prescription record, ECG assessment, drug interaction assessment, and letter to the family doctor. Phase two is patient education including information on side effects, drug and food interactions, titration, breakthrough medication and missed doses. Phase three is ongoing maintenance and monitoring of methadone treatment. This is accomplished through regular telephone calls and follow up appointments.

RESULTS: The Capital Health Pain Management Unit has developed a standardized methadone management program for chronic non-cancer pain.

CONCLUSIONS: Methadone use for chronic non-cancer pain is increasingly common. As methadone has unique properties that necessitate careful follow-up, a standardized protocol has been developed. Further study will determine the impact of this protocol on patient safety.

FOOTNOTES/REFERENCES:

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P60**A REVIEW OF SYSTEMATIC REVIEWS ON PAIN INTERVENTIONS IN HOSPITALIZED CHILDREN**

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AIM: To critically appraise all systematic reviews on the effectiveness of acute procedure related pain management in hospitalized children.

METHODS: Data Sources: Published systematic reviews and meta-analyses on pharmacological and nonpharmacological management of acute procedure-related pain in hospitalized children age 1 to 18 years were evaluated.

Study Selection: Electronic searches were conducted in The Cochrane Database of Systematic Reviews, Medline, EMBASE, CINAHL and PsychINFO. Two reviewers independently selected articles for review and assessed the quality of the systematic reviews using a validated 7 point quality assessment measure. Any disagreements were resolved by a third reviewer. Pain intensity was used as the primary outcome measure.

RESULTS: Of 1469 published articles on interventions for acute pain in hospitalized children, 8 systematic reviews on acute procedure-related pain interventions for hospitalized children met the inclusion criteria and were included in the analysis. However, only 5 of these reviews were of high quality. Critical appraisal of pharmacologic pain management interventions indicated that amethocaine was superior to EMLA for reducing needle pain. Distraction and hypnosis were non-pharmacologic interventions effective for management of acute procedure-related pain in hospitalized children.

CONCLUSIONS: There is a growing evidence base of rigorous evaluations of both pharmacological and non-pharmacological strategies for acute procedure-related pain in children; however, the evidence underlying some commonly used strategies is limited. This review will enable the generation of a future research plan to facilitate clinical decision making and to inform clinical policy development for managing acute procedure-related pain in children.

P61**CHANGES IN ACCEPTANCE ARE ASSOCIATED WITH OUTCOMES OF INTERDISCIPLINARY CHRONIC PAIN TREATMENT**

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AIM: Chronic pain acceptance has been defined as a willingness to experience pain (without attempting to change it) in the service of engaging in valued life directions (McCracken, 2005). Within this model, pain-related suffering is a direct result of unwillingness to experience pain (and pain-related thoughts and feelings) and the struggle that ensues in attempting to control or eliminate it. Greater acceptance of chronic pain has been associated with lower pain intensity, pain-related anxiety, depression, disability, and improved work status in cross-sectional (McCracken, 1998) and longitudinal (McCracken & Eccleston, 2005) research. This study sought to present outcomes related to interdisciplinary chronic pain treatment and examine whether changes in acceptance were related to changes in outcomes.

METHODS: One hundred thirty-eight chronic pain patients (64% female, mean age 46 years, 77% Musculoskeletal Pain) completed a semi-structured functional interview (Canadian Occupational Performance Measure) as well as the Multidimensional Pain Inventory, Beck Depression Inventory-II, and Chronic Pain Acceptance Questionnaire before and after a 6-week, half-day interdisciplinary treatment program.

RESULTS: All variables changed in the desired direction after treatment ($p < 0.01$). Changes in acceptance were related to improvements in self-reported functioning ($p < 0.05$), pain interference ($p < 0.01$), and depression ($p < 0.01$).

CONCLUSIONS: The results of this study provide further evidence that acceptance plays an important role in global adjustment to chronic pain. Future research should examine the nature of the relationships between acceptance, other process variables, and outcomes.

P62**COMPARISON OF PATIENT CONTROLLED EPIDURAL ANALGESIA (PCEA) AND INTRAVENOUS PATIENT CONTROLLED ANALGESIA (IVPCA) IN PATIENTS UNDERGOING RADICAL CYSTECTOMY**

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AIM: The objective of this study was to determine if there are outcome differences between patient undergoing radical cystectomy managed with PCEA or IVPCA.

