



5<sup>th</sup> International Conference and Exhibition on

# **PAIN RESEARCH AND MANAGEMENT**

October 05-06, 2017 London, UK

# Scientific Tracks & Abstracts Day 1

Pain Management 2017

## Sessions:

Day 1 October 05, 2017

### Interventional Pain Management | Pain Medication and Primary Care | Pharmacological Approaches for Pain | Pain Assessment Tools

#### Session Chair

**Feng Tao**

Texas A&M University, USA

#### Session Co-chair

**Marie N Hanna**

Johns Hopkins University, USA

#### Session Introduction

**Title: Mechanisms underlying alcohol withdrawal-induced pain chronification after surgery**

**Feng Tao**, Texas A&M University, USA

**Title: Effect of depth of neuromuscular block on intraoperative surgical conditions and pain in morbidly obese patients undergoing laparoscopic bariatric surgery: A double blind randomized controlled trial**

**Bart Torensma**, Leiden University Medical Center, Netherlands

**Title: Reboot Online is an online multidisciplinary pain management program effective in chronic pain - A randomised control trial**

**Steven Faux**, St. Vincent's Hospital, Australia

**Title: COX2/PGE2/EP4 signaling is involved in repeated restraint stress predisposed transition from acute to chronic pain**

**Weiya Ma**, Douglas Mental Health University Institute, Canada

**Title: Complex regional pain syndrome in children and adolescents**

**Ludmyla Kachko**, Schneider Children's Medical Center, Israel

**Title: A novel multidisciplinary perioperative pain medicine program: Redefining the scope of the acute pain service to minimize perioperative opioid utilization**

**Marie N Hanna**, Johns Hopkins University, USA

**Title: Effectiveness of Kinesio taping to reduce swelling in acute medial ankle sprain**

**Sajid Rashid**, Multan College of Physiotherapy, Pakistan

**Title: Pain analysis in musicians using digital pain drawings**

**Cinzia Cruder**, University of Applied Sciences and Arts of Southern Switzerland, Switzerland

#### Video Presentations

**Title: Chronic post-thoracotomy pain (CPTP): Do current analgesic techniques affect outcomes?**

**Fang Gao**, University of Birmingham, UK

**Title: Spine Center - An evolving paradigm in comprehensive treatment of spinally mediated pain**

**Hazmer Cassim**, Eisenhower Medical Center, USA

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## Mechanisms underlying alcohol withdrawal-induced pain chronification after surgery

Feng Tao<sup>1</sup>, Sufang Liu<sup>1</sup>, Zhiying Zhao<sup>1</sup>, Yan Guo<sup>2</sup>, Hui Shu<sup>1</sup> and Xiudong Yang<sup>1</sup><sup>1</sup>Texas A&M University, USA<sup>2</sup>The First Hospital of Shanxi Medical University, China

Chronic postsurgical pain is a serious health issue in clinical practice; however, it is unclear how acute to chronic postsurgical pain transition occurs. Previous studies have demonstrated that chronic ethanol consumption shares overlapping neural substrates with pain transmission. It has also been reported that ethanol exposure and withdrawal can regulate  $\alpha$ -amino-3-hydroxy-5-methyl-4-isoxazolepropionic acid (AMPA) receptor activities, which are involved in the pathogenesis of postsurgical pain. In the present study, we investigated the effect of ethanol withdrawal on plantar incision-induced postsurgical pain. C57BL/6 male mice (8-10 weeks) were given unlimited access to drink different concentrations of ethanol for four weeks, and next day following 4-week ethanol administration, a 5-mm longitudinal plantar incision was made in the left hind paw of the mice. We found that withdrawal from 4-week ethanol consumption greatly prolonged plantar incision-induced mechanical pain, but ethanol withdrawal alone did not produce pain behaviors. We also found that ethanol withdrawal markedly enhanced plantar incision-induced AMPA receptor GluA1 phosphorylation in the spinal cord. Interestingly, targeted mutation of GluA1 phosphorylation significantly inhibited ethanol withdrawal-induced prolongation of incisional pain. In addition, we observed that ethanol exposure increased AMPA receptor GluA2 dynamic internalization in the cultured spinal dorsal horn neurons. As we know, AMPA receptor phosphorylation and trafficking contribute to spinal central sensitization through lowering the threshold for long-term potentiation induction and increasing the probability of synaptic plasticity. Therefore, our results suggest withdrawal from chronic alcohol consumption may induce the development of chronic postsurgical pain by regulating AMPA receptor phosphorylation and trafficking in the spinal cord.

### Biography

Feng Tao is an Associate Professor in the Department of Biomedical Sciences at Texas A&M University College of Dentistry. He received his R01 award and Independent Scientist Award from NIH in 2012 and 2014, respectively. He has published more than 30 papers in peer-reviewed professional journals and he is serving as an Editorial Board Member for some professional journals.

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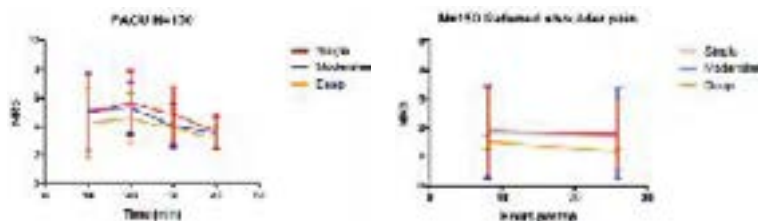
## Effect of depth of neuromuscular block on intraoperative surgical conditions and pain in morbidly obese patients undergoing laparoscopic bariatric surgery: A double blind randomized controlled trial

Bart Torensma<sup>1,2</sup>, Martini C, Boon M, In 't Veld B, Liem R, Knook M, Swank D J and Dahan A<sup>1</sup>Leiden University Medical Center, Netherlands<sup>2</sup>Dutch Obesity Clinic West, Netherlands

**Background:** It remains unknown whether the administration of a deep neuromuscular block (NMB) during bariatric surgery improves surgical conditions and patient outcome. The authors studied the effect of deep versus moderate NMB in laparoscopic bariatric surgery on surgical conditions and postoperative pain.

