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Journal of painsa

The South African Chapter of the IASP

Congress programme & abstracts

There's an app for that: mobile technology is a new advantage in managing chronic pain

New addiction criteria: diagnostic challenges persist in treating pain with opioids

Glossopharyngeal neuralgia

Burning mouth syndrome

2014 PAINSA CONGRESS ISSUE

Volume 9 Number 2
2014

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Oral administration[2]

Severe, chronic, intractable pain[3]

24-hour pain control[4]
Oral administration[4]
Once-daily dosing[4]

Chronic intractable pain[5]

Continuous 72-hour drug delivery[5]
Transdermal administration[5]
Lower incidence and impact of adverse effects vs. oral opiods[5]

S5 TRAMACET® tablets. Composition: Each tablet contains 37,5 mg tramadol hydrochloride and 325 mg paracetamol Reg. No. 35/2.9/0010. Full prescribing information refer to the package insert. (May 2008)

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For full prescribing information, refer to the latest package insert (March 2013).

References: 1. Tramacet® tablets package insert. May 2008. 2. Dhillon S. Tramadol/paracetamol fixed-dose combination. *Clin Drug Investig* 2010;30(10):711-738. 3. Jurnista® extended-release tablets package insert. Oct 2011. 4. Drover DR, Angst MS, Valle MS. *et al.* Input characteristics and bioavailability after administration of immediate and a new extended-release formulation of hydromorphone in healthy volunteers. *Anesthesiology* 2002; 97(4):827-836. 5. Durogesic® transdermal patches package insert. March 2013. 6.Kornick CA, Santiago-Palma J, Moryl N, *et al.* Benefit-risk assessment of transdermal fentanyl for the treatment of chronic pain. *Drug Safety* 2003;26(13):951-973.

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Journal of The South African Chapter of the IASP
Volume 9 Number 2

Editorial

PAINSA welcomes you to the Annual PAINSA Congress at Spier

This edition of the Journal differs from usual editions in that it is dedicated entirely to the Congress. I have included articles and abstract s received from the presenters. This will enable you to look back at presentations and research them further at your leisure.

We are indeed honored to host some special guests at this Congress. They will be presenting several papers on their own research and experience in managing pain. I wish to thank them for taking time from their busy schedules to be with us at the Congress.

One of these is Hans G Kress who is the current President of EFIC. He is also Professor of Anaesthesiology, Intensive Care and Pain Medicine and Head of the Department of Anaesthesia and Pain Therapy at the Medical University / AKH Vienna . He is certified by the Austrian and the German Board of Physicians, with added qualifications in Pain Management, Critical Care Medicine, Emergency Medicine and Prehospital Care. His multiple clinical and experimental research interests include pharmacological treatment of acute and chronic pain, invasive pain management and neuromodulation in cancer and non-cancer patients, neuro- and immunopharmacology of anaesthetics, analgesics and cannabinoids.

I wish to thank Pauline Du Plessis and her organizing team for their efforts in arranging the Congress. I am sure that the subjects covered by the various speakers will be of great benefit to all the attendees.

I look forward to meeting with you all at the Congress.

Dr. Milton Raff
BSc MB ChB FFA(SA)

All correspondence to the editor should be addressed to: raffs@iafrica.com

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Reni Rouncivell, Tel: (012) 657 2327 Fax: 086 561 5122, Cell: 082 441 6904, e-mail: reni@medspec.co.za, Private Bag X1036, Lyttelton, South Africa 0140
ADVERTISING & RATES
Lelani Adendorff, Tel: (012) 657 2327 Fax: 086 561 5122, Cell: 079 512 6990, e-mail: lelani@medspec.co.za, Private Bag X1036, Lyttelton, South Africa 0140
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RA – Rheumatoid arthritis
AS – Ankylosing spondylitis

* Comparators include: naproxen, ibuprofen, diclofenac, ketoprofen, etoricoxib, fixed-dose diclofenac sodium plus misoprostol

References: 1. Datta C, Hallmund R, Siddiqui MK. Efficacy and tolerability of naproxen/esomeprazole magnesium tablets compared with non-specific NSAIDs and COX-2 inhibitors: a systematic review and network analysis. Open Access Rheumatology: Research and Reviews 2010;5:1-19. 2. Approved Vimovo® package insert

VIMOVO® 500/20 mg tablets. Reg. No. 45/3.1/0179. COMPOSITION: Each tablet contains 500 mg naproxen and 20 mg esomeprazole (as esomeprazole magnesium trihydrate). PHARMACOLOGICAL CLASSIFICATION: A 2.1 Antirheumatics (anti-inflammatory agents). INDICATIONS: Symptomatic relief in the treatment of rheumatoid arthritis, osteoarthritis and ankylosing spondylitis, in patients needing proton-pump inhibitors to reduce the risk of developing non-steroidal anti-inflammatory drugs (NSAIDs) associated gastric and/or duodenal ulcers. VIMOVO® is a registered trademark of the AstraZeneca group of companies. For full details relating to any information mentioned above please refer to the approved package insert. AstraZeneca Pharmaceuticals (Pty) Ltd. Reg. No. 1992/008854/07. Building 2, Northdowns Office Park, 17 Georgian Crescent West, Bryanston, 2191. Private Bag X23, Bryanston, 2021. Tel: (011) 797-6000, Fax: (011) 797-6001. www.astrazeneca.co.za. Expiry Date: April 2016. Activity ID: 142522

AstraZeneca

Congress Organiser

Welcome to our PAINSA 2014 Annual Congress

Welcome to our annual congress. We are so privileged to have it at the beautiful Spier congress venue in the Cape winelands. We have put together an exciting and varied program.

We are so pleased to welcome our distinguished international guest Prof HG Kress from Vienna. Professor Kress is the current head of EFIC (European Federation of IASP chapters). Pain education in Africa is a hot topic at the moment and this international collaboration cannot come at a better time.

The support from the trade during our planning of the congress was amazing. We want to thank every company involved. This is old news, but it is even more applicable than ever that we would never be able to have such a congress without the trade.

2014 is the IASP's year against Orofacial pain. We have therefore included 3 of these lectures. This year we also included lectures on paediatric pain. We have attempted to cover a large array of topics to enable you to find something for your specific patients. Each topic will be covered by an expert in its field. We are excited to include many of the abstracts of the talks that will be presented in this journal.

The pain community in South Africa comprises a multidisciplinary group of health care professionals. We are well aware that the treatment of a pain patient is complex and is not possible without interdisciplinary cooperation.

Please see the congress programme attached. We are including the vital aspects of the Psychology of pain, Diagnostic techniques, Pelvic pain and a whole session on Palliative care. Workshops include an ultrasound workshop, an introduction to basic pain management and a workshop on Graded Motor imagery.

We have also included academic discussions on Interventional pain management.

PAINSA represents many special interest groups in pain management. At our congresses you are sure to find something that will benefit your patients.

We hope that you will join us at this year's congress. Otherwise we hope these abstracts will whet your appetite to join us next year, when our congress will be held in Gauteng.

Dr Pauline du Plessis & Ms Dershnee Devan (Congress Organisers)

Chairman's Welcome

It is my privilege to welcome you to this the annual congress of Painsa. This is our flagship event and has been structured in such a way that it will offer something for everyone attending. There is a strong focus on academic medicine and this should satisfy those working in specialist pain settings but there is also a wide array of more practical topics addressing the problems every pain treating clinicians face every day. Painsa has set itself as goal the advancement of the understanding and treatment of pain and this event and the many other regional meetings forms a major part of achieving this goal. To everybody who made the effort to be here we hope that this congress will be valuable but also good fun. The organizing committee has work very hard and on behalf of the council of Painsa we want to thank Pauline, Dershnee and Antonia for the hours of hard work that went into planning and organizing this event. Painsa hope that this congress will assist us all to better serve our patients suffering from pain.

Dr Johan Smuts

South African Expert Panel Recommends LYRICA®

for Treatment of Neuropathic Pain*[1]

Break the cycle of pain in Painful Diabetic Peripheral Neuropathy and Post-herpetic Neuralgia[2,3]

*South African Registration:
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Reference: 1. Chetty S, Baalbergen E, Bhigjee AI, Kamerman P, Ouma J, Raath R, et al. Clinical practice guidelines for management of neuropathic pain: expert panel recommendations for South Africa. SAMJ. 2012 May;102(5):312-325. **2.** Nicholson B, Verma S. Comorbidities in Chronic Neuropathic Pain. Pain Med. 2004;5(S1):S9-S27. **3.** Navarro A, Saldaña MT, Pérez C, Torrades S, Rejas J. Patient-reported Outcomes in Subjects with Neuropathic Pain Receiving Pregabalin: Evidence from Medical Practice in Primary Care Settings. Pain Med. 2010;11:719-731.

S5 **LYRICA®** 25 mg, 75 mg and 150 mg capsules (Reg. No's: A39/2.5/0264, 0266, 0268). Each hard capsule contains pregabalin 25 mg, 75 mg and 150 mg, respectively. **LICENCE HOLDER:** Pfizer Laboratories (Pty) Ltd. Reg. No. 1954/000781/07. 85 Bute Lane, Sandton, 2196, South Africa. Tel. No.: 0860 PFIZER (734937).
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FRIDAY - 16 MAY 2014						
TIME	ACTIVITY TOPIC	SPEAKER	ROOM	ACTIVITY TOPIC	SPEAKER	ROOM
09:00-11:00	REGISTRATION AND TEA					
	SESSION CHAIR: DR P DU PLESSIS					
11:00-11:30	*DIAGNOSTIC TOOLS:* ELECTROMYOGRAPHY IN PRACTICE: DIAGNOSING PERIPHERAL PAIN	DR JA SMUTS	AUDITORIUM	INTRODUCTION TO PAIN MANAGEMENT	MS C DU TOIT	SIMONSBERG & STELLENBERG
11:30-12:00	*DIAGNOSTIC TOOLS:* APPROPRIATE REFERRAL & INTERPRETATION OF BASIC RADIOLOGY FOR SPINAL PAIN	DR N KRUGER	AUDITORIUM	INTRODUCTION TO PAIN MANAGEMENT	MS C DU TOIT	SIMONSBERG & STELLENBERG
12:00-12:20	*DIAGNOSTIC TOOLS:* PRACTICAL TOOLS TO DIAGNOSE NEUROPATHIC PAIN: 4 CASE STUDIES	DR D DEVCHAND	AUDITORIUM	INTRODUCTION TO PAIN MANAGEMENT	MS C DU TOIT	SIMONSBERG & STELLENBERG
12:20-12:30	*DIAGNOSTIC TOOLS SESSION:* QUESTIONS	PANEL				
12:30-13:30	LUNCH					
	SESSION CHAIR: MS D DEVAN					
13:30-14:00	*PSYCHIATRY & PSYCHOLOGY* CHRONIC PAIN & THE OPIATE EFFECT	DR S SALDUKER	AUDITORIUM	INTRODUCTION TO PAIN MANAGEMENT	MS C DU TOIT	SIMONSBERG & STELLENBERG
14:00-14:30	*PSYCHIATRY & PSYCHOLOGY* TBC	DR F MEYER	AUDITORIUM	INTRODUCTION TO PAIN MANAGEMENT	MS C DU TOIT	SIMONSBERG & STELLENBERG
14:30-15:00	*PSYCHIATRY & PSYCHOLOGY* MORE OF THE SAME...	MS L FRENKEL	AUDITORIUM	INTRODUCTION TO PAIN MANAGEMENT	MS C DU TOIT	SIMONSBERG & STELLENBERG
15:00-15:30	TEA					
	SESSION CHAIR: PROF P KAMERMAN					
15:30-16:00	*PALLIATIVE CARE SESSION* FAMILY MEMBERS' PERCEPTIONS & EXPECTATIONS OF THE USE OF SYRINGE DRIVERS	MRS M WILKINSON	AUDITORIUM	RECKITT BENCKISER PHARMACIST EXCELLENCE SYMPOSIUM: MAKING SENSE OF THE SUFFERING	DR S CHETTY	SIMONSBERG & STELLENBERG
16:00-16:30	*PALLIATIVE CARE SESSION* PALLIATIVE CARE IN CHILDREN	DR M MEIRING	AUDITORIUM	RECKITT BENCKISER PHARMACIST EXCELLENCE SYMPOSIUM: TENSION TYPE HEADACHE	DR J SMUTS	SIMONSBERG & STELLENBERG
16:30-17:00	*PALLIATIVE CARE SESSION* FREEDOM FROM PAIN	DR A BARNARD	AUDITORIUM			
	SPEAKERS DINNER @ SPIER 18h30 for 19h00					