METHODS: Following REB approval, consecutive patients undergoing cystectomy between 2003 and 2007 at the Toronto General Hospital were reviewed. Patient's charts, Transfusion database (Hemocare) and the Acute Pain Service Database were used to obtain patient variables (gender, age, height, and weight) and outcome variables (postoperative pain intensity, diet status, activity, nausea, pruritis, sedation score, length of hospital stay and blood transfusion). Pooled T-tests and Wilcoxon Rank-Sum Tests were used. A mixed model analysis was used to compare pain scores.

RESULTS: Of the 131 patient charts reviewed, 73 patients received PCEA and 58 IVPCA. Groups were similar in height, weight and age. Induction time was 10 minutes longer for the PCEA group. Mean daily pain scores with PCEA ranged from 0.4-1.7 at rest and 2.1-3.5 with activity, while with IVPCA scores ranged from 1.1-2.2 at rest and 2.1-4.3 with activity. There were no differences in any other outcome variables. A mixed model analysis found no difference between pain scores at rest across groups. However, pain scores with activity were lower in the PCEA group.

CONCLUSIONS: For patients undergoing radical cystectomy, PCEA provides better post-operative pain relief, but there was no difference in other post-operative outcomes or length of stay.

P63**ULTRASOUND GUIDED BLOCK OF THE GENITAL BRANCH OF THE GENITOFEMORAL NERVE FOR CHRONIC INGUINAL PAIN**

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AIM: Chronic groin pain can occur as a result of inguinal hernia repair or groin injury. We describe the use of ultrasonography to facilitate a block of the genital branch of the genitofemoral nerve (GBGFN).

METHODS: Patients (8 male and 2 female) with chronic groin pain in the distribution of the GBGFN consented to ultrasound-guided nerve block. A linear probe of high frequency (6-13MHz) is used to identify the femoral artery as it passes deep to the inguinal ligament at which point the probe is oriented perpendicular to the inguinal ligament. A scan directed medially is then performed parallel to the inguinal ligament in order to identify the spermatic cord in males, which is oval or circular in shape and associated with one or two arteries (testicular artery and artery to vas deferens). The vas deferens is often seen as a thick tubular structure inside the

cord. The final probe position is about 2 finger-breadths lateral to the pubic tubercle. An out-of-plane technique is used with a 22G needle approaching from the lateral aspects of the probe in order to inject around but not within the spermatic cord. Local anesthetic without epinephrine is used to avoid the possible vasoconstrictor effect on the testicular artery and a total of 5 to 7 milliliters is injected under direct vision. In the female patient the inguinal canal is identified by the presence of a small artery running parallel and superior to the inguinal ligament.

RESULTS: Six of the eight males had greater than 50% relief of pain lasting less than 2 weeks. One patient had 5 successive blocks but without any benefit beyond 2 weeks each time. The female patients had only localized and incomplete relief. There were no complications beyond localized bruising.

CONCLUSIONS: A novel technique for injection of the GBGFN is described. Ultrasound guidance provides a safe and effective method of injecting around the spermatic cord. Review of anatomy indicates that fibers of the ilio-inguinal nerve may also be blocked and thus we propose that this injection should be referred to as an inguinal canal block.

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P64

ADMINISTRATION OF 24% SUCROSE FOR PROCEDURAL PAIN MANAGEMENT IN NEONATES: AN EVIDENCE-BASED APPROACH TO CHANGING PRACTICE

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AIM: To monitor the implementation and utilization of 24% sucrose for procedural pain for all neonates admitted to the ward floor during a 9-week period. To develop better practice guidelines based on collected evidence to support a hospital-wide implementation.

METHODS: Sucrose, with and without non-nutritive sucking (pacifiers), is a recognized therapeutic analgesic in the neonatal population. As a result, healthcare professionals throughout CHEO were encouraged to initiate and administer sucrose to relieve neonatal pain. Hospital pain committees conducted extensive planning to develop the administration of 24% sucrose policy. Indications and benefits of sucrose as an analgesic were presented to management and clinical staff prior to policy implementation. Administration of sucrose encouraged by: in-service education and ongoing communication with staff, mini-posters to reinforce assessing opportunities for sucrose usage, and creation of a pamphlet to educate parents/guardians for use of sucrose as pain relief. Social marketing and advertising techniques were used to effectively launch the study.