**Methods & Results:** Hundred patients scheduled to undergo elective bariatric surgery were randomized to a deep NMB (post-tetanic-count 2±3) or a moderate NMB (train-of-four 1±2). The quality of the surgical field was scored using the Leiden-Surgical Rating Scale (L-SRS), a 5-point scale ranging from 1 (extremely poor conditions) to 5 (optimal conditions). Three surgeons scored the L-SRS at 10-min intervals during surgery, postoperative pain scores were obtained in the post anesthesia-care-unit (PACU) and on the ward. Mean (95% confidence interval) L-SRS scores in moderate NMB 4.2 (4.0±4.4) versus 4.8 (4.7±4.9) in deep NMB (p<0.001). Moderate NMB resulted in 17% of scores at L-SRS scores of 1±3, while deep NMB resulted in 100% scores at the high end of the L-SRS (4±5). Deep NMB led to improved pain scores in the PACU (4.6 (4.2±4.9) versus 3.9 (3.6±4.4), p=0.03) and reduced shoulder pain on the ward (1.8 (1.5±2.1) versus 1.3 (1.1±1.5), p=0.03). A composite score of pain and opioid use in the PACU favored deep NMB (p=0.001).

**Conclusions:** In bariatric surgery, deep relaxation has advantages for surgeon and patient. Compared to moderate NMB, deep NMB produced stable and improved surgical conditions with less postoperative pain.



### Biography

Bart Torensma (MSc) has his experience in the field of Epidemiology and Anesthesiology. As CRNA he developed, in the last 10 years, the fast track bariatric surgery for the Dutch Obesity Clinics in the Netherlands. As PhD candidate at the University of Leiden (LUMC) he is doing research in the subjects with obesity combining this with the research in the operation theatre during surgery. Deep neuromuscular blockage and the finding of reducing pain post-operative with lower opiate consumption is one of his research projects. Furthermore, he developed his own masterclass in Epidemiology, Anesthesiology and Physiological effects of stress in the brain and the effect on the human behavior.

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## Reboot Online is an online multidisciplinary pain management program effective in chronic pain - A randomised control trial

Steven Faux<sup>1,2</sup>, Tania Gardner<sup>1</sup>, R Scultz<sup>1</sup>, J Smith<sup>1</sup>, J Newby<sup>1</sup>, S Faux<sup>1</sup> and G Andrews<sup>1</sup><sup>1</sup> St. Vincent's Hospital, Australia<sup>2</sup> Sacred Heart Rehabilitation Service, Australia

**Introduction:** Approximately 20% of the population suffers from chronic pain with a huge health cost burden. Evidence suggests that a multidisciplinary pain program (MDPP) is effective for chronic pain patients. A MDPP consists of various approaches to help the patient learn about chronic pain, its complexities and the skills to self-manage the condition. The Department of Pain medicine at St. Vincent's Hospital, Sydney, has developed a MDPP; the Reboot Pain Management Program (RPMP). Attendance to such programs can be limited due to family/work commitments and/or location of residence such as rural patients. Existing online pain management programs have been shown to result in positive outcomes however mainly focus on CBT components and have little or no activity based modules. "Reboot Online" is based upon St. Vincent's Hospital's 'Reboot' Pain Management Program (face-to-face service) and modelled on existing internet-delivered cognitive behaviour therapy (iCBT) programs successfully disseminated by the Clinical Research Unit for Anxiety and Depression (CRUFAD). The Reboot online program is unique in that it includes activity based components and a graded exercise program, alongside traditional CBT modules (including pacing, goal setting, activity planning, thought challenging, communication skills, reactivation and stress management).

**Aim:** To evaluate the effectiveness of "Reboot online" within a randomised controlled trial of the program.

**Methods:** Eighty participants who had self-reported chronic pain were enrolled into the trial and were randomly allocated to 1 of 2 study arms (1. Reboot online N=39, 2. usual care N=41). The program was delivered through the [www.virtualclinic.org.au](http://www.virtualclinic.org.au) with 8 lessons being accessed by the participants over 16 weeks. Primary outcome measures included: Brief Pain Inventory, Pain Self-efficacy Questionnaire, Fear Avoidance Beliefs Questionnaire, Tampa Scale for Kinesophobia, Pain Catastrophising Scale, Chronic Pain Acceptance Questionnaire, depression and generalised distress (PHQ9 and K-10). Measures were collected at pre-treatment; post treatment and 3 months follow up time points.

**Results:** Preliminary data analysis (paired sample t-test) has indicated that the intervention group showed significant change in measures of pain interference ( $P < 0.001$ ), pain related stress ( $P < 0.0001$ ), pain self-efficacy ( $P < 0.001$ ), fear avoidance beliefs ( $p < 0.0001$ ), kinesiophobia ( $P < 0.0001$ ), chronic pain acceptance ( $P < 0.0001$ ), depression ( $P < 0.0001$ ) and general distress ( $P < 0.0001$ ) in pre-to post treatment measures. Further data analysis including 3 months follow up measures will be conducted in November 2016 to ascertain if these improvements are maintained and compared between groups (or something similar).

**Conclusion:** Reboot Online is a promising and effective approach offering a unique online multidisciplinary pain management program. Reboot Online offers a cost-effective and pragmatic alternative and adjunct to multidisciplinary face-to-face pain management programs; "Reboot Online" will provide access to a MDPP for those living in rural areas, those unable to attend a program onsite due to physical/psychological impairment or with family/work commitments, thus increasing the accessibility to health services for those in chronic pain. Health services may also be able to utilize this program to combat extensive waiting times, and reduce the expense of running face-to-face pain management programs.

### Biography

Steven Faux is the Director of Sacred Heart Rehabilitation Service and Director of Pain at St. Vincent's Hospital, Sydney. His research interests are in post-traumatic headache, early pain management in trauma particularly the elderly and the development of a telehealth multidisciplinary pain clinic and pain programs. He has just published the first Australian RCT in early rehabilitation and pain management following road trauma focusing on pain and activity outcomes. He has been interested in asylum seeker and refugee health for the last 3 years and is a regular visitor at many Detention centres.