SATURDAY 17 MAY 2014						
TIME	TOPIC	SPEAKER	ROOM	TOPIC	SPEAKER	ROOM
07:30-08:30				ASTRA ZENECA BREAKFAST SYMPOSIUM: "Management of Pain in Rheumatoid Arthritis"	DR C SPARGO	SIMONSBERG & STELLENBERG
08:30 - 09:00	VISIT THE TRADE EXHIBITIONS					
	SESSION CHAIR: DR S CHETTY					
09:00-09:15	OFFICIAL OPENING	DR JA SMUTS	AUDITORIUM			
09:15-09:35	OPIOID USE IN CHRONIC NON-CANCER PAIN: NEW GUIDELINES	DR M RAFF	AUDITORIUM			
09:35-09:55	CENTRAL PAIN AND POST-STROKE PAIN	DR JA SMUTS	AUDITORIUM			
09:55-10:15	EFFECT OF RACE ON TREATMENT OF PAIN	DR A WADLEY	AUDITORIUM			
10:15-10:45	TEA					
	SESSION CHAIR: DR H MEYER			ULTRASOUND WORKSHOP		
10:45-11:05	PAEDIATRICS: MANAGEMENT OF ACUTE PAIN	PROF J THOMAS	AUDITORIUM	ULTRASOUND WORKSHOP	UPPER LIMB/ LOWER LIMB AND TRUNKAL BLOCKS	SIMONSBERG & STELLENBERG
11:05-11:25	PAEDIATRICS: MANAGEMENT OF CHRONIC PAIN	PROF J THOMAS	AUDITORIUM	ULTRASOUND WORKSHOP	UPPER LIMB/ LOWER LIMB AND TRUNKAL BLOCKS	SIMONSBERG & STELLENBERG
11:25-11:45	CHRONIC PELVIC PAIN: AN APPROACH TO MANAGEMENT	DR P ZINN	AUDITORIUM	ULTRASOUND WORKSHOP	UPPER LIMB/ LOWER LIMB AND TRUNKAL BLOCKS	SIMONSBERG & STELLENBERG
11:45-12:05	CHRONIC PELVIC PAIN: CONSERVATIVE MANAGEMENT OF DYSREGULATION	MS C AVNI	AUDITORIUM	ULTRASOUND WORKSHOP	UPPER LIMB/ LOWER LIMB AND TRUNKAL BLOCKS	SIMONSBERG & STELLENBERG
12:05-13:00	LUNCH					

	SESSION CHAIR: DR M RAFF			**ULTRASOUND WORKSHOP**		
13:00-13:30	PERSISTENT POSTSURGICAL PAIN: CAN WE PREVENT IT?	PROF HG KRESS (PRESIDENT OF EFIC)	AUDITORIUM	ULTRASOUND WORKSHOP	UPPER LIMB/ LOWER LIMB AND TRUNKAL BLOCKS	SIMONSBERG & STELLENBERG
13:30-13:50	PHANTOM LIMB PAIN: PREVENTION & TREATMENT	MS D DEVAN	AUDITORIUM	ULTRASOUND WORKSHOP	UPPER LIMB/ LOWER LIMB AND TRUNKAL BLOCKS	SIMONSBERG & STELLENBERG
13:50-14:10	CRPS: WHAT IS NEW?	DR S CHETTY	AUDITORIUM	ULTRASOUND WORKSHOP	UPPER LIMB/ LOWER LIMB AND TRUNKAL BLOCKS	SIMONSBERG & STELLENBERG
14:10-14:30	GRADED MOTOR IMAGERY: TREATING THE BRAIN IN CHRONIC PAIN	DR R PARKER	AUDITORIUM	ULTRASOUND WORKSHOP	UPPER LIMB/ LOWER LIMB AND TRUNKAL BLOCKS	SIMONSBERG & STELLENBERG
14:30-15:00	**TEA**					
	SESSION CHAIR: PROF P KAMERMAN			**WORKSHOP CO-ORDINATOR: DR R PARKER**		
15:00-15:10	**RESEARCH 1:** DEVELOPMENT OF A PREOPERATIVE NEUROSCIENCE EDUCATION PROGRAM FOR LUMBAR RADICULOPATHY	DR I DIENER	AUDITORIUM	PHYSIOTHERAPY/OCCUPATIONAL THERAPY WORKSHOP	GRADED MOTOR IMAGERY IN CLINICAL PRACTICE	SIMONSBERG & STELLENBERG
15:10-15:20	**RESEARCH 2:** RACE & SEX DIFFERENCES IN PAIN SENSITIVITY AND BELIEFS	MS L PERSAD	AUDITORIUM	PHYSIOTHERAPY/OCCUPATIONAL THERAPY WORKSHOP	GRADED MOTOR IMAGERY IN CLINICAL PRACTICE	SIMONSBERG & STELLENBERG
15:20-15:30	**RESEARCH 3:** TREATMENT OF PAINFUL HIV-ASSOCIATED SENSORY NEUROPATHY	DR P PILLAY	AUDITORIUM	PHYSIOTHERAPY/OCCUPATIONAL THERAPY WORKSHOP	GRADED MOTOR IMAGERY IN CLINICAL PRACTICE	SIMONSBERG & STELLENBERG
15:30-15:40	**RESEARCH 4:** PATIENT CENTRED HEALTHCARE FROM THE PERSPECTIVES OF PATIENTS WITH CHRONIC MUSCULOSKELETAL PAIN	MS D ERNSTZEN	AUDITORIUM	PHYSIOTHERAPY/OCCUPATIONAL THERAPY WORKSHOP	GRADED MOTOR IMAGERY IN CLINICAL PRACTICE	SIMONSBERG & STELLENBERG
15:40-15:50	**RESEARCH 5:** EFFICACY OF DICLOFENAC POTASSIUM IN TREATING SEVERE PRIMARY DYSMENORRHEA	DR S IACOVIDES	AUDITORIUM	PHYSIOTHERAPY/OCCUPATIONAL THERAPY WORKSHOP	GRADED MOTOR IMAGERY IN CLINICAL PRACTICE	SIMONSBERG & STELLENBERG
15:50-16:00	QUESTIONS RESEARCH	PROF P KAMERMAN	AUDITORIUM	PHYSIOTHERAPY/OCCUPATIONAL THERAPY WORKSHOP	GRADED MOTOR IMAGERY IN CLINICAL PRACTICE	SIMONSBERG & STELLENBERG
16:00-16:20	HIV RELATED PAIN SYNDROMES	DR S BECHAN	AUDITORIUM	PHYSIOTHERAPY/OCCUPATIONAL THERAPY WORKSHOP	GRADED MOTOR IMAGERY IN CLINICAL PRACTICE	SIMONSBERG & STELLENBERG
16:20-16:40	MUSCULOSKELETAL PAIN	PROF H MEYER	AUDITORIUM	PHYSIOTHERAPY/OCCUPATIONAL THERAPY WORKSHOP	GRADED MOTOR IMAGERY IN CLINICAL PRACTICE	SIMONSBERG & STELLENBERG
16:40-17:00	COMBINATION ANALGESICS: PROS AND CONS; INCLUDING GUIDELINES FOR ITS USE	DR P DU PLESSIS	AUDITORIUM	PHYSIOTHERAPY/OCCUPATIONAL THERAPY WORKSHOP	GRADED MOTOR IMAGERY IN CLINICAL PRACTICE	SIMONSBERG & STELLENBERG
17:00-17:30	PAIN SA AGM	PAINSA COUNCIL	AUDITORIUM			
19:00	**GALA DINNER**					