RESULTS: Policy compliancy assessed by weekly chart audits and reviewed by a multidisciplinary focus group found that 85% of patients had sucrose initiated on the physician order sheet (n = 48). Sucrose was given prior to 67% of medical procedures, but less frequently prior to suctioning procedures. Feedback and follow-up with staff and clinicians found that administration of sucrose is a clinical decision based on the clinical state of the neonate.

CONCLUSIONS: Lessons learned from the pilot study ensured barriers to implementation were identified early and actions were taken to provide pediatric nurses with the information needed to incorporate oral sucrose usage into current care practices for neonatal pain management. Information was shared with leadership teams in other inpatient areas to help facilitate hospital-wide practice.

P65

AN INTERDISCIPLINARY APPROACH TO ACTIVE REHABILITATION AND NON-MALIGNANT CHRONIC PAIN MANAGEMENT

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AIM: With an interdisciplinary approach to chronic pain management, individuals suffering from non-malignant chronic pain work with a team of medical and rehabilitation specialists. These professionals aim to reduce the amount of pain experienced by the individual, help them to maximize their function and manage (both physically and psychologically) their existing pain more effectively.

The aim of this study was to assess whether clients who received an interdisciplinary intervention showed an improvement in their health, level of function and ability to manage their non-malignant chronic pain.

METHODS: All clients were referred by physicians and treated at a publicly funded interdisciplinary pain clinic in Edmonton, Alberta between May 2001 and March 2007. Eight hundred and thirty-eight clients attending an active rehabilitation (A/R) program were seen by an interdisciplinary team consisting of a combination of physicians, a registered nurse, physiotherapist, occupational therapist, exercise therapist, dietitian, psychologist and/or psychology assistant. Outcomes were measured before and after the A/R program using the SF-36, Modified Bruce Treadmill Test, Valpar Lift and Carry, and the Canadian Occupational Performance Measure (COPM).

RESULTS: Statistically significant improvement ($p < 0.05$) was indicated on all outcome measures of the A/R program (SF-36, Modified Bruce Treadmill Test, Valpar Lift and Carry, and COPM) for both females and males. Clients with non-malignant chronic pain scored lower than the Canadian average on all domains of the SF-36.

CONCLUSIONS: Data demonstrates that the interdisciplinary interventions received at the pain clinic significantly helped clients improve their health, maximize their function and manage the distress, dysfunction and disability associated with their non-malignant chronic pain.

P66

AN INTERNATIONAL SURVEY OF PATIENT REGISTRATION AT DIFFERENT UNIVERSITY PAIN CENTERS

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AIM: This study aimed to characterize the various registration practices at different University Pain Centers (UPCs) to evaluate the efficacy of systems used for reducing the time to access to pain center.

METHODS: We have employed a cross-sectional survey designed to gather descriptive information, using a questionnaire with 7 sections, that explores the pain clinic's current practices regarding patients load, evaluation, treatment, follow up and the system employed to prioritize the patients.

RESULTS: The results were analyzed with percentages, central tendency measures.

A total of 102 UPCs were approached in 19 countries, but only 15 countries and 24 UPCs were included. Participating UPCs are located in Asia, Australia, Europe, North America and South America. Of the 24 sites recruited, 5 reported not having a triage system to prioritize care at their UPCs. Four sites (80%) that did not employ triage systems also did not have waiting list (WL). Of the 19 UPCs that used triage systems, 68% (N=13) had a WL. The average waiting time (WT) varied from 2 weeks in South America (N=1); 1-6 months across Europe (N=9); 10 months in Australia (N=1) and 13-36 months in North America (N=2).

CONCLUSIONS: Timely access to pain care services is very important to optimize the management and treatment for chronic pain. Recent evidence suggests a maximum acceptable WT for treatment of chronic pain be of 6 months. In our study, only 66% (N=10) of UPCs, meet this recommended benchmark.

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NEUROPATHIC PAIN CASES REFERRED TO A PAIN CENTRE TWO YEARS EXPERIENCE AT THE UNIVERSITY OF MONTREAL'S HÔTEL-DIEU

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AIM: Neuropathic pain (NP) is a severe and disabling symptom frequently seen in pain centres. Its estimated prevalence in the developed world is 2-3% of the population, with an estimated one million people affected in Canada. However, scarce data on its occurrence is available, making management decisions difficult. The objective of this study was to determine the number of patients referred to the Pain Centre at the University of Montreal's Hôtel-Dieu (PCUM) with pathologies of neuropathic origin and to assess their demographic characteristics.