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## COX2/PGE2/EP4 signaling is involved in repeated restraint stress predisposed transition from acute to chronic pain

Weiya Ma<sup>1,2</sup><sup>1</sup>Douglas Mental Health University Institute, Canada<sup>2</sup>McGill University, Canada

Chronic pain is a serious health issue that afflicts >20% of the population and causes the worst quality of life. Its treatments are challenging due to unclear mechanisms. Emerging evidence suggest that sensitization of nociceptive neurons along peripheral (dorsal root ganglion, DRG) and central (dorsal horn and brain) pain pathways contributes to chronic pain. Prevalence of prior stress experience is linked to high incidence of chronic pain. Stress, particularly repeated stress, induces maladaptive neuroplasticity along peripheral and central pain pathways. These plastic events facilitate persistent sensitization of nociceptive neurons and transition from acute to chronic pain. Prostaglandin E2 (PGE2), a pain mediator enriched in injured tissues, is involved in chronic pain. Its EP4 receptor, a major player in pathological pain conditions, is considered as a potential therapeutic target of chronic pain. In this study, we examined whether COX2/PGE2/EP4 signaling is involved in stress-prolonged sensitization pain, a model for transition from acute to chronic pain. We found that pre-exposure to single restraint stress abolished sensitization pain evoked by subsequent PGE2 challenge. However, pre-exposure to 3d consecutive restraint stress not only prolonged sensitization pain evoked by PGE2, but also increased stress hormone corticosterone (CORT) in serum, COX2 levels in paw skin, EP4 and TRPV1 levels in DRG and paw skin. Pre-exposure to CORT for 3d also prolonged pain evoked by PGE2 while co-injection of glucocorticoid receptor (GR) antagonist RU486 with 3d restraint stress prevented prolongation of sensitization pain. Co-injection of a selective COX2 inhibitor NS-398 or a selective EP4 receptor antagonist L161,982 attenuated 3d restraint stress prolonged sensitization pain. In DRG cultures, in a concentration-dependent manner, CORT induced an increase in EP4 and TRPV1 protein levels via GR activation. These data suggest that stress-up-regulated COX2/PGE2/EP4 signaling and TRPV1 channel in peripheral pain pathway contribute to stress-predisposed transition from acute to chronic pain.



Figure 1 Flowchart showing that by up-regulating COX2/PGE2/EP4 signaling and TRPV1 channel in DRG neurons, repeated restraint stress prolongs sensitization pain, a model for transition from acute to chronic pain.

### Biography

Weiya Ma earned her PhD from Dept. of Pharmacology and Therapeutics at McGill University, Canada. She is now a Faculty Member at Douglas Institute and Dept. of Psychiatry, McGill University, Montreal, Canada. Thus far she has published more than 70 research articles and numerous book chapters. Her studies unraveled the role of neuropeptides in chronic pain conditions and morphine tolerance. Her pioneer work exploring the role of PGE2 in neuropathic pain and prolonged sensitization pain has let her become a Leader in this field.

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## Complex regional pain syndrome in children and adolescents

**Ludmyla Kachko**

Schneider Children's Medical Center, Israel

Complex regional pain syndrome (CRPS) is a painful syndrome, typically affecting the hand or foot. Regional pain, sensory changes (e.g. allodynia), edema and abnormal sudomotor activity, skin color and temperature that usually occurs after an initiating noxious event such as trauma are the main features. Two types of CRPS have been recognized: CRPS I corresponds to reflex sympathetic dystrophy (RSD) and occurs without a definable nerve lesion. CRPS II (causalgia) refers to a case in which a definable nerve lesion is present after a nerve injury, but the clinical picture is not limited to the distribution of the injured nerve. CRPS were regarded as rare in children until the 1970s but now it has become a well-established entity with its own characteristics. The diagnosis of CRPS can be performed on clinical judgment based on established diagnostic criteria, but the mosaic picture of this syndrome usually leads to delayed management, unnecessary investigations and improper treatment. Psychological factors contribute to the development of pediatric CRPS and sometimes a particular psychological profile can be seen. Dedicated team (pain specialist, PT/OT specialists, psychologist) is required for successful treatment. In conclusion, CRPS in children and adolescents is still underdiagnosed, although many of the epidemiologic features of pediatric CRPS are similar in different countries/cultures. Early diagnosis, appropriate referral and treatment are essential in reducing pain and improving function in children and adolescents with CRPS.

### Biography

Ludmyla Kachko is a Board Certified (Israel) in Anesthesia and Pain Treatment Medicine. She joined the staff of Department of Anesthesia at Schneider Children's Medical Center of Israel which is affiliated with Sackler Faculty of Medicine, Tel Aviv University, in 1998 as the attending Anesthesiologist, with the particular interest in Pain Treatment in children. Since 2001, she directs the Chronic Children's Pain Clinic as a part of Pain Treatment Service of the Department of Anesthesia. Her staff employs the multidisciplinary approach to the wide range of pediatric chronic pain conditions. Since 2011, she serves as the Head of Pain Treatment Service. She has established a new program for the treatment of Complex Regional Pain Syndrome in Children in Israel in 2002, that led to high awareness, early diagnosis and shorter treatment time. She provides many lectures in Israel and abroad in the fields of Chronic Pain in children.

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## A novel multidisciplinary perioperative pain medicine program: Redefining the scope of the acute pain service to minimize perioperative opioid utilization

**Marie N Hanna**

Johns Hopkins University, USA

**Introduction:** Increased utilization of prescription opioids for the management of chronic pain has led to a nationwide public health crisis with alarming rates of addiction and opioid-related deaths in the United States. Opioid prescriptions in the postoperative period have been implicated in the opioid epidemic. A multidisciplinary approach to perioperative pain management is essential to improving quality of recovery following surgery. We present a novel approach to perioperative pain management involving a multidisciplinary team approach starting with a patient consultation a month before surgery and follow up care extending into 3 months following discharge.

**Concept:** The development and implementation of an innovative population health initiative piloted at Johns Hopkins Hospital with plans for implementation across our health system is presented. Key features of our Perioperative Pain Program includes a multidisciplinary team of anesthesiologists, psychiatrists, integrative medicine specialists, physical medicine and rehabilitation services, along with a novel pain management infrastructure for triage and management. The program model consists of a combination of outpatient and inpatient services and comprises a preadmission, admission and post-discharge phase. Opioid dependent patients scheduled for surgery are referred to the clinic 4 weeks before surgery for the initial perioperative pain management planning consultation and are seen by a multidisciplinary team in a biopsychosocial model of care. The same team involved in the In-patient Acute Pain Service management the patient during admission. Following discharge, the patient is seen in the follow up clinic for 3 months and a “warm handoff” is then made to the primary care physician or pain specialist managing the patient.

**Projected Outcome:** Featured program goals are centered on key areas that will add value to patient outcomes: reductions in adverse events related to pain during the index hospitalization, reduced length of stay associated with uncontrolled pain, reduced pain-related readmissions, reduced inpatient and outpatient opioid utilization and improved patient and family satisfaction.

### Biography

Marie N Hanna is currently working as an Associate Professor of Anesthesiology in Johns Hopkins University at USA. She is also the Chief of the Division of Regional Anesthesia and Acute Pain Management. She is a Medical Director of Perioperative Pain Program.