SUNDAY 18 MAY 2014

TIME	TOPIC	SPEAKER	ROOM	TOPIC	SPEAKER	ROOM
	SESSION CHAIR: DR R PARKER			**SESSION CHAIR: DR PAULINE DU PLESSIS**		
08:00-08:20	PHYSIOLOGY AND PHARMACOLOGY OF TOPICAL TREATMENTS FOR NEUROPATHIC PAIN	PROF E FROHLICH	AUDITORIUM	INTERVENTIONS: PATIENT SELECTION AND FUNDING IN SOUTH AFRICA	DR P DU PLESSIS	SIMONSBERG & STELLENBERG
08:20-08:40	OROFACIAL PAIN: PATHOPHYSIOLOGY AND DIFFERENTIAL DIAGNOSES	DR D OPPERMAN	AUDITORIUM	INTERVENTIONS FOR CHRONIC LOW BACK PAIN: CURRENT EVIDENCE	DR E WILSON	SIMONSBERG & STELLENBERG
08:40-09:15	TEMPOROMANDIBULAR JOINT DYSFUNCTION	DR G DE NECKER	AUDITORIUM	INTERVENTIONS FOR CHRONIC NECK PAIN: CURRENT EVIDENCE	DR A OBERHOLZER	SIMONSBERG & STELLENBERG
09:15-09:35	OROFACIAL PAIN: THE ROLE OF THE PHYSIOTHERAPIST	DR I DIENER	AUDITORIUM	INTERVENTIONS FOR FACIAL PAIN: CURRENT EVIDENCE	DR J MEYER	SIMONSBERG & STELLENBERG
09:35-09:55	PLACEBO EFFECT	DR E HODGSON	AUDITORIUM	BLOCKS OF THE SYMPATHETIC NERVOUS SYSTEM	DR DP WELS	SIMONSBERG & STELLENBERG
09:55-10:30	PSORIATRIC ARTHRITIS AND NEW DEVELPMENTS IN OSTEOARTHRITIS	DR B SAREMBOCK	AUDITORIUM	CASE DISCUSSIONS: INTERVENTIONS	PANEL	SIMONSBERG & STELLENBERG
10:30-11:00	**TEA**					
	SESSION CHAIR: DR JA SMUTS					
11:00-11:30	VISCERAL PAIN IN THE PALLIATIVE CARE SETTING	DR R KRAUSE	AUDITORIUM			
11:30-11:50	OVER THE HORIZON @ THE END OF THE RAINBOW: THE FUTURE	DR J OETTLE	AUDITORIUM			
11:50-12:10	NEUROPATHIC ITCH	PROF P KAMERMAN	AUDITORIUM			
12:10-12:30	NEUROMODULATION	DR M RAFF	AUDITORIUM			
12:30-13:00	INTRATHECAL PUMPS	PROF HG KRESS	AUDITORIUM			
13:00-13:30	LEGALISING BANNED SUBSTANCES FOR MEDICAL USE- A MORAL CONUNDRUM?	DR M DE ROUBAIX	AUDITORIUM			

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References: 1. Fröhlich E. Acute Nociceptive Pain. Basic Approach to Pain. page 8-16.MIMS Handbook of pain & pain syndromes. Treatment Guidelines. Drug-Class Overview. Generics/Trade Names. Volume 1-2011/12.
SS: Paraspen® 1 g (solution for infusion). Reg. No.: 45/2.7/0375. Each 100 ml vial of solution for infusion contains 1g paracetamol. It also contains cysteine hydrochloride monohydrate 0.025 % w/v, as a preservative. For full prescribing information refer to the package insert approved by the medicines regulatory authority. Applicant: Pharmacare Limited. Co. Reg. No.: 1898/000252/06. Building 12, Healthcare Park, Woodlands Drive, Woodmead, 2191. A 16659 7/13

DR D DEVCHAND

PRACTICAL TOOLS TO DIAGNOSE NEUROPATHIC PAIN: 4 CASE STUDIES

This is a review of the typical tests one would use and the associated clinical findings in 4 common case scenarios of Neuropathic pain. This aims to look at correct technique, and diagnosis with the aid of diagnostic tools to allow for easier identification of these disorders. Included is a discussion of the use of tools in assessing for the appropriate management and the associated results which we have found in these scenarios from incorporating Evidence Based Medicine as well as our own findings at our Combined Pain clinic at Inkosi Albert Luthuli Hospital, a tertiary/quaternary referral hospital which serves the province of Kwa-Zulu Natal.

MS L FRENKEL

"MORE OF THE SAME…": NARRATIVE CONTINUITY AMONGST WOMEN SUFFERING FROM CHRONIC PAIN AT GROOTE SCHUUR HOSPITAL; UNDERSTANDING THE EXPERIENCE OF PAIN IN LOWER AND MIDDLE INCOME COUNTRIES.

In this presentation I compare the models of explanation of chronic pain in high income countries, and middle and low-income countries, using Bury's notion of 'biographical disruption'. Looking at pain sufferer's stories about their pain, I argue that in high income countries, pain is seen more as a circumscribed medical condition which effects the individual, and potentially disrupts a person's biographical line. However, in the context in which I work, at Groote Schuur Hospital, pain is more often seen (by the sufferer) as much more integral to their lives, as often an expression of a difficult life. In the context of poverty, and often multiple chronic illnesses, pain is perceived as just 'more of the same'. This raises interesting questions about the understanding of pain in our context, and about appropriate interventions.

MRS M WILKINSON

FAMILY MEMBERS' PERCEPTIONS AND EXPECTATIONS OF THE USE OF SYRINGE DRIVERS

Aim: This study aimed to explore and gain insight into the perceptions and expectations of family members of terminally ill patients pertaining to the use of syringe drivers.

Background: There is a lack of research regarding the use of syringe drivers in Africa and, more specifically South Africa. However, syringe drivers have been in use for around two decades in some South African settings. Some family members' ambivalence about the use of syringe drivers and the lack of research prompted this study.

Method: A qualitative exploratory research design was used. Data was collected using semi-structured interviews, diaries, observations and documentation. Thematic analysis and coding were used to analyse the data.

Results: Four main themes were identified: The rationale for needing the syringe driver, positive perceptions pertaining to the use of the syringe driver, negative perceptions, and concerns/anxieties. The study also highlighted the challenges of drug addiction in some households when caring for terminally ill patients.

Conclusion: The need for more continuous education, written information and support for immediate and extended family members was evident.

KEY WORDS: Palliative care, South Africa, syringe driver, family perceptions.

DR MILTON RAFF

THE USE OF OPIOIDS FOR CHRONIC NON-CANCER PAIN: A SOUTH AFRICAN GUIDELINE

Chronic pain is common, affecting around one in five patients in primary care. It may occur even more frequently in older individuals, whose presentation is often complicated by age-related physiological changes, comorbidities and multiple medications. Chronic pain patients are more likely to report anxiety or depression and significant activity limitations and often have unfavourable perceptions of their health. Chronic pain may have a significant impact on health- related quality of life and may be difficult to manage.

Opioids are well accepted for the treatment of severe acute pain and chronic pain associated with cancer and at the end of life. Although there are short-term studies demonstrating efficacy in chronic non-cancer pain (CNCP), less is known about their efficacy and safety with long-term use. The potential for addiction, tolerance and dependence associated with this class of analgesics also remains a concern.

Nevertheless, opioids are increasingly being used to treat persistent pain. Limited evidence indicates that they can be effective therapy for a carefully selected group of patients as part of a wider management plan focused on reducing disability and improving quality of life. However, appropriate patient selection is paramount, requiring a comprehensive physical and biopsychosocial assessment to establish the diagnosis and to guide management decisions.

The guideline was developed to provide a brief and practical guideline for the use of chronic opioid therapy (COT) in patients with CNCP. The target audience is all clinicians in primary and specialty settings who provide care for adults suffering from CNCP. This is a guideline only and is not intended to constitute inflexible treatment recommendations or to represent the standard of care. The recommendations here may not apply to all patients or all clinical situations and shared decision making among a multidisciplinary treatment team is encouraged.

DR JA SMUTS

CENTRAL PAIN AND POST-STROKE PAIN

Central pain syndrome is caused by damage to or dysfunction of the central nervous system (CNS). This syndrome can be caused by degenerative disease or trauma; this can include conditions such as stroke, multiple sclerosis, tumours and brain or spinal cord trauma. The condition often relates to injury to the thalamus.

The character of the pain associated with this syndrome differs widely among but can affect a large portion of the body or may be more restricted to specific areas. The extent of pain is usually related to the cause of the CNS injury or damage. Pain is typically constant, may be moderate to severe in intensity, and is often made worse by touch, movement, emotions, and temperature changes. Patients experience one or more types of pain sensations, the most prominent being burning. Mingled with the burning may be sensations of "pins and needles;" pressing, lacerating, or aching pain; and brief, intolerable bursts of sharp pain. Central pain syndrome often begins shortly after the causative injury or damage, but may be delayed by months or even years, especially if it is related to post-stroke pain.

Pain medications often provide some reduction of pain, but not complete relief of pain. Approach to therapy of this condition poses a huge challenge because although this is not a fatal disorder, the syndrome causes disabling chronic pain and suffering among the majority of individuals who have it. Treatment of central pain syndrome is difficult and often only partially successful. Pharmacological treatment forms the main avenue for treatment but other therapy can include topical medications, physical therapy techniques, acupuncture, and electrical stimulation through the skin. These therapies do not have substantial evidence showing effectiveness, but in individual cases they may have some benefit. In the most problematic cases, neurosurgical procedures such as deep brain stimulation with electrodes may be used, but the effectiveness of these treatments awaits further study.

DR ANTONIA WADLEY

ANCESTRY AND PAIN

Brain Function Research Group, School of Physiology, Faculty of Health Sciences, University of the Witwatersrand, Johannesburg

People in Africa carry a burden of pain resulting not just from universal diseases, like cancer, but also from diseases unique to Africa, or particularly prevalent here, like HIV infection. Studies from the US show that people of African ancestry often are more sensitive to pain, both clinically and experimentally, than their counterparts of European ancestry, and recent evidence implies that this hypersensitivity may prevail in South Africa too. Yet pain in black South Africans is under-recognised and under-treated, especially in HIV infection.

The perception by healthcare practitioners that patients of African ancestry feel less pain than those of European ancestry may contribute to the inequalities in recognition and treatment of pain in blacks. The reasons for this perception may not be as simple as pure racism; there is evidence that they derive more from perceptions of social status and the toughness of individual who has endured a life of hardship. Another contributing factor to the inequality may be distortion of empathy. Some studies show that one has greater empathy for people of one's own ancestry, which has implications in a public healthcare system made up of healthcare professionals of diverse ancestry but mostly black patients. A bias in empathy leads inevitably to a bias in treatment for pain. An intervention aimed at enhancing empathy by perspective-taking (imagining the effect of pain on people's lives) reduced ancestry-based bias in pain perception and treatment. Such an intervention could have a role in pain education to undergraduate and postgraduate healthcare professionals in South Africa. Investigation into other reasons for the under-reporting and under-treatment of pain amongst black South Africans also is warranted.

DR P ZINN

CHRONIC PELVIC PAIN - AN APPROACH TO MANAGEMENT

Chronic pelvic pain (CPP) affects 15% of women aged 20-49 yrs.