METHODS: This descriptive retrospective study was performed at the PCUM. All referral files from January 2005 to December 2006 were reviewed. The referral diagnosis and patients' age and gender were recorded and analyzed using averages and percentages.

RESULTS: During 2005 and 2006, 3844 patients were referred to our clinic. Of these, 574 (14.93%) had a neuropathic pain-related diagnosis, while 3270 (85.06%) were referred with a different cause. Of the 574 patients referred with neuropathic pain, 60.63% were female and 39.37% male. Their average age was 57.45±15.47 years. The most frequent causes of neuropathic pain referrals were lumbosciatica/lumbar radiculopathy (32.22%) and complex regional pain syndrome (CRPS) (30.19%). Less frequent causes were post-herpetic neuralgia (12.36%), neuropathic pain without a specific cause identified (6.44%), Arnold's neuralgia (6.09%), Trigeminal neuralgia (1.39%), neuropathy or other neuralgia (6.44%), phantom pain (2.78%), facial algia (1.56%) and other diagnoses (0.52%).

CONCLUSIONS: Establishing more accurate estimates of the prevalence of neuropathic pain syndromes is essential in order to better guide clinical management as well as help identify future research priorities.

P68

EXPRESSION OF PERIPHERAL NMDA RECEPTORS ON RAT TEMPORALIS MUSCLE AFFERENT FIBERS

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AIM: It has been found that unlike masseter afferent fibers, temporalis afferent fibers are relatively insensitive to peripheral NMDA receptor activation and do not exhibit sex-related differences in NMDA-evoked discharge [1]. The present study was conducted to determine whether these differences are due to a decreased expression of peripheral NMDA receptors by rat temporalis afferent fibers.

METHODS: Fast blue dye was injected into the temporalis muscle to identify trigeminal ganglion neurons that innervate the temporalis. Rats were euthanized seven days after injection with an overdose of pentobarbital. Trigeminal ganglia were removed and cut into sections with a vibratome. Immunohistochemistry was then performed to identify expression of NR1, or NR2A, or NR2B subunits on temporalis ganglion neurons.

RESULTS: In twelve ganglia (n=6 male, 6 female), NR1, NR2A, and NR2B expression was found in 18% (n=68 of 374 cells), 30% (n=122 of 403 cells) and 22% (n=91 of 413 cells) of temporalis ganglion neurons. No sex-related difference in expression was found (NR1: m=18%, f=18%; NR2A: m=30.5%, f=30%; NR2B: m=23.5%, f=21%).

CONCLUSIONS: These results indicate that the low expression of peripheral NMDA subunits in temporalis ganglion neurons may explain the relative insensitivity of temporalis afferent fibers to NMDA. The absence of sex-related differences in NMDA receptor expression may

account for the a lack of sex-related difference in NMDA-evoked afferent discharge.

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P69

CHRONIC NON-CANCER PAIN AND THE LONG TERM SAFETY AND EFFICACY OF OPIOIDS

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P70

A SURVEY OF PRE-LICENSURE PAIN CURRICULA IN HEALTH SCIENCE FACULTIES IN CANADIAN UNIVERSITIES

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AIM: This exploratory, descriptive study aimed to survey the designated time for formal pain teaching in curricula of major Canadian universities for students in Health Science and Veterinary Programs prior to being licensed.

METHODS: Major Canadian university sites (N=10) were chosen where the Health Science Faculties included at least Medicine (N=10) and Nursing (N=10), and many also included Dentistry (N=8), Pharmacy (N=7), Physical Therapy (8) and/or Occupational Therapy (6). These disciplines provide the largest number of students entering the workforce but are not the only ones contributing to the health professional team. Veterinary Programs (N=4) were also surveyed as a comparison. The Pain Education Survey, developed from previous work and piloted, provided data about the total number of hours dedicated to formal pain teaching and the proportion of time allotted for each of 8 pain content categories. Ethical approval was obtained from the University of Toronto site.