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## Effectiveness of Kinesio taping to reduce swelling in acute medial ankle sprain

**Sajid Rashid**

Multan College of Physiotherapy, Pakistan

**Objective:** To evaluate the effectiveness of Kinesio taping to reduce swelling in acute medial ankle sprain

**Methodology:** Seventy two patients of medial ankle sprain were recruited for the study at The Sajid Physiotherapy & Rehabilitation Centre and Ibn - E-Siena Hospital & Research Institute Multan from November 2016 to May 2017. It was a randomized controlled trial. Patients were randomly allocated to an experimental group and a control group. The experimental group received Kinesio taping application for three days which was designed to treat swelling. The control group received an inert Kinesio Taping application. For the comparison between groups, the swelling was measured via Volumetry and Perimetry. Data was collected after the three days of intervention and the patients were re-evaluated for their symptoms after 15 days post intervention. Analysis of variance (ANOVA) linear mixed models were used to compare the effect of Kinesio Taping on swelling between the groups. A level of significance of  $\leq 0.05$  was adopted for all tests to be considered as statistically significant.

**Results:** At 3 days after intervention, there were no difference between groups for swelling in volumetry (MD-2ml, 95% CL-28 to 32); perimetry (MD 0.2cm, 95% CL-0.6to 1.0); and relative volumetry (MD 0.0cm, 95%CL-o.1 to o.1). At day 15 there was no significant between-group difference in outcomes.

**Conclusion:** The Kinesio Taping is ineffective in decreasing acute swelling after medial ankle sprain but still large scale studies with longer follow up are required.

### Biography

Sajid Rashid is the Principal & Associate Professor of Multan College of Physiotherapy, Multan, Pakistan. He is the member of Irish Society of Chartered Physiotherapist (MISCP). He did his graduation in physical therapy from King Edward Medical University, Lahore, Pakistan. He did his post-graduation (M. Phil) from Riphah University, Islamabad, Pakistan. Currently he is pursuing his PhD from Isra University. He has vast experience of serving in well reputed Government as well as in private sector organizations. He worked as a clinician, an academician, a researcher and also as an administrator. He is the member of editorial board & peer reviewer of various national & international journals. He presented his research work at various national & international forums. He is certified in different techniques including intra-articular injections; dry needling, and manual therapy as well as having different certificates in Medical Education.

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## Pain analysis in musicians using digital pain drawings

Cinzia Cruder<sup>1</sup>, Deborah Falla<sup>2</sup>, Francesca Mangili<sup>1</sup>, Laura Azzimonti<sup>1</sup>, Liliana S Araujo<sup>3</sup>, Aaron Williamon<sup>3</sup> and Marco Barbero<sup>1</sup><sup>1</sup>University of Applied Sciences and Arts of Southern Switzerland, Switzerland<sup>2</sup>University of Birmingham, UK<sup>3</sup>Royal College of Music, UK

According to the existing literature, musicians are at risk of experiencing a range of painful musculoskeletal conditions. Recently, a novel digital technology was developed to investigate pain location and pain extent. The aim of this study was to describe pain location and pain extent in musicians using a digital method for pain drawing (PD) analysis. Additionally, the association between PD variables and clinical features were explored in musicians with pain. 158 musicians (90 women and 68 men; age  $22.4 \pm 3.6$  years) were recruited from Swiss and UK conservatories. Participants were asked to complete a survey including both background musical information and clinical features, the QuickDASH (QD) questionnaire, and the digital PDs. Of the 158 participants, 126 musicians (79.7%) reported having pain, with higher prevalence in the areas of the neck and shoulders, the lower back, and the right arm. The mean percentage of pain extent was  $3.1 \pm 6.5\%$ . The mean QD score was higher for musicians with pain than for those without pain. Additionally, the results indicated a positive correlation between QD score and pain extent, and there were significant correlations between age and pain intensity, as well as between pain extent and pain intensity. The high prevalence of pain among musicians has been confirmed using a digital technique for PD acquisition and analysis. In addition, positive correlations between pain extent and upper limb disability have been demonstrated. Our findings highlight the need for effective prevention and treatment strategies for musicians.

### Biography

Cinzia Cruder is a PhD candidate at the Queen Margaret University of Edinburgh and a Research Fellow at the Department of Research and Development, Conservatory of Southern Switzerland, Lugano and the Rehabilitation Research Laboratory (2rLab), Department of Business Economics, Health and Social Care, University of Applied Sciences and Arts of Southern Switzerland, Manno, Switzerland. Her research interests lie in the artistic research field especially analyzing typical injuries in musicians and promoting health and wellbeing in schools of music.

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## Chronic post-thoracotomy pain (CPTP): Do current analgesic techniques affect outcomes?

**Fang Gao**

University of Birmingham, UK

An estimated 7200 thoracotomies (surgical incision into the chest wall) are performed annually in the UK, most commonly to treat lung cancer. It is considered one of the most painful surgical procedures due to tissue, muscle and nerve damage from the incision and wound retraction. Inevitable wound movement during respiration after surgery and intercostal traumatic nerve injury can result in a high risk of persistent pain for months after surgery. The incidence of this chronic post-thoracotomy pain (CPTP; defined as pain that recurs or persists at least two months following the surgery) has been reported to be as high as 50%. Two main analgesic techniques are commonly used for perioperative pain control during thoracotomy. TEB (Thoracic epidural block) blocks nerves in the chest, bilaterally, at the spinal cord level. It acts by reducing onward transmission of painful nerve signals but may not abolish them completely. PVB involves injecting local anesthetic into the paravertebral space on the side of surgery and may completely block painful nerve signals from reaching the spinal cord. This total blockade of nerve signals could remove the stimulus for 'central sensitization' which underpins the formation of chronic pain pathways. PVB could be uniquely effective in preventing long-term pain, and there is evidence from a recent trial of two techniques in breast surgery to support this premise. With limited current evidence to dictate the most effective choice of analgesic technique in preventing CPTP, current UK practice varies greatly. A recent Cochrane Review recommended that a high quality randomised controlled trial (RCT) to compare TEB and PVB with the primary outcome of chronic pain is urgently needed. A pilot trial (TOPIC – feasibility of RCT to investigate the effectiveness of TEB and PVB in reducing Chronic Post-Thoracotomy Pain) has recently completed in the UK demonstrating that a larger trial is feasible in terms of recruitment and retention. Now it is the ideal time to launch a substantive trial that conclusively answers this important question.