An average of 8 clinicians are consulted before a diagnosis is made but in up to two-thirds a cause is not identified. Chronic pain is typically neuropathic and syndromic with a number of triggers and perpetuating factors. Affecting multiple domains, the approach to management must be multi-centric and best outcomes are achieved with a team management model. An exhaustive history is pivotal in determining potential causes, ongoing potentiating factors and targets for treatment. Where multiple treatments have been applied, a clear contextual understanding of therapeutic failures and successes can assist management strategy. A search for pathologies such as interstitial cystitis, endometriosis, diseases of the bowel and of the lumbosacral spine and the exclusion of malignancy is essential before instituting symptom-based management. Past obstetric trauma, pelvic and vaginal surgery, musculoskeletal disorders and functional problems like chronic constipation may be primary or secondary factors in CPP. In many instances, a neuropathic pain syndrome persists long after resolution of the initiating insult and a cause cannot be found. Secondary morbidities such as vulvodynia, pelvic floor myalgia, bowel and bladder disturbances, sexual and psychological effects become the dominant focus. Strategies include diagnostic and therapeutic. All pain originating in the pelvis is communicated via the pudendal nerves - nerve blocks can assist diagnosis and treatment. Allodynia and hyperalgesia can be treated with combinations of peripheral and central nervous system, pelvic floor muscle and inflammation down-regulation strategies. Psychology interventions including cognitive behavioral therapy and psychosexual counselling should be considered. Structures for chronic pelvic pain management are lacking in South Africa and the burden of this condition needs recognition and emphasis in training programmes.

MS C AVNI

CHRONIC PELVIC PAIN – CONSERVATIVE MANAGEMENT OF DYS-REGULATION

Pain in the pelvis, and its host of embarrassing co-morbidities, is difficult for people to conceptualize and verbalize; it remains challenging for clinicians to assess and treat. This brief lecture will examine the significance of chronic pain in the pelvis. We introduce the concept of dys-regulation in the autonomic nervous system, and its implications for quality of life. What does pain in the pelvis do to people? The multiple compartments of the pelvis lead to a veritable treasure hunt for symptoms vs. systems and of beliefs vs. behaviours. We shall discuss that which is common in an attempt to find balance. The pelvic physio is privy to details seldom admitted, and hence has the opportunity to create multi-systemic mindful awareness in a quest to map and solve the 3Dpelvic puzzle. If your patients leak (bladder or bowel), are constipated, have respiratory complications, are female, have sex, have generalized anxiety disorder, sit too much and walk too little, or complain of low back or abdomino-pelvic pain - this has something for you.

PROF. HANS G. KRESS MD, PHD, FFPMCAI

PERSISTENT POSTSURGICAL PAIN: CAN WE PREVENT IT?

Definition and epidemiology:

Persistent postsurgical pain (PPP) can be defined as pain developed after surgery, with duration of at least 2 to 3 months after the operation, which was not present before surgery and for which other causes can be excluded. Persistent pain after surgery is also called chronic postsurgical pain (CPSP) or chronic postoperative pain (CPOP). PPP is a frequent phenomenon seen after amputation in 30-50% of patients, in 20-30% after breast surgery, after thoracotomy in 30-40% (10% with severe pain), and after coronary artery bypass surgery in 30-50% (5-10% with severe pain).

Are anesthesiologists or surgeons able to prevent persistent postsurgical pain? It seems plausible that optimal pain relief after surgery can reduce the incidence of PPP, but there is also a considerable influence of surgical procedures and techniques on the occurrence of PPP. Several pharmacological and procedural approaches potentially attenuate spinal pain amplification mechanisms and may therefore prevent sensitization and long-term potentiation at the spinal level. Anesthesiologists use potent drugs which could - at least theoretically - reduce the occurrence and the development of PPP: local anesthetics, clonidine, NSAIDs, ketamine, intravenous lidocaine, gabapentin and pregabalin. However, because of the many preoperative, intraoperative and postoperative risk factors (psychosocial, biological, surgical, and anesthesiological) it is much too naïve to think that only one single approach might prevent the effects of all these different factors.

What is certain about prevention of persistent postsurgical pain? In general, the avoidance of damage to large nerves and the use of minimally invasive surgery procedures is a major factor for the prevention of PPP. Also perioperative gabapentinoids may help in this respect. Epidural anesthesia and paravertebral blocks are effective for preventing the development of PPP after thoracotomy and breast cancer surgery, respectively. However, these results of meta-analyses from thoracotomies and breast cancer surgery cannot be extrapolated to other surgical interventions or regional anesthesia techniques. There is no proof - but some hope - that preoperative regional or spinal anesthesia for the treatment of already preoperatively existing pain might also be helpful.

In any case, the provision of a rapid, consequent, adequate, interdisciplinary postoperative pain management should contribute to the prevention of PPP, but this has not conclusively been shown to date.

MS D DEVAN

PHANTOM LIMB PAIN: PREVENTION & TREATMENT

Background: Phantom limb pain can be a difficult diagnosis to treat. This is due to the aetiology for this condition and the limited range of successful treatment techniques.

Method: This talk will explore the relevant clinical guidelines for the treatment phantom limb pain. This will include a review of current literature on the aetiology and treatment of phantom limb pain including mirror therapy and the psychosocial factors affecting these patients.

Conclusion:This study will highlight the complexities of phantom limb pain and its treatment.

DR R PARKER

GRADED MOTOR IMAGERY: TREATING THE BRAIN IN CHRONIC PAIN

Distorted body image and decreased tactile acuity have been reported in many chronic pain states including in Complex Regional Pain Syndrome (CRPS). Self-awareness or body image is controlled by proprioceptive and somatic inputs in the brain. Studies into complex regional pain syndrome (CRPS) have detailed patients' difficulty with limb laterality. Laterality recognition is assessed by recording the patients' error or time delayed ability to recognize the affected limb from a presented picture of the ipsilateral limb. Impaired laterality recognition is known to be associated with fMRI changes in the cortical representation of the affected body part in the somatosensory cortices. These changes can be treated through a graded rehabilitation approach known as Graded Motor Imagery which essential "trains the brain" to normalise cortical representation of affected body parts. In this lecture the evidence for cortical changes in chronic pain states will be presented and clinical methods to assess and treat these changes in conditions such as CRPS will be reviewed.

WORKSHOP - GRADED MOTOR IMAGERY:

Distorted body image and decreased tactile acuity have been reported in many chronic pain states including in Complex Regional Pain Syndrome (CRPS). Self-awareness or body image is controlled by proprioceptive and somatic inputs in the brain. Studies into complex regional pain syndrome (CRPS) have detailed patients' difficulty with limb laterality. Laterality recognition is assessed by recording the patients' error or time delayed ability to recognize the affected limb from a presented picture of the ipsilateral limb. Impaired laterality recognition is known to be associated with fMRI changes in the cortical representation of the affected body part in the somatosensory cortices. These changes can be treated through a graded rehabilitation approach known as Graded Motor Imagery which essential "trains the brain" to normalise cortical representation of affected body parts. In this lecture the evidence for cortical changes in chronic pain states will be presented and clinical methods to assess and treat these changes in conditions such as CRPS will be reviewed. By the end of this workshop, participants will be familiar with both the theory and practice relating to methods for assessing and treating changes in the somatosensory cortices based on Graded Motor Imagery.

DR I DIENER

DEVELOPMENT OF A PREOPERATIVE NEUROSCIENCE EDUCATION PROGRAM FOR LUMBAR RADICULOPATHY

Louw, A1, 2; Diener, Ina1; Butler D3

1Stellenbosch University, South Africa; 2International Spine & Pain Institute, USA; 3Neuro-Orthopaedic Institute, Australia

Introduction: Pain is a powerful motivating force that guides treatment-seeking behaviours, and a common postoperative issue that many lumbar spine surgery (LSS) patients are left to face. Nearly 40% of patients have persistent pain and disability following lumbar surgery. Aim: In preparation for a randomised controlled trial (RCT) on the outcome of preoperative neuroscience education (NE) for LSS patients, an education program was developed and tested.

Methods: Preoperative education in LSS is dominated by studies comparing structured, preoperative educational interventions with the usual care that patients receive. Firstly, "usual care" was explored in a survey among spinal surgeons in the USA. Furthermore two systematic literature reviews (SLR) were conducted: One on preoperative education, addressing postoperative pain in total joint arthroplasty, and one on the effect of NE on pain, disability, anxiety, and stress in chronic musculoskeletal pain. The findings of these 3 studies guided the contents and delivery methods of the intervention. The developed program was tested in a pilot study, a single-case fMRI study, followed by an RCT. Results: The US spine surgeon survey showed that surgeons believe preoperative education is important and they utilize mainly a biomedical model of explaining surgery and pain to LSS patients. This is what the control group (CG) in the RCT received. The SLR on preoperative education in orthopaedics also yielded a biomedical and procedural education approach, resulting in making almost no difference on experienced postoperative pain. The SLR on utilizing NE resulted in convincing evidence to improve pain, physical movement, catastrophization and disability in chronic musculoskeletal pain. The newly designed preoperative NE program, aiming to educate LSS patients about the neurophysiology of pain, has shown immediate changes in pain, various psychometric measures, physical movements, beliefs and expectations regarding lumbar surgery, as well as decreased nerve sensitization and brain activation. These results were demonstrated in a pilot study, a single-case fMRI study, and in the final RCT at 3, 6 and 12 months post-operatively. Although pain ratings, disability and catastrophization did not reach significant difference in the 12 month outcomes of the RCT, patients who received NE seeked 42% less medical care (tests and treatments), returned to work 5 weeks faster, and saw their spine surgery as more successful, than the CG. Discussion & Conclusion: NE aims to help patients develop a greater understanding of their pain, the biology behind their pain and how pain is processed. The designed preoperative NE program by physiotherapists, have shown immediate post-education improvements in psychometric measures, beliefs and expectations for surgery and physical movements, but more importantly, a reduction in health care seeking and earlier return to work. NE should be added to preoperative care to advance the results of LS.

MRS D ERNSTZEN, PROF Q LOUW, PROF S HILLIER

PATIENT CENTRED HEALTH CARE FROM THE PERSPECTIVES OF PATIENTS WITH CHRONIC MUSCULOSKELETAL PAIN: A QUALITATIVE PILOT STUDY

Aims of the study:

This study focuses on the patient perspective regarding chronic pain. Individuals with chronic pain often perceive their condition to be neglected during health care. Patient-centred care implies that patients are active members in their care process as part of quality health care, in order to initiate holistic management strategies. The aim of this study was: To discover the patient's experiences and perspectives regarding the health care management of chronic musculo-skeletal (CMSK) pain.

Method:

A descriptive qualitative case study was conducted, using an interpretive research paradigm, with a phenomenological approach. Purposeful sampling was used, through a variables framework. Two patients with CMSK pain from the Western Cape who received health care for their condition were recruited to participate in the depth individual interviews. The interviews were recorded and transcribed ensuring participant confidentiality. Inductive, thematic content analyses of the transcripts were undertaken using the framework approach. Initial codes were assigned and a code-book developed, which was applied to the transcripts to develop themes and categories. Themes were explored to determine their possible relationships.