RESULTS: The majority of Health Science Programs (67.5 %) were unable to specify designated hours for pain as they have "integrated content" in several courses and/or clinical conferences. Only 32.5 % respondents could identify designated pain content taught as a separate course or content, with or without additional clinical conferences and integrated content. The average total hours per discipline across all years of the program varied from 13 to 41, with ranges from 0 to 109 hours. All Veterinary respondents identified mandatory designated formal pain content hours with the average total of 87 hours and the range from 27 to 200 hours. The proportion allotted to the 8 content categories was variable but monitoring content was minimal across all disciplines. Although the need for interprofessional pain education was identified, this was not in place as yet for most respondents. Resources needed to help with pain curricula were identified by many.

CONCLUSIONS: Only one-third of this sample could identify time designated for teaching formal pain content in their pre-licensure Health Science curricula. Two-thirds of respondents reported "integrated" content that was not quantifiable or able to be determined, which may suggest it is not a priority at that site. Many expressed a need for pain-related curriculum resources. Research to examine the successful models and their generalizability to other university sites is needed.

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ENTRY TO PRACTICE PAIN COMPETENCIES: SURVEY OF REQUIREMENTS FOR HEALTH SCIENCE STUDENTS

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AIM: Academic accrediting bodies and professional regulatory bodies strongly shape curricula through the regulations they impose. Students must acquire the necessary professional competencies to eventually become licensed by their respective colleges. These competencies tend to be given high priority by academic administrators and curriculum committees. The purpose of this survey was to determine the entry-to-practice competencies related to pain required for Health Science students at Canadian Universities.

METHODS: Competency was defined as the integrated knowledge, skills and judgement expected of the practitioner and it must be measurable and observable (www.cona-nurse.org/standards/glossary.htm; online.nmtc.edu/vrc/curric/Glossary.html). Entry-to-practice competency requirements were surveyed from national documents for Dentistry, Medicine, Nursing, Pharmacy, Occupational Therapy and Physiotherapy. Requirements were also surveyed for Veterinary Medicine as a comparison.

RESULTS: Clearly identified statements were minimal or none in the Health Science Documents. Nursing and Dentistry each had two clearly identified pain statements; Physiotherapy had one, and in the remainder pain was not mentioned. In contrast, the national competencies for Veterinary Medicine included nine competencies related to analgesic and anesthetic management with one additional competency related to alleviating suffering.

CONCLUSIONS: Influencing professional bodies to increase the number of pain management competencies may ultimately have the greatest impact on curricula. Specific competencies related to pain management for entry level practitioners will be discussed.

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NATIONAL INITIATIVE TO DEVELOP PAIN PROJECT ACTION PLANS

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AIM: This CPS Special Interest Group-Nursing Issues project aimed to a) identify nursing resources to support collaborations and/or new initiatives to advance pain practices in Canada and b) develop action plans for collaborative efforts within a region, province and/or nationally.

METHODS: Nurse leaders who had expertise in pain management from across Canada attended a strategy meeting in conjunction with the Canadian Pain Society Scientific meeting on Wednesday May 22, 2007. Invited participants (N=29) represented all provinces except Prince Edward Island. Three projects were briefly presented as examples of successful initiatives (V. Wiebe, N Schuttenbeld, S. Watt). Participants worked in small groups mixed by region to come to a consensus about priority projects, resources, and a related strategy plan in one of 4 areas: practice, role, education, or interprofessional/ government policy projects. Results were shared with the larger group to develop realistic action plans by the end of the meeting.

RESULTS: Discussion of the working group reports by the total group resulted in four strategy groups with identified leaders. There was consensus on the need to contribute to a national database to promote knowledge translation and exchange related to the 4 foci chosen: education, leadership,

research or practice. Priority projects were identified and action plans developed for realistic project work during the coming year.

CONCLUSIONS: Evaluations were very positive about the feasibility of these projects, developed with specific strategies and concrete action plans. The resulting data will provide information about initiatives and related resources to be shared in a data base for the CPS membership.

Funding Acknowledgment Purdue Pharma

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TREATMENT OF PAIN IN ARTHRITIS SUFFERERS: A SURVEY OF ONTARIO RHEUMATOLOGISTS

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AIM: To assess the opinions and current practices of rheumatologists regarding the treatment of persistent pain in arthritis patients.

METHODS: Questionnaires were distributed to rheumatologists in 2007. Demographic data, opinions, and attitudes towards pain management and the use of opioids were solicited.