### Biography

Fang Gao is a Professor in Anaesthesia, Critical Care and Pain Medicine, College of Medicine and Dental Science, University of Birmingham. She is a Consultant Anaesthetist and Intensivist, Heart of England NHS Foundation Trust, England, UK. She leads Perioperative, Critical Care and Trauma Trials Group, and has special research interest in clinical trials in these areas. She was awarded a prestigious National Institute for Health Research (NIHR, England) Senior Investigator award in 2015, and was an inaugural Innovation Award Winner 2016, West Midlands Academic Health Science Network (AHSN), for best impact of the clinical trial.

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## Spine Center - An evolving paradigm in comprehensive treatment of spinally mediated pain

**Hazmer Cassim**<sup>1,2</sup><sup>1</sup>Eisenhower Medical Center, USA<sup>2</sup>Desert Orthopedic Center, USA

**Introduction:** The treatment of chronic pain has changed from opioids alone, to a multidisciplinary comprehensive treatment program. Isolated physicians and surgeons treating spinal pain without communicating with each other led to suboptimal outcomes for patients. Eisenhower Medical Center in Rancho Mirage California, has created a Spine Center with surgeons, pain physicians, physical therapists and pain psychologists working together to create a customized plan for individuals suffering in pain. The communication between the spine surgeon and the interventional pain physician, has provided the missing link in improving both surgical as well as interventional procedure outcomes. Fluoroscopic guided interventions performed at the direction of a spine surgeon, provides diagnostic value leading to better outcomes from surgery.

**Methods:** Retrospective analysis was conducted on 30 patient charts. Fifteen patients had surgery without interventional therapy. Interventional therapy defined as epidural steroid injection or facet based injections performed under fluoroscopic guidance. The other 15 patients had surgical treatment with interventional therapy directed by the surgeon for diagnostic purposes.

**Discussion:** Treating spinal pain continues to be a challenge due to the multiple potential pain generators that can create similar symptoms in an individual. If surgical treatment is considered, advanced imaging, MRI or CT and clinical exam are no longer sufficient to isolate the primary pain generator. Fluoroscopically guided interventional procedures can differentiate between individual neuroforamen that can be responsible for the patient's symptoms.

**Conclusion:** Spine Center is an optimal model to treat patients with spinally mediated pain. By creating an environment of discussion between many different specialties - a Spine Center facilitates a better understanding of patients symptoms, disease etiology and outcome.

### Biography

Hazmer Cassim is currently a Chair at the Eisenhower Medical Center, USA. He is also the Director of Desert Orthopedic Center of California in USA.

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# Scientific Tracks & Abstracts Day 2

Pain Management 2017

## Sessions:

Day 2 October 06, 2017

### Non Pharmacological Approaches for Pain | Pain Management Nursing | Chronic Pain Syndrome | Neuropathic Pain & Neuro Orthopedics

#### Session Chair

**Agaezi Sonya**

Sonya Health Mart & Chiropractic Inc, USA

#### Session Introduction

- Title: Trigeminal neuralgia: Radiofrequency treatment, glycerol rhyzolysis or surgery?**  
**Henk M Koning**, Pain Clinic De Bilt, The Netherlands
- Title: Does acupuncture alter pain-related functional connectivity of the central nervous system? A systematic review**  
**María Villarreal Santiago**, Centre for Health, Activity and Rehabilitation Research-University of Otago, New Zealand
- Title: Modulation of heat pain threshold during virtual body ownership**  
**Matteo Martini**, University of East London, UK
- Title: Chronic post-surgical pain (CPSP) in patients with no pre-surgery pain or pain history**  
**Bell Almog**, Kaplan Medical Center, Israel
- Title: A case study: Management of fibromyalgia with manual therapy and exercise therapy**  
**Agaezi Sonya**, Sonya Health Mart & Chiropractic Inc, USA
- Title: A multidisciplinary approach in managing lower limb diabetic foot ulcerations**  
**Bahle Nteleki**, University of Johannesburg, South Africa
- Title: Immediate effect of energy alignment and mantra on stress related pain in adolescents: Stomach aches, musculoskeletal pains and headaches**  
**Naveen Meghwal**, NMP Medical Research Institute, India
- Title: Acupuncture and topiramate in treatment of migraine**  
**Lazgeen Zerki**, Rapareen Teaching Hospital, Iraq

#### Video Presentation

- Title: Antinociceptive activity of ethnomedicinal plant *Hydrocotyle javanica***  
**Krithika N**, Quaid-e-Millath Government College for Women, India



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## Trigeminal neuralgia: Radiofrequency treatment, glycerol rhizolysis or surgery?

**Henk M Koning**

Pain Clinic De Bilt, The Netherlands

**T**rigeminal neuralgia (TN) is a painful condition involving the face which can be severely disabling. Several types of invasive (percutaneous treatments, surgical procedures) treatments are available. None of these treatments have been shown to be superior due to a lack of well-designed randomized controlled trials and conflicting results in the literature on observational studies regarding TN. Radiofrequency (RF) treatment is a minimally invasive, low-risk technique with a high rate of initial efficacy for treating TN and with high rates of side effects. Between 85% and 97% of patients report an initial effect of the RF ablation of the trigeminal ganglion. Pain recurrence rates are between 25% and 60%. Its disadvantages, however, include a high incidence of side-effects, large variability of effects and side effects, and a high rate of long-term failure. Empirical data on sensory stimulation thresholds, lesion time, and temperature during RF treatment, which could support making the most effective selection from the treatment options currently available, are lacking. Our study shows that there may be an optimum of sensory stimulation levels at 50 Hz during RF treatment of the trigeminal ganglion. Glycerol rhizolysis of the trigeminal ganglion is a safe procedure, which achieves a high rate of immediate initial pain relief with little or no alteration in facial sensory function in patients with trigeminal neuralgia. Earlier studies reported a success-rate between 59% and 94%. The reported recurrence rate at the end of 2 years after percutaneous glycerol rhizolysis of the trigeminal ganglion for trigeminal neuralgia is 39-41%. In the patient group with classical trigeminal neuralgia without third branch involvement, glycerol rhizolysis seems to be a highly appropriate percutaneous procedure. A prospective study on whether patient selection could improve the outcome of percutaneous treatments of trigeminal neuralgia is warranted. Further investigation of an optimal sensory stimulation range and an optimal temperature for percutaneous RF treatment of the trigeminal ganglion is advocated.