Results:

Five themes emerged strongly from the data. These included:

- patients desired an explanation for their pain (described as the quest to complete the puzzle of chronic pain);
- the lack of collaboration and communication between health care providers, which hinders the patient's understanding of their condition;
- fear, worry and uncertainty as dominant emotions during the process of finding answers;
- the patient's requirements to be educated and empowerment to implement self-management strategies;
- the patient's acceptance of the pain condition as a constant companion, when a credible explanation for pain is provided.

Conclusion:

Participants had definite expectations about patient-centred care. For them, patient-centeredness focussed on open communicating between the patient and health care provider, as well as collaborative communication efforts between health care providers. Participants advocated continuity of care. They appreciated it when health care providers were approachable and provided explanations about pain and guidance on how the patient should manage their pain.

DR S BECHAN

HIV PAIN SYNDROMES

There is a high prevalence of pain syndromes in patients with Human Immunodeficiency Virus (HIV), with estimates of between 50 and 90%. Pain may occur as at the time of seroconversion, at the terminal stage of the disease, but increasingly, multiple pain syndromes impair the quality of life of patients living with HIV as a chronic disease. The most common syndromes are headache, peripheral neuropathy, abdominal pain, joint and muscle pains and myelopathy. The aetiology may be due to the virus eg distal sensory neuropthy, as a result of immunosuppression due to opportunistic infections and tumours, as a complication of antiretroviral therapy or unrelated to the HIV eg disogenic pain. A multimodal approach is required to manage these conditions.

DR P DU PLESSIS

COMBINATION ANALGESICS: PROS AND CONS; GUIDELINES FOR ITS USE

The addition of an analgesic with a second agent (which may or may not also be an analgesic) to achieve a 'combination analgesic' is a concept which has been exploited for many years.

At a practical clinical level, combination analgesics are considered effective. There remain, though, several general arguments against them.

These arguments mostly involve the factors of increased toxicity, increased price and difficult titration of these agents.

During this review I will discuss the latest arguments for and against combination analgesics. I will also look at the different combinations available.

The goals for developing combination opioid analgesics will be discussed. I will also present the latest guidelines for its use.

Although this remains a contentious issue, understanding these drugs will enable us to use them appropriately.

PROF EVA FROHLICH

TRANS DERMAL DRUG DELIVERY SYSTEMS (PATCHES)

Transdermal application of medication has been applied throughout history in the form of liquids, gels and creams. More recently, controlled transdermal applications are increasing in popularity. Transdermal applications offer the advantage of being convenient, self administered, not painful and provides a sustained therapeutic level avoiding peaks and troughs.There are disadvantages to the TDDDS and research is being conducted to improve reliability as well as allow more types of medications to be delivered via this route. This topic will be discussed in more detail. The stratum corneum of the skin is a barrier as well as a depo for medication delivered. In order for the medication to penetrate the skin, the compound needs to be lipophilic, have a small molecule and be effective in small dosages. New techniques are being developed to assist drug delivery via the skin.

The medication can be effective locally or systemically.

Analgesic patches available in SA are : NSAIDs, Fentanyl and Buprenorhine.

Capsaicine 8% and Lignocaine 5% patches are available in Europe and in the USA. Capsaicine and Lidoderm patches will be presented with emphasis on pharmacology, indicatios, side effects and mode of application. Principles of transdermal drug delivery will be discussed and the individual patches available in SA will be presented.

DR D C OPPERMAN

HOW TO APPROACH OROFACIAL PAIN

The approach to orofacial pain is best considered if one divides the pain into standard regions: mainly ocular, mainly nasal, mainly oral or hemifacial. Unfortunately, most patients have often had surgical procedures done before the correct diagnosis is made, as neurogenic pain disorders are often mistaken for symptoms of sinus and dental disease. We have focussed on a differential diagnosis for each region. Furthermore, trigeminal neuralgia, glossopharyngeal neuralgia and atypical facial pain are discussed.

DR G DE NECKER

TEMPOROMANDIBULAR JOINT DYSFUNCTION

Temperomandibular Joint Disorder is a subject that is worldwide neglected, but is an integral part of the diagnosis of facial pain, neck discomfort, and body posture problems.

The aim of this lecture is to introduce the listener to the wide spectrum of TMD and the influence of that on everyday life.

The Dentist plays an integral role in diagnosing TMD.

DR I DIENER

OROFACIAL PAIN: THE ROLE OF THE PHYSIOTHERAPIST

Pain, including orofacial pain, is a strong motivating force for treatment-seeking behaviours, and careful assessment is necessary to differentiate end-organ input [neural, articular and myofascial] from central neural sensitisation. A review by Buescher [2007] indicated that temporo-mandibular dysfunction [TMD] is commonly self-limited and should initially be treated with non-invasive therapies, but also that TMD is often associated with other chronic pain syndromes, and that complicated cases may benefit from a multidisciplinary approach. The orofacial pain clinician must understand the difference between peripheral and central mechanisms of pain, and particularly, how it relates to the various orofacial pain conditions. This will lead to more effective long-term treatment [Merril 2007].

There is a strong relationship between headaches [HA] and TMD [Anderson et al 2011; Cooper & Kleinberg 2009]. Glaros et al [2007] demonstrated that HA patients and TMD patients overlap considerably in diagnosis and oral parafunctional behaviours. Von Piekartz & Ludtke [2011] demonstrated that in the studied sample of cervicogenic headache patients, 44.1% had TMD. Adding TM manual therapy techniques to upper cervical mobilisation showed significantly decreased headache intensities and increased neck function, proposing that treatment of TMD has beneficial effects for patients with cervicogenic HA.

Physiotherapists can play an impor¬tant role in the inter-professional team to provide care for people with TMDs. Physiotherapy assessment should firstly include a decision regarding the driver of pain. A thorough physical examination should include/exclude nociceptive input

from TMD and the upper Cx; myofascial triggerpoints in masticatory and other muscles referring to the area; and mechanical sensitization of the mandibular nerve and upper dura. Furthermore, psychosocial factors that may influence the descending pain inhibitory pathways should be noticed.

Physiotherapists mainly treat pain from joint and muscle dysfunction and mechanical neural sensitisation. Joint mobilization stimulates the DPIPs, restores pain-free movement of the TMJ and upper cervical spine, and facilitates relaxation of the surrounding muscles. Myofascial triggerpoint therapy and muscle stretching address the pain coming from muscle dysfunction. Manual physiotherapy [including exercises, therapeutic needling and relaxation technique] has been shown to be effective [Furto et al 2006; Medlicott et al 2006].

Orofacial pain should, however, also be addressed with neurophysiological pain education [NPE], especially if a sensitised CNS is in some part responsible for the persistent chronic pain experienced by these patients. This has been shown to increase self-coping and decrease catastrophisation [Louw et al 2011], as NPE "desensitizes" the CNS and improves endogenous pain modulation [Nijs et al 2011].

DR E HODGSON

THE PLACEBO EFFECT: HARNESSING MIND POWER TO TREAT CHRONIC PAIN

The randomised double-blind placebo-controlled randomised control trial is considered the gold standard for evidence in the medical literature. In these trials, active therapies are compared with placebos that are thought to lack any clinical activity. Placebos may lack pharmacological activity but have been shown to possess marked clinical activity depending on factors as simple as colour (red placebo tablets are more active than blue tablets) or as complex as the human interaction between physician and patient (placebos administered with neutral interaction are less positive than those administered with marked enthusiasm). Placebos have received a bad reputation as devices meant to fool or hoodwink patients. In reality they are powerful devices for unlocking the healing potential of the human brain. Clinicians in practice before the scientific era of medicine that began in the 1850s had mainly placebos to achieve cures. Principles used included scrupulous attention to history and physical examination, empathic listening and provision of advice on physical and spiritual health in addition to medications or procedures. These principles may be difficult to apply in the setting of Western allopathic medicine with over-reliance on technology and production pressure to see as many patients as possible, thus limiting consulting times. The proliferation of alternative therapies for pain reflects the deep human need for physical and emotional contact with their healthcare practitioners. It is instructive to note that appointments with alternative practitioners are seldom made for less than an hour and interaction consists of focussed communication and physical contact. These principles can be used to great advantage by pain therapists and will supplement rather than supplant pharmacological and/or interventional procedures.

A BBC documentary on placebos is available free online and makes for fascinating viewing:

http://www.bbc.co.uk/iplayer/episode/b00d0f3p/Placebo_Episode_1/

DR B SAREMBOCK

PSORIATRIC ARTHRITIS AND NEW DEVELPMENTS IN OSTEOARTHRITIS

Psoriasis is a chronic inflammatory T-cell mediated autoimmune disease that affects mainly skin and joints. It is one of the most common inflammatory skin diseases, affecting 2-3% of the population. Psoriasis does not affect given joints only and is a multisystem disease associated with a multitude of comorbidities

The clinical presentation is mirrored histologically by dramatic hyperplasia of the epidermis with loss of the granular layer, regular elongation of the rete ridges, thickening of the corneal layer and incomplete keratinocyte differentiation with retention of nuclei in the stratum corneum.

This talk will cover the pathogenesis, traditional therapy and targeted therapy. In addition the clinical and radiological features of psoriatic arthritis will be covered. There are multiple new agents in clinical and preclinical development that are showinging exciting potential. These new agents are not only monoclonal antibodies but also small molecules such as JAK inhibitors or PDE4 inhibitors.

In the long run increasing knowledge of psoriasis pathogenesis will lead to the emergence of new promising targets and subsequently to the development of additional therapeutic compounds.

DR R KRAUSE

VISCERAL PAIN THE THE PALLIATIVE CARE SETTING

Pain from tumour invasion of the viscera, with or without pleura or peritoneal involvement, remain a difficult and common challenge in patients at St Luke's Hospice in Cape Town. Ovarian and pancreatic cancer are especially difficult to manage in a resource poor community.Palliative care patients are also prone to develop visceral discomfort secondary to treatment and their general frail condition. This lecture will explore the lessons learned from managing visceral pain at St Lukes hospice.

DR J OETTLE

OVER THE HORIZON AT THE END OF THE RAINBOW

The rate of medical discoveries, developments and new technology employment is growing exponentially. An attempt is made to present a light hearted, crystal ball gaze into the future. Many of the presented developments may not even reach clinical usage as they have not been appropriately verified, yet some of these may well be the "new best thing" in 10 to 20 years' time. Being far from inclusive, the presented developments are those that have pricked the presenter's interest as being potential game changers in our chosen fields.

PROF PETER KAMERMAN

NEUROPATHIC ITCH

Brain Function Research Group, School of Physiology, Faculty of Health Sciences, University of the Witwatersrand, South Africa

Itch may arise from: i) activation of itch-sensitive (pruritoceptive) nerve fibres in the skin by pruritogens (pruritoceptive itch); ii) activation of central pruritic neurones by pruritogens (neurogenic itch); or iii) damage to, and subsequently spontaneous activity in, pruritic neurones (neuropathic itch). The pathogenesis of neuropathic itch is not well described, but like neuropathic pain, it results from damage to the peripheral or central somatosensory nervous system, and it is unclear why some lesions produce itch, while most do not. In this presentation I shall provide an overview of the neurobiology of itch, the epidemiology of neuropathic itch, and proposed treatments of neuropathic itch.