RESULTS: Responses were received from 48/54 Ontario rheumatologists surveyed. Although 95.8% of respondents agreed that there are arthritis patients who continue to have moderate/severe pain despite adequate treatment, only 52.2% agreed with the use of opioid analgesics for these sufferers. Respondents felt that opioid side effects (89.1%), concerns re addiction/abuse/diversion (80.9%), and respiratory depression (62.2%) should limit the use of opioids. Of those clinicians who disagreed with the use of opioids, 77.3% still prescribed opioids.

Significant demographic differences were found in attitudes about pain management and the use of opioids. Clinicians with 20 years or less experience wrote fewer opioid prescriptions ($p=0.0096$), and felt less knowledgeable ($p=0.0067$) and less comfortable ($p=0.011$) about prescribing opioids, especially controlled-release opioids ($p=0.0081$). Academic rheumatologists saw fewer new ($p<0.0001$) and follow-up patients ($p<0.0036$) complaining of moderate/severe pain, and attended fewer pain management CMEs ($p=0.0054$). Rheumatologists who had recently attended at least one pain CME were more likely to agree that residual pain may benefit from opioids ($p=0.013$), were more aware of using Universal Precautions ($p=0.040$), and prescribed controlled-release opioids more frequently ($p=0.0042$) than those who had not attended such events.

CONCLUSIONS: Rheumatologists are divided in their attitudes regarding the use of opioids in the treatment of residual pain in patients with arthritis. Number of years in practice, continuing education, and concerns re opioid side effects appear to be major factors in their decision to prescribe these analgesics.

P74

THE CAREGIVING EXPERIENCE OF SPOUSES LIVING WITH A PARTNER WITH CHRONIC NON CANCER PAIN

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AIM: Chronic non cancer pain (CNCP) affects the individual's ability to fulfill his/her occupational, social, leisure, marital and parental roles. The illness has long-term implications not only for the patient but also for family members and especially the spouse who may be required to take on additional family roles and responsibilities including those of caregiver. Using a family nursing perspective, the objective of this study was to explore the caregiving experiences of spouses living with a partner with CNCP to gain a better understanding of their experience.

METHODS: A qualitative, exploratory design was used. 10 spouses living with a partner with CNCP were interviewed using semi-structured interviews. Thematic analysis was conducted concurrently with data collection. Audiotapes of the interviews were transcribed verbatim and coded as themes emerged.

RESULTS: Four themes were identified describing the spouse's experience: (1) "Life changing experience". They reported a "different life" and the presence of social and marital conflict, (2) suffering; physical and psychological illnesses were reported. (3) coping; the key element is acceptance

(4) caregiving. A key finding in this study was that spouses suffer greatly and they are continuously challenged in living with a partner with CNCP.

CONCLUSIONS: Enhanced knowledge and understanding of the spouse's experience of caring for a partner with CNCP is essential in guiding interventions that are more responsive to the challenges of family caregiving.

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VARIATION IN REGIONAL OPIOID PRESCRIBING IN NOVA SCOTIA – 2004 TO 2006

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AIM: Opioid medications are often prescribed as part of the management of pain, both acute and chronic. (1). However, the same medications used to treat pain are often implicated in drug abuse (2). Previous studies of geographic variation in opioid prescribing have focused on misuse and adverse events associated with the use of these medications (3)

The Nova Scotia Prescription Monitoring Program (NSPMP) collects information from all prescriptions for controlled substances written in Nova Scotia. Information collected is independent of third party drug coverage. The comprehensive nature of the data may provide insight into the provision of pain care and addiction care in Nova Scotia that is otherwise not available.

METHODS: All prescriptions for opiate prescriptions written in Nova Scotia from 2004-2006 were collected by the NSPMP. Data were converted to morphine equivalents. This data was then arranged by county and postal code forward sorting station (FSS, the first 3 characters of the postal code).

RESULTS: We report the regional distribution of all opioid prescriptions written from 2004 to 2006 in Nova Scotia. Additionally, we report the annual trends of opioid prescribing in Nova Scotia over this time period. This is the first report of regional distribution of opioid prescribing not linked to third party funding.

CONCLUSIONS: Regional distribution of opioid prescribing can provide insight into regional disparity in medical services such as chronic pain management and addiction management. This information can also be used to track potential regional distribution of inappropriate prescribing.

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