### Biography

Henk M Koning is an Anesthesiologist who worked more than 30 years in multidisciplinary pain relief. He has several national and international publications concerning anesthesiology, intensive care, trauma care and pain. In pain, his expertise is: low back pain, cervical pain, trigeminal neuralgia, painful feet, and tinnitus. He works in the Pain Clinic De Bilt, De Bilt, Netherlands.

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### Notes:

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# PAIN RESEARCH AND MANAGEMENT

October 05-06, 2017 London, UK

## Does acupuncture alter pain-related functional connectivity of the central nervous system? A systematic review

María Villarreal Santiago, Tumilty Steve, Macznik Aleksandra and Mani Ramakrishnan  
Centre for Health, Activity and Rehabilitation Research-University of Otago, New Zealand

**Background & Aim:** One of the proposed mechanisms behind acupuncture analgesia is normalizing the pain-related functional connectivity (FC) of the central nervous system. Several studies have investigated the effect of acupuncture on FC changes. However, to date, there is no conclusive evidence on the ability of acupuncture intervention on pain-related FC. Therefore, the aim of the systematic review was to evaluate the evidence for the effectiveness of acupuncture on influencing the FC of the CNS in patients with musculoskeletal pain.

**Methods:** To identify relevant studies, a systematic literature search was conducted in the following databases: AMED, CINAHL, EMBASE, MEDLINE, PEDro, PubMed, SCOPUS, and Web of Science using relevant MeSH. Two independent reviewers have conducted article screening process, methodological quality assessment of the included studies (Downs and Black questionnaire) and level of completeness and transparency in reporting acupuncture interventions with STRICTA.

**Results & Conclusion:** Seven studies met the inclusion criteria, out of which, 3 were RCTs and four were Non-RCTs. Included participants (n=191) were presented with a range of clinical conditions (osteoarthritis, chronic low back pain, carpal tunnel syndrome, and fibromyalgia). Methodological quality of the studies was high in 6 studies and moderate in one study. Information on depth of needle insertion, needle retention time, and needle type were not reported. Due to heterogeneity in FC measures, the meta-analysis was not conducted. Positive alterations on FC of the CNS were consistently observed following long-term acupuncture intervention in patients with musculoskeletal pain. This review provides a preliminary evidence on the effectiveness of acupuncture on FC in patients with musculoskeletal pain.

### Biography

María Villarreal Santiago is a Physiotherapist from Mexico. She has worked as a Physiotherapist both in hospital and private practice settings, gaining invaluable clinical experience in managing patients with neurological and orthopedic illnesses. In 2014, she got a Mexican government scholarship to study Master's Degree in Physiotherapy (endorsement in acupuncture) at the University of Otago, New Zealand. During her Master's dissertation she became fascinated by acupuncture and interested to conduct research to elucidate the mechanisms behind acupuncture analgesia. She is currently working in a private clinic in Mexico City and as a Professor in Diploma of Manual Therapy, teaching all around Mexico.

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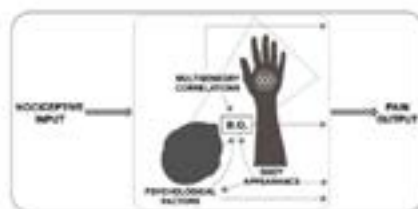
October 05-06, 2017 London, UK

## Modulation of heat pain threshold during virtual body ownership

**Matteo Martini**

University of East London, UK

In the last few years a branch of pain research has been focusing on the modulatory effects of the vision of the body on pain perception. So, for instance, the vision of one's own real body has been proven to induce analgesic effects. On the other hand, bodily illusions such as the rubber hand illusion have provided new tools for the study of perceptual processes during altered body ownership states. Recently, new paradigms of body ownership made use of a technology that is going places both in clinical and in experimental settings, i.e. virtual reality. My presentation will concern the studies that made use of virtual body ownership applied to human models of acute pain.



**Fig. 1.** Schematic representation of the factors involved in pain modulation during body ownership. (B.O.) multisensory correlations facilitate the sense of B.O. over a real body part, but different mechanisms can only use different gate processes. The perception of the body that triggers B.O. does not always affect pain perception as body image and responses, all of which may affect pain perception. Psychological factors mediate both cognitive (e.g. attentional resources, expectancy and appraisal) and emotional factors (e.g. positive or negative states). Both body appearance and body ownership processing are critically related to the affective response. Results of the "psychological factors" group that have an indirect analgesic effect for the state of clients, because they are often studied as separate factors in B.O. experiments and may contribute to alter the pain perception independently.

### Biography

Matteo Martini got a first-class degree in Experimental Psychology at the Psychology Department of "Sapienza" University of Rome. He obtained his PhD at "Sapienza" University with a thesis on the effects of cognitive and emotional processes on pain perception. During the last part of his PhD he moved to London to work on the placebo analgesia effect at the Department of Neuroscience, Physiology and Pharmacology of UCL. He later held a Post-Doc position working with immersive virtual reality scenarios and virtual body ownership, at the EventLab (Universitat de Barcelona), for the Institut d'Investigacions Biomèdiques August Pi i Sunyer (IDIBAPS). He is now a Higher Education Academy Fellow and holds a position as Lecturer at University of East London.

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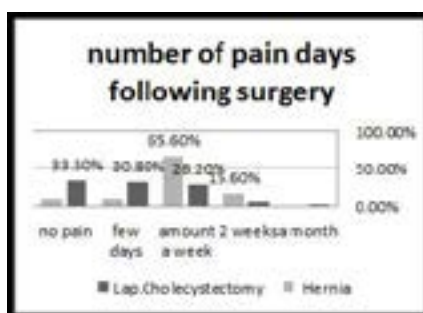
# PAIN RESEARCH AND MANAGEMENT

October 05-06, 2017 London, UK

## Chronic post-surgical pain (CPSP) in patients with no pre-surgery pain or pain history

Bell Almog, Simi Shitrit and Yardena Kol  
Kaplan Medical Center, Israel

Chronic Post-Surgical Pain (CPSP) is a recognized phenomenon, considered a complication of surgery. CPSP affects quality of life with a marked increase in the need for health services and high economic costs. Recently a new definition is suggested including four elements necessary for defining CPSP: pain develops following surgery, lasts at least two consecutive months, the patient has no chronic pain from another source, and no pre-surgery pain. This study examined the incidence of CPSP, following two types of surgical procedures in patients undergoing their first surgery, with no pre-surgery pain or disease history involving chronic pain. The study focused on pain management during and following surgery, and investigated the effect of treatment on the development of chronic pain. It also investigated the impact of early discharge on the patient's coping with self-treatment. The descriptive research was approved by the local Helsinki Commission (0150-09-KMC), and included a sample of 71 patients of genders, aged 25-67, undergoing open inguinal hernia repair or laparoscopic cholecystectomy under general anesthesia. The patients were discharged one day after the procedure, signing an informed consent form to participate in the study. Data was collected from medical records and a telephone interview conducted 3 months post-surgery. The results indicated low use of health services and no incidence of CPSP in patients who had surgery for the first time, with no disease history involving chronic pain. Study results reinforce other research hypotheses about the importance of perioperative treatment and prevention of central sensitization. The contribution of this study concerns continuation of treatment after discharge. Implementation of research results: For hernia repair patients, a week of round the clock medication and rescue medication as needed is recommended, detailed instructions with emphasis on the importance of continuing treatment. For cholecystectomy patients, continuing treatment is recommended for several days.