DR MILTON RAFF

THE SOUTH AFRICAN GUIDELINE FOR SPINAL CORD STIMULATION

Spinal Cord Stimulation (SCS) is a theoretically principled treatment with a substantial and supportive evidence base that has been used for the treatment of pain since 1967. It is strategically aimed to reduce the unpleasant sensory experience of pain and the consequent functional and behavioral effects that pain may have. For certain painful conditions, SCS has a physiological effect on the pathophysiology. When SCS is used to treat patients with chronic pain, it is important that the treatment is delivered within the context of a full understanding of the impact that pain has upon the patient and of the extent that pain interferes with his or her life and affects psychological well-being and social functions. Treatment with SCS should therefore normally be delivered within facilities that can offer comprehensive assessments and a range of additional physical and psychological pain management options.

In South Africa SCS is performed mainly for painful neuropathies, failed back surgery, and chronic regional pain syndrome. Spinal cord stimulation is an accepted method used for control of pain. A guideline for implementation and execution of a SCS programme for South Africa has been published in the SA Medical Journal. The evidence and appropriate context of delivery of SCS is discussed. Recommendations have been made for patient selection and appropriate use of this form of therapy. The consensus group has also described the possible complications following SCS. This guideline includes a literature review and a summary of controlled clinical trial of SCS.

Interested practitioners now have a locally recommended guideline for initiation of this form of therapy. The details of the `guideline shall be discussed during the presentation at the 2014 painsa Congress.

PROF HANS G. KRESS, MD, PHD, FFPMCAI (HON)

INTRATHECAL MEDICATION: CURRENT EVIDENCE FOR CHRONIC PAIN

Is there a need for intrathecal analgesia?

What to do when systemic high-dose multiple drug treatment with analgesics and co-analgesics fails to provide sufficient pain control? Or when intolerable adverse effects prevent the patient from sufficiently benefiting from analgesic treatment? A variety of strategies have been suggested to limit the side effects and to increase effectiveness, and intrathecal administration of centrally acting analgesics indeed offers a promising option for patients with severe chronic cancer and non-cancer pain that proved refractory to non-invasive approaches. This application route includes implantable catheters, subcutaneous port reservoirs or fully implanted analgesic pumps.

Recommended drugs for ITDD

Despite the relative popularity of intrathecal drug delivery (ITDD), there is a paucity of high-quality clinical studies, resulting in an ongoing controversy about its efficacy in general and the safety of many intrathecal drugs and drug combinations in particular. The only drugs approved for ITDD by both the European Medicines Agency (EMA) and the FDA are baclofen for intractable spasticity, morphine and ziconotide for refractory chronic pain management. Other drugs or drug combinations that are administered intrathecally to manage intractable chronic pain are therefore used off label.

Since there is no official guidance concerning the selection of intrathecal drugs, and the choices are rarely supported by controlled randomised long-term trials, large variations can still be found in daily practice. ITDD has become refined and standardized by the development of the regularly updated Polyanalgesic Consensus Conference (PACC) algorithms that aim to summarize the current knowledge and to facilitate rational choices of intrathecal drugs for the management of chronic pain. Unlike the previous PACC algorithms, the 2012 algorithm now contains separate arms for neuropathic, nociceptive, and mixed pain states.

Evidence for intrathecal analgesia

Ziconotide has been shown to be effective in prospective randomized controlled trials of cancer and non-cancer patients, and thus reaches a higher evidence score (1A+) compared to the other intrathecally used analgesic agents, which barely reach evidence score level 2B+ at best. When ITDD of analgesic drugs is assessed as such, the overall evidence score for this application route in cancer pain patients reaches AHRQ level II-2 or level 2B+, i.e. a positive recommendation. In non-cancer patients, the evidence level and the recommendation is "limited to moderate" based on the moderate quality of evidence (AHRQ level II-3 in non-cancer versus level II-2 in cancer pain) derived from mainly observational studies and case series. In conclusion, intrathecal medications have a late role in the management of complex, refractory chronic pain, particularly in cancer, but also in non-cancer patients. As ITDD is a non-destructive and reversible treatment option, a pragmatic approach that should be based on strict and systematic risk-benefit considerations is recommended, when deciding whether to use such therapies in an individual chronic pain patient.

DR MALCOLM DE ROUBAIX

LEGALISING BANNED SUBSTANCES FOR MEDICAL USE – A MORAL CONUNDRUM?

MMed (Anesth) MD DPhil / Fellow Centre for Applied Ethics, Department of Philosophy, University of Stellenbosch / Associate Centre for Medical Ethics and Law, Department of Medicine, University of Stellenbosch

The inherent tension between two opposing professional moral duties – one, to honour and uphold the law, the other to provide care as and when we see fit – is apparent in the title of this essay. Simultaneously, the route to solving this dilemma is also apparent – the legalisation of such substances (I am primarily referring to Cannabis but the arguments would apply to other substances that fall into the same category) would remove the moral conundrum and would be the preferred strategy for those convinced of the efficacy of the proposed treatments. The use of banned substances proposes a similar moral dilemma for patients who may be desperate for treatment yet abhor breaking the law. The similarities between this situation, and abortion and euthanasia will be explored.

It goes without saying that the legalisation of any banned substance (and I should add that many people regard the legislation with respect to the classification of cannabis arbitrary and generally outdated) for medical use presupposes convincing evidence of its efficacy and safety (favourable risk-benefit ratio), and the absence of suitable legitimate alternatives. I'll limit myself to a few comments in this respect. The indication for using cannabis would be intractable suffering. By definition this patient cohort is extremely dependent and vulnerable, presenting novel research difficulties. How do you morally justify blinded randomised trials in this group? What comparators should you use in such trials? Would observational or even therapeutic trials be acceptable alternatives?

On the other hand, we should be mindful of the Socratic dictum of examining things before we reject them (particularly the accepted practices and norms of society), of keeping an open mind, of accepting convincing argument, and of changing our practice consequent to the latter. And of constant re-examination in the light of new knowledge. Or, for those more inclined to the voices of postmodernity, to appreciate the tentativeness and provisionality of all knowledge, its susceptibility to change.

The wide-spread and illicit (since it is probably more than just off-label and not as treatment) prescription/use of methylphenidate (Ritalin®) for routine cognitive enhancement of "normal" students on SA university campuses provides us with a third comparative situation. Chris Verster examined this from a moral-ethical viewpoint, and the arguments he evaluated include examining what a "good doctor" would do, rights-based arguments, autonomy, paternalism, the dictum Primum non nocere, the issues of justice and fairness, the slippery slope argument, the argument from nature, the argument from ignorance, so-called pharmacological Calvinism and pharmacological hedonism, and finally the erosion of character argument. To these I would add the postmodernist notion of responsibility and the question of whether we are morally always obliged to adhere to the law. I unpack these arguments to the extent that they may apply, and end with some conclusions:

- The possible legalisation of banned substances for restricted and well-controlled medical indications may be morally acceptable provided convincing evidence of their efficacy and safety can be provided. When such prima facie evidence is absent (i.e., clinical equipoise still exists), but there is sufficient other (e.g. anecdotal) evidence of its possible efficacy, well-controlled studies should be done. Novel study design may be required. The authorities should allow such studies. There are numerous moral arguments at least in favour of clinical trials.

DR G PICKEN

He will be demonstrating the ultrasound-guided femoral nerve block at the regional anaesthesia workshop.

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There's an App for That: Mobile Technology Is a New Advantage in Managing Chronic Pain

A global health challenge is to deliver affordable health care to a growing and aging society, especially to individuals with comorbid long-term medical conditions. Modern innovations including the Internet and mobile technologies offer significant opportunities to improve access to health care, contain costs, and improve clinical outcomes. This trend is reflected in the rapidly increasing numbers of publications evaluating technologies for health care delivery (e.g., telehealth, eHealth), which compare their user-friendliness, reliability, validity, and efficacy to conventional methods of direct human interaction.

Owing to the increasing spread of mobile technologies throughout the world, the World Health Organization (WHO) has coined a new term: mobile Health (mHealth), a component of eHealth. The Global Observatory for eHealth (GOe) of the WHO defines mHealth as "medical and public health practice supported by mobile devices, such as mobile phones, patient monitoring devices, personal digital assistants (PDAs), and other wireless devices"[1]

PDAs, popular in the early 1990s, have been largely replaced by smartphone and tablet devices. According to Global Mobile statistics in 2011, there were more than 6.8 billion registered users of mobile phones. In low-income countries, mobile communication technology is the fastest growing sector of the communications industry.[2] Estimates for smartphones have been well over 1 billion worldwide.[3]

This high density of modern mobile platforms worldwide allows people to access health care even where mobility, transportation requirements, or cost constraints present significant barriers to traditional face-to-face interaction with a health professional. Additional costs are minimal because no separate device is needed, and applications can use existing services for Internet access and text messaging. These services will allow for easy and time-effective coverage of a large patient population at a low cost by using downloadable material and automated emailing and messaging systems. Cell phones facilitate temporal synchronization for symptom monitoring, medication and appointment reminders, and possible interventions.

Mobile technology to monitor chronic health conditions has been used for several years with some reported efficacy,[4,5] yet the interest in mobile technology for management of chronic pain has only recently started to develop, and there is still a paucity of large, high-quality trials to evaluate its efficacy. This issue of *Pain: Clinical Updates* focuses on the scientific evidence of mobile technology for chronic pain management, with special atttention to mobile phone capabilities.

Mobile technologies offer significant opportunities to improve access to health care, contain costs, and improve clinical outcomes.