**Figure 1:** There was a statistical difference in pain days found between the procedures. ( $p=0.005$ ) 65.6% of hernia patients reported pain continuing for a week. Only 5 patients (15.6%) reported pain continuing for two weeks. One-third of cholecystectomy patients reported no pain following discharge. 30% reported on a few pain days (2-3 days), and 28.2% reported on pain continuing for a week. Only one patient reported on pain continuing for a month (following cholecystectomy). No patient reported pain continuing more than a month.

### Biography

Bell Almog is an Acute Pain Coordinator, for the last 17 years, responsible of the pain management field within the medical center. She is responsible for initiation and implementation of evidence based protocols among all departments include in discharge. She initiated two pain studies, participated in two others, and managing 7 quality processes to improve pain treatment and management.

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# PAIN RESEARCH AND MANAGEMENT

October 05-06, 2017 London, UK

## A case study: Management of fibromyalgia with manual therapy and exercise therapy

**Agaeei Sonya**

Sonya Health Mart &amp; Chiropractic Inc, USA

Fibromyalgia is a syndrome characterized by chronic, widespread musculoskeletal pain with tender points and stiffness in association with fatigue, poor sleep. It affects an estimated 3.7 million people in the United States especially women. Fibromyalgia is a diagnosis that has become more prevalent in recent years. Patient usually receives pharmaceutical and non-pharmaceutical treatments to help manage the condition. Some of the non-pharmaceutical methods of managing fibromyalgia include Physical therapy, Massage, Manual therapy and Exercise therapy. It is the author's opinion that manual therapy and exercise is an effective method of managing fibromyalgia. In this article, the author presents a case report of a patient with fibromyalgia who did respond positively to the treatment using manual therapy and exercises.

### Biography

Agaeei Sonya is the Founder and CEO of Sonya Health Mart & Chiropractic Inc. She holds a Bachelor's Degree in Microbiology, a Doctor of Chiropractic, has a Postgraduate Certificate in Diabetes Education and a Post-graduate Certification in Exercise and Lifestyle Management. She has been involved in healthcare and wellness for more than 2 decades. She is an US trained Doctor of Chiropractic and licensed to practice Chiropractic in both USA and Canada. As a Chiropractor, she worked in a multi-disciplinary clinic where she worked together in an inter-professional team with family practice MD's, Orthopedic Surgeon, Physician Assistants, Physiotherapist, Nurses, Massage Therapist and other healthcare practitioners. She is also a Speaker at various community events and organization on a wide range of topics including Pain Management, Diabetes and Management, Chiropractic Care, Health & Wellness, Lifestyle Modifications, Nutrition, etc. She was invited to speak as a Keynote Speaker at international science conferences on Pain Management. She has 2 published abstracts in: Pain Management and Assessment for Healthcare Practitioners; Low back pain: "Multidisciplinary approach in Low Back Pain Assessment". A full article has been published with *Journal of Anesthesia & Pain Medicine* on Pain Management and Assessment for Healthcare Practitioners.

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# PAIN RESEARCH AND MANAGEMENT

October 05-06, 2017 London, UK

## A multidisciplinary approach in managing lower limb diabetic foot ulcerations

**Bahle Nteleki and Mazizi Njokweni**

University of Johannesburg, South Africa

Diabetic foot ulcerations (DFUs) are one of the most serious and disabling complications of diabetes, 25% of patients with diabetes develop lower limb ulcerations in their lifetime. A majority of lower limb diabetic foot ulceration (DFUs) are avoidable but occurrence and complications related to diabetes mellitus is still high. The prevalence of DFUs in patients with diabetes mellitus is estimated as 3-10%. The treatment of DFUs requires that some of the major risk factors associated to the condition be identified and addressed individually. Multifaceted conditions of this nature should not be managed in isolation or by a single medical professional. A multidisciplinary team (MDT) should ideally be composed of specialists such as a general practitioner with interest in diabetes, podiatrists, dietician, a tissue viability nurse, a physiotherapist for rehabilitation, a psychologist and allied health-care staff. The main aim of the MDT is to enable patients to receive early or immediate access to relevant health-care professionals, education and, if required, interventions. A system needs to be in place that facilitates efficient and easy patient referrals between MDT members, effectively resulting in fast-tracking. The management of DFUs by a dynamic MDT aims to prevent the occurrence or deterioration of these ulcerations. The purpose of this study was to assess the importance of teamwork in the prevention and management of DFUs as well as highlight the use of adequate pathways to ensure that patients are assessed and treated by the correct medical professional.

### Biography

Bahle Nteleki completed his BTech Degree at the University of Johannesburg. He is currently employed by the Department of Health as a practicing Podiatrist in Pretoria, South Africa. He has published research both nationally and internationally. He is now enrolled with the University of Pretoria and pursuing his Master's in Public Health.

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# PAIN RESEARCH AND MANAGEMENT

October 05-06, 2017 London, UK

## Immediate effect of energy alignment and mantra on stress related pain in adolescents: Stomach aches, musculoskeletal pains and headaches

**Naveen Meghwal**

NMP Medical Research Institute, India

**Objective:** To examine the impact of yoga based energy alignment and mantra intervention on pain complaints with stress disorder in a population-based sample of adolescents.

**Method:** Data from 2 waves of interviews with 15- to 19-year-olds from the Bikaner study were analyzed. All the participants were followed up from intervention session of energy alignment, mantra practice and change in pain related to stress disorder.