Electronic Diaries

With the advent of handheld computer technology and increased availability of the Internet, electronic diaries have become popular for the purpose of pain monitoring. Acknowledging

Daniel Vardeh, MD,
Robert R. Edwards, PhD,
and Robert N. Jamison, PhD
Departments of Anesthesiology, Neurology, and Psychiatry
Brigham and Women's Hospital
Harvard Medical School
850 Boylston Street
Chestnut Hill, Mass. 02467, USA
Emails: dvardeh@partners.org; rredwards@partners.org; rjamison@partners.org

Christopher Eccleston, PhD
Centre for Pain Research
The University of Bath
Bath, BA2 7AY
United Kingdom
Email: c.eccleston@bath.ac.uk

the shift from conventional to electronic data collection, the U.S Food and Drug Administration released guidelines for collecting and evaluating such data.[6] Several randomized controlled trials (RCTs) and multiple prospective longitudinal studies comparing paper with electronic diaries have convincingly shown that electronic recordings are superior with respect to compliance, user-friendliness, patient satisfaction, test reliability, and validity measures.[7]

In addition, pain can fluctuate widely over the course of time, depending on psychological and environmental influences, and is therefore prone to recall bias. Retrospective assessment usually leads to an overestimation of pain,[8] which can be prevented by frequent ratings of "now" pain (known as "momentary ecological assessment").[9] Psychological variables (e.g., anxiety, anger) and physiological factors (e.g., physical activity, sleep) preceding and following pain exacerbations can be captured and correlated.[9] Some studies have used additional electronic devices incorporated into the electronic diaries to evaluate objective environmental variables, (e.g., accelerometers to evaluate physical activity and sleep).[10]

As technology merges and advances, evidence-based electronic monitoring of chronic pain has become transferable to applications run on smartphones, which can offer additional features for telemonitoring, including universal wireless access and text messaging (Table I).

Internet-Based Interventions

Internet-based interventions are widely available on smartphones (Table II). A recent review of articles published between 1990 and 2010 on more than 2,500 patients with chronic pain evaluated the evidence for Internet-based interventions.[11] Interventions consisted mainly of (1) cognitive and behavioral therapy (CBT), (2) moderated peer-support programs, or (3) clinical visit preparation and follow-up. Internet-based CBT interventions consist of structured, self-administered therapy programs offered in weekly modules ranging in length from six to 20 weeks, with only minimal support from clinical staff. Most CBT studies showed significantly decreased pain levels, improved function, and decreased costs compared to standard care.

Evidence of beneficial effects of these interventions on mood was less consistent. Studies of peer-support forums designed to help patients exchange experiences with people with similar symptoms have demonstrated significant reductions in pain levels, disability, and distress but no change in the number of physician visits.[12] Online networks can consist of interactive components designed to promote communication, distraction, information, self-expression, and social support. Meta-analysis of several RCTs showed significant reduction in pain and anxiety. In addition, significant reduction in loneliness, withdrawn behavior, and a greater willingness to return for treatment was achieved in some studies.[13]

Lastly, clinical support interventions, including educational websites to help prepare for doctor visits and support self-management after outpatient

Table I
Types of Mobile Technology

Technology Types	How They Work	How They Can Be Used
Personal digital assistants (PDAs)	These handheld devices have programs (electronic diaries) that can monitor pain, mood, medication, side effects, and quality of life.	Programs can collect data and track changes in pain, mood, and medication use over time. These data can be summarized and saved for providers to assess progress.
Mobile applications (apps)	Users download these software programs to a mobile device with Internet capability for education and monitoring purposes.	These programs can be used for self-assessment and symptom management among those with pain. Daily reminders and tracking of medication, exercise, diet, and appointments are designed to help manage pain.
Text messages	Brief typed messages enable two-way communication with a care provider or friend.	This form of communication can transmit pain scores and level of functioning. Response to text messaging can be assessed as a measure of compliance.
Twitter	One-way brief (140-character) messages (called tweets) are posted for anyone who might be interested (known as microblogging).	Users can communicate issues associated with pain, mood, and function.
Accelerometers	These clip-on devices track movement and body posture.	Data from accelerometers can be transmitted to a provider to gain some understanding of an individual's level of activity and sleep.

surgical procedures, can significantly reduce postoperative pain after surgery and improve patient satisfaction and knowledge.[14,15]

Text Messaging

Text messaging is a simple, time-efficient, and inexpensive way for two-way communication between patients and providers, and its function is integrated into any mobile or smartphone device for chronic disease management. Several RCTs found significantly higher patient satisfaction rates compared to traditional communication means, higher medication compliance, and a higher probability of healthy lifestyle changes (e.g., smoking cessation).[16] For instance, a recent review of randomized studies found significant improvement in body weight, diet, or exercise with at least daily text messaging to encourage healthy lifestyle changes. Of the two studies evaluating weight loss beyond six months, only one found that a significant weight reduction was preserved.[17]

In contrast, a recent meta-analysis evaluating text messaging for management of diabetes, hypertension, and asthma found only limited evidence of improved clinical outcomes.[18] On the other hand, a newer RCT with more than 500 patients with impaired glucose tolerance showed that diabetes incidence can be markedly reduced by frequent mobile phone messaging of healthy lifestyle advice (e.g., "Use stairs instead of a lift").[5]

Collectively, there is some evidence to suggest improved self-management of long-term illnesses in patients receiving text messages, and it is likely that the number of such text-based self-management studies will increase rapidly. Another form of brief text messaging known as "tweeting" can be used to share information about pain, but little has been reported about use of this form of one-way communication in clinical settings. At present, while there are some trials evaluating compliance, feasibility, user-friendliness, reliability, and validity of text messaging in pain patients,[19–22] we are unaware of any studies evaluating the efficacy of such programs for pain relief.

In the available studies, several questions were texted to participants on a daily or weekly basis to explore pain and functional impairment. Typical questions were: "How many days this previous week has your low back pain been bothersome?" and "How many days have you been off work because of your low back pain this week?" Patients were asked to respond on a numeric scale, which for pain ratings typically ranges from 0 to 10. In some cases, a subsequent question would be sent out automatically after the first answer was received. If the patient did not respond, some studies sent reminder messages within a short period of time, and a few followed up with a telephone call if no response was received after the third message.

Table II
Summary of Smartphone Applications for Pain

Smartphone applications appear to be easy to use and are well accepted by patients with chronic pain conditions.
Compliance rates for use of mobile technology for all ages are around 80%.
Text messaging can be used to gather high volumes of patient data economically.
Alternative measures such as phone interviews or mailed surveys improve compliance.
There are no clear predictors for noncompliance.
There is insufficient evidence to judge the efficacy of app-based interventions for pain and limited evidence that text messaging is reliable and valid.
Text messaging used for intervention purposes is an unexplored field.
Technology could be used to support goal setting and feedback to help people with chronic pain in their own homes.
Technology that replicates aspects of human interaction could improve engagement with self-management interventions.

Text messaging is a simple, time-efficient, and inexpensive way for two-way communication between patients and providers, and its function is integrated into any mobile or smartphone device for chronic disease management.

Compliance

In general, average patient response rates to text messages are good (70–80%).[19,20] One multicenter study involving 262 patients with low back pain (LBP) who received weekly text messages reported 90% response rates the first week, with a decline to 79% after six weeks. Age, gender, intensity or duration of pain, type of occupation, or self-rated health did not distinguish between the high and low-frequency responders.[19] High responders showed continued recovery from their pain, while those who did not comply tended to show an increase in pain compared to baseline. There was also a tendency to fail to respond if the previous week's responses indicated a high number of bothersome pain days. Seasonal changes including holidays had no effect on compliance.[19]

Another randomized study followed 94 pain patients over the course of a year with monthly text messages and found a continuous decrease of response rates from 75% during the first months to 55% in the last months. An additional telephone interview after three unanswered text messages increased response rate significantly to well above 90%. Regression analysis revealed no significant influence of age, sex, education level, baseline pain, or pain improvement after two months. The overall results of this study suggested that text messaging can be used to adequately perform data collection during a one-year period.[21]

Another study following 101 patients with LBP recruited from chiropractic offices reported declining response rates to weekly text messages (three questions) over 18 weeks. Among 101 patients responding to the first message, response rates declined to 86%, 78%, and 70% at week 6, 12, and 18 respectively. Patient characteristics associated with noncompliance were male gender, acute flare-ups of pain, and radiculopathy.[20]

Reliability and Validity

Evidence for the validity of text messaging is limited compared with more traditional surveys such as paper questionnaires and telephone interviews. In an RCT examining 67 construction workers for efficacy of an exercise program to alleviate musculoskeletal pain, investigators found no differences between paper questionnaires and text messages before and after a 12-week course.[23] Telephone interviews for evaluation of LBP in 31 patients yielded similar results.[24] In another small study of 60 palliative patients admitted for pain medication titration, 10 randomly selected patients were asked to send text messages in set intervals over a 14-day course with ratings of pain and side effects. Telephone follow-up at the end of the study confirmed the accuracy of responses.[25]

Another study with 15 children ages 9–15 showed that description of pain intensity, duration, and functional limitation using a numeric scale with text messages was perceived as easy. Validity of the text response was confirmed by comparing the numeric response of "pain disability" to a visual analogue scale, with good calculated concordance. Similarly, retest reliability was acceptable at a three-day interval.[22]

Cost

Given reasonable compliance and at least some evidence for validity and reliability, text messaging has been used to obtain extensive data in an efficient and economical way to follow a patient's clinical course.[20,26] Automated text-messaging questionnaires (e.g., SMS-T-Q, *www.sms-track.dk*) are reliable measurement tools with high compliance rates unaffected by patient characteristics.[21,22,24] The costs of such a system were explored in a Danish study of 220 patients with LBP followed with weekly text messages over one year. Costs of using a commercially available automated text-messaging questionnaire were compared to the calculated costs of using regular mailed paper questionnaires, which were estimated to be 11 times higher than for text messaging.[24]

Pain Management Applications (Apps)

With the advent of smartphones, which combine features of mobile phones with computer handheld technologies, small, downloadable programs ("apps") have become increasingly popular. A recent review

of many prevalent chronic conditions (diabetes, migraines, asthma, vision and hearing loss, osteoarthritis, anemia, and depression) found more than 6,000 apps.[27] The general purpose of these apps is for monitoring and acquiring information about a specific condition. Typically, an Internet connection is not required, and most of the apps are designed for the general public and for nonclinical use. The prevalent type of data presentation is text followed by charts and pictures. Assistive and monitoring apps are frequently used, whereas informative and educational apps are only occasionally used.[27] One of the major shortcomings of existing apps is that they rarely adhere to established guidelines or link to scientifically proven concepts,[28,29] and there is only modest evidence for improvement in general health care based on smartphone app use (e.g., frequency of clinic visits, emergency room visits, and hospitalizations).[4,30]

In a recent review of commercially available pain applications,[31] 111 applications were found across the major mobile phone platforms, with 86% reporting no health-care professional involvement. Functions of pain applications could be divided into three major categories: (1) general information about pain, its symptoms, and treatment options; (2) diary-based tracking of symptoms, medication use, and appointment reminders; and (3) interventions for pain management, mostly relaxation strategies. Most (54%) of the applications provided general information, while only 24% had a tracking program, and only 17% included an intervention.[31]

Despite the abundance of commercially available applications offered for pain management, scientific evaluation of these programs is scarce. In a prospective, uncontrolled trial of 20 patients with fibromyalgia, symptoms were monitored three times a day for one week with an iOS-based application. Daily reports were generated and transmitted wirelessly to a nurse, who responded with emails or phone calls to encourage the patient to use previously learned self-management strategies. The vast majority (75–85%) of patients indicated that the method was easy to use and useful for tracking symptoms and that they would be willing to use this method in the future.

More than half of the patients said that this method gave them greater control of their disease, helped them manage their disease more efficiently, and was a critical component of their medical care. All participants agreed that it was an easier way to communicate with the care team. Compliance was 75%.[32]

Interviews revealed that the most helpful aspect of the program was to assess symptoms and potential triggers over time. In general, this type of telephone-based follow-up improves the outcomes of various nonpharmacological interventions for chronic pain, and technologies such as interactive voice response systems show tremendous potential for synergy with app-based mobile platforms.[33]

Similarly, a survey of 20 patients using a mobile phone app to rate postsurgical pain for six days found that the patients perceived the application as easy to use and convenient, and most were willing to use the same technology in the future. They reported significantly higher pain levels than controls who completed paper surveys at the same frequency, which may reflect greater accuracy/honesty when responding electronically.[34]

Some mHealth studies have examined pediatric samples, with generally promising results. One study of adolescents with sickle cell disease evaluated the use of a mobile-phone-based program to manage their chronic pain. The intervention included a daily assessment of pain intensity, location, and functional impairments, as well as a program to deliver audio files to encourage coping. Participation rates were high (76% compliance) over an eight-week period. The method was well received, with high satisfaction scores and reported ease of use by parents and children alike.[35] Another study of youth ages 10–17 compared smartphone-based diaries with traditional paper diaries, noting that smartphone-based reporting of pain, coping, and medication use was rated as easier, more time-efficient, and more accurate compared with assessment using paper diaries.[36]

To heighten interest in using electronic diaries among children, a game-based smartphone pain-assessment tool with cancer pain was developed. This program, known as "Pain Police Squad," encouraged users to complete a pain diary twice a day for 14 days. Incentives to complete the diary included promotions within the squad as well as short video sequences of a popular TV series. Compliance was higher than 80%, with no decline over the two-week period. No differences were found in compliance by gender or time and day of diary use. The vast majority of participants indicated that it was easy and enjoyable to use the program and that it did not interfere with activities of daily living.[37]

Therapeutic Interventions

Minimal data are available to judge the efficacy of smartphone interventions for pain. One RCT included 140 women with chronic widespread pain and evaluated a four-week smartphone-based intervention consisting of three daily

symptom surveys with immediate daily written therapist feedback encouraging coping skills.[38] The intervention group reported significantly less catastrophizing, better acceptance of pain, and overall better functioning than the control group, and this difference was maintained for five months after the intervention. There was a 30% dropout rate in the intervention group (versus 3% in the non-intervention group), which was correlated with older age, more pain, worse sleep, and overall worse functioning compared with compliers. The high dropout rate of patients with worse symptoms might have biased the measured improvement in the intervention group.[38]

Benefits and Barriers of Mobile Technology for Pain

Smartphone pain apps offer several benefits for monitoring and managing pain. Similar to PDAs, they allow for momentary measurement throughout the day. With increased accessibility of cell phones with Internet access, more individuals are able to download apps worldwide. In general, smartphones are predicted to decrease in cost, and their capability to store data, maintain a charge, and support programs with different platforms will most likely increase. Studies are underway to document outcomes of smartphone apps for pain, and despite limited evidence of controlled trials, reports of the validity and reliability of these programs are forthcoming. Most of the programs are easy to use, enjoyable, and have at least equal compliance rates compared with paper-based diaries.

Various concerns affect the widespread use of smartphone pain apps. Security issues and concerns over privacy and confidentiality remain, and greater efforts are needed to secure personal data. Data transmitted to a health-care provider may be vulnerable to hacking. Programs that request frequent monitoring with sound and text reminders throughout the day can represent a burden to the user. The volume of data transmitted to a health-care provider can also be overwhelming. There is further risk among certain individuals that smartphone pain apps may encourage too much focus on pain and pain-related symptoms and decrease opportunities for distraction from pain. This type of symptom monitoring could be problematic for individuals who are prone to somatization or increased anxiety.

Another concern with use of smartphone apps is the occasional need for technical support. Corrupted or erased data could be a problem for health-care providers who need to document treatment. Few programs have been compatible with hospital-based electronic medical records. Certain individuals may not be compliant in using smartphone pain apps, and older individuals may not feel comfortable using certain software. Some are limited by mobility issues and physical disabilities and others by poor reading skills or language restrictions.

Certain individuals who have problems with concentration owing to severe pain and loss of sleep may easily become frustrated in using computer and electronic technologies. Also, the cost (although it is decreasing) may limit the use of this new technology. Finally, there is limited evidence that information technology reduces health-care use. However, several recent studies do suggest that telephone-based educational interventions can significantly reduce medical costs.[39] Additional studies are needed to help determine how careful monitoring and informational support may affect frequency of hospital and clinic visits.

Summary and Future Outlook for Smartphone Pain Apps

Treatment of chronic pain is expensive (with annual estimates of up to $635 billion in the United States alone), and mean health-care expenses for adults with a medical condition with severe pain are three times higher than for those with a condition with no pain.[40] While mobile technology will not completely replace the traditional face-to-face interaction with a health-care professional, there is modest evidence of the cost-effectiveness in gathering clinical information and in the potential for reduced health-care use among pain patients using smartphones and pain management apps. Innovative systems currently in development designed to help manage pain without therapy involvement can deliver messages in real time close to any precipitating event. These programs can begin to simulate some of the processes of interacting with a therapist or health-care provider.[41]

There is a discrepancy, however, between the number of available apps and scientific studies designed to measure their efficacy, feasibility, usability, and compliance, and more research is needed. Although one might be able to extrapolate from PDA data using electronic diaries, this would neglect crucial aspects of mobile phone use, including Internet access and messaging, which are necessary for live, two-way communication. While no regulatory body is currently available to monitor, rate, and recommend available applications for chronic pain patients, rigorous interventional studies and reviews by the scientific community are needed. Investigators should assess the benefits of mobile technology in diagnosing and treating chronic pain, including pain assessment apps and electronic hospital records.

Although the future of mobile technology is promising in the management of acute and chronic pain, challenges remain in tracking more complex pain patients with severe symptoms to reduce their higher probability of dropout from app-based studies. Efforts must focus on these most challenging of pain patients, who use the highest percentage of resources.

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New Addiction Criteria: Diagnostic Challenges Persist in Treating Pain With Opioids

There has long been a tendency to consider pain and addiction as different entities, requiring radically different treatment. This tendency is partly due to the discomfort clinicians (especially specialists) feel when attempting to treat one of these problems outside the boundaries of their own expertise and experience. Yet when pain is treated medically, it is addictive drugs (notably opioids) that are often chosen, not least because of their unique efficacy for treating pain. The more these drugs are used, the more addiction surfaces as a significant accompaniment to pain, especially in the case of long-term treatment of pain symptoms.

It is often said that addiction is easy to recognize, that it rarely arises during the treatment of pain with addictive drugs, and that cases of addiction during pain treatment can be managed in much the same way as other addictions,[1-4] but such generalizations grossly oversimplify the real situation. Experts have struggled for years to understand addiction, to outline its basic mechanisms, and to come up with ways to describe and define it.[5] Even today, the *Diagnostic and Statistical Manual of Mental Disorders* (DSM) specifications for addiction are being rethought and rewritten, in part because previous definitions of addiction were unsatisfactory when applied to opioid-treated pain patients.

Reports in the literature cite addiction rates during chronic pain treatment with opioids that range from less than 1% to as much as 50%, underlining our true uncertainty about how often addiction arises, or what addiction actually is.[6] Patient behaviors can be variously interpreted as drug seeking, and whether or not a formal diagnosis of opioid addiction is made, there is much uncertainty about how to treat severe pain in the presence of this comorbid diagnosis. The problem is that no consensus exists about how to recognize addiction when it arises during the treatment of pain with addictive drugs—and even less agreement about how to treat it.

This issue of *Pain: Clinical Updates* will review the current understanding of the biological basis for addiction, the evolution of addiction definitions, and—given that the treatment of long-term chronic pain with addictive drugs can be accompanied by addiction or states akin to addiction—reflect on the diagnostic and therapeutic challenges that need to be overcome if affected patients are to be appropriately supported.

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The Neurobiology of Addiction

The identification of a so-called "reward center" in the brain opened the way toward a much greater understanding of addiction. Addiction was now understood as essentially a compulsive and pathological pursuance of natural "rewards." Anatomically, this center is the mesocorticolimbic system, comprising the ventral tegmental area,

Jane C. Ballantyne, MD, FRCA
Department of Anesthesiology
and Pain Medicine
University of Washington
1959 NE Pacific Street
Seattle, Wash. 98195-6540
USA
Email: **jcb12@u.washington.edu**

Cathy Stannard, MD
Pain Clinic, Macmillan Centre
Frenchay Hospital
Bristol BS16 1LE
United Kingdom
Email: **cfstannard@aol.com**

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nucleus accumbens, amygdala, and hippocampus[7] (Fig. 1). Although the common final pathways are dopamine pathways, these centers are also replete with opioid systems. The hypothesis of "reward" as the sole basis for addiction is not, however, universally accepted. Nevertheless, the mesolimbic system can be understood as a system with strong evolutionary advantages, since key survival behaviors such as maternal bonding, feeding, and sexual activity are all enabled by the hedonia, learning, or incentive salience (motivational "wanting") produced in this center. [8] Exactly which is the primary enabling mechanism is still debated.

Endogenous opioids are important mediators of drug addiction, as well as other addictions such as gambling, so that opioid antagonists can occasionally be helpful for treating a number of addictions. Exogenous opioids produce addiction directly as an opioid receptor effect in the nucleus accumbens, and indirectly by decreasing GABAergic inhibition of dopamine. Exogenous opioids are highly addictive, but they do not invariably produce addiction, especially if taken under carefully controlled conditions for the treatment of pain. Likewise, other addictive substances such as alcohol can be imbibed without producing addiction, leading to addiction only in susceptible individuals.

When an addictive drug is first taken it produces euphoria via a dopamine surge in the mesolimbic pathways. Opioids are capable of producing a dramatic euphoric effect, especially when injected. The more lipophilic the drug and the more rapidly it reaches and crosses the blood-brain barrier, the greater the surge. Highly susceptible individuals can succumb to addiction immediately, especially when the euphoric effect is intense. Others do not; some do not even experience euphoria; and yet others simply do not like the euphoric effect. There is preclinical evidence and evidence from the use of opioids for cancer pain that in these conditions, the euphoric effect of opioids is actually blunted