**Results:** Overall, pain complaints were strongly associated with emotional distress as stomach aches and headaches together with musculoskeletal pain. After the 2 weeks of practice, participants (n=218) reported significant decrease in stomach aches ( $p<0.05$ ), headaches ( $p<0.01$ ) and musculoskeletal pain ( $p<0.01$ ).

**Conclusions:** Clinical recommendations include screening adolescents with persistent complaints of headaches, stomach aches, and musculoskeletal pains for stress disorders and awareness of energy alignment and mantra on the stress related pains were found useful.

### Biography

Naveen Meghwal is an experienced and internationally known Certified Yoga Therapist. After several years of practice and an extensive experience in healing, he began research work in 2006. Currently, he teaches in Hong Kong at Ananda yoga and lead research studies as Principal Investigator in Rajasthan, India. He teaches workshops, retreats, courses and presents at yoga conferences internationally. He is committed to making the world a better place by eco-awareness, teaching yoga and meditation, serving others with charity work, and offering music & mantra chanting.

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# PAIN RESEARCH AND MANAGEMENT

October 05-06, 2017 London, UK

## Acupuncture and topiramate in treatment of migraine

**Lazgeen Zerki**

Rapareen Teaching Hospital, Iraq

Acupuncture has been used to treat headaches for thousands of years. The greatest advantage of acupuncture over western medicine is that it is safe. Unlike synthetic drugs, acupuncture has virtually no side effects, and the procedures for treating headaches are much less invasive. Migraine headaches are usually one-sided, pulsating or throbbing, and moderate or severe in intensity. They can be worsened with activity and may be associated with nausea and/or vomiting, as well as sensitivity to light or noise. Some patients also experience auras, a neurological symptom that develops gradually over 5-20 minutes. The patient may see brief flashes or waves of light, or changes in their vision. Other common features of auras include vertigo, imbalance, confusion and numbness. Acupuncture had been used to treat 50 patient suffering from migraine, topiramate (Topamax) given to prevent the attacks, duration of treatment is 10 weeks; the patients were followed up for one year. Topiramate is called an anticonvulsant. Topiramate is also used to prevent migraine headaches in adults and teenagers who are at least 12 years old. This medicine will only prevent migraine headaches or reduce the number of attacks. It will not treat a headache that has already begun.

**Setting & time frame:** This study was carried out in Erbil, Iraq during the period 2013-2016.

**Methods:** Fifty patients all are male, age 25 -35 y, having no systemic disease, complaining of migraine for more than 1y, Liver and renal functions were normal. Classically the headache is unilateral, throbbing, and moderate to severe in intensity. It usually comes on gradually and is aggravated by physical activity.

1<sup>st</sup> step: I started treating them with acupuncture using the certain points weekly, for 4 weeks with one tablet per day of topamax.

2<sup>nd</sup> step: Then 2 weeks rest no acupuncture but the patients continued on topamax tablet 1/day.

3<sup>rd</sup> step: Acupuncture using same acupoints for another 4 weeks, one set/week, with 1 tab of topiramate /every other day.

The patient get 8 set of acupuncture with 60 tablets during 10 weeks of treatment.

**Results:** All the 50 patients had been followed for one year during this time there was direct contact with them monthly, for checking the investigation which was normal. After 6 months, they were free of pain except 5 patients (10%). After 1y – 35 patients were free of pain –and only 10 patients complained of pain.

**Advantages:** Acupuncture is effective in treating migraine specially when had been used in combination with Topamax, it has synergistic effect, safe without complications. They cover the acute attacks and had preventing effect.

### Biography

Lazgeen Zerki is currently working as a Consultant Anaesthetist and Acupuncturist in Rapareen Teaching Hospital of Erbil- Kurdistan, Iraq.

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# PAIN RESEARCH AND MANAGEMENT

October 05-06, 2017 London, UK

## Antinociceptive activity of ethnomedicinal plant *Hydrocotyle javanica*

Krithika N<sup>1</sup> and Arumugasamy K<sup>2</sup><sup>1</sup>Quaid-e-Millath Government College for Women, India<sup>2</sup>Kongunadu Arts and Science College, India

**Statement of the Problem:** The pain sensory system protects the body and maintains homeostasis by detection, localization and identification of tissue damaging process. NSAIDS or non-steroidal anti-inflammatory drugs and opioid drugs are the two main classes of pain relievers that come with side effects such as gastric irritation. Today, the search for a drug without these side effects leads to a promising track of herbal medicines or herbal drugs. *Hydrocotyle javanica* Thunb. (Apiaceae) is an ethnomedicinal herb of the southern Western Ghats. The natives use it in treatment of asthma, nervous problem, toothache and few more. But still many other pharmacological potentials remain unexplored. The control of infections demands a drug with efficacy but without any side effects.

**Methodology & Theoretical Orientation:** This study has been attempted to elucidate the antinociceptive activity of this plant by Eddy's hot plate and heat conduction methods. An extensive literature survey depicted the medicinal uses of the present plant.

**Findings:** The methanol extract of the whole plant showed a significant effect in alleviating nociception in rat experimental models. In the Eddy hot plate method, the intensity of the analgesic effect of *H. javanica* was greater than that of standard drug indomethacin ( $9.18 \pm 0.136$ ) and control ( $2.80 \pm 0.314$ ) with a maximum ( $12.16 \pm 0.281$ ) in the 450 mg.kg-1 dosage whereas in the Heat Conduction Method animals treated with plant methanol extract evinced significant increase in the tail flick latency compared to control (1.906) with a maximum ( $9.926 \pm 0.316$ ) in the 450 mg.kg-1 dosage. Analgesic activity in both methods showed a dose dependent response by the experimental rat models.

**Conclusion & Significance:** *H. javanica* can be used as a novel therapeutic herbal ingredient in the future that has the potential to relieve mankind from pain and such associated diseases. Further studies on its molecular mechanism are warranted.



Figure 1: Probable mechanism of action of *H. javanica* methanol extract as an antinociceptive

### Biography

Krithika N is a Faculty of Botany pursuing her PhD in the field of Medico-Botany under Prof. Arumugasamy. She is currently a full-time Research Scholar under the 12th plan of University Grants Commission, Faculty Development Programme, SERO, Hyderabad, India. Her in-depth knowledge in Botany especially, medicinal plants has helped in assessing the pharmacological aspects of an ethnomedicinal plant used by natives of Nilgiris, Tamilnadu, India. She has based her study with reference to *Hydrocotyle asiatica* (*Centella*) of family Apiaceae on which enormous studies have been reported. This is a first study on her chosen plant *Hydrocotyle javanica* Thunb.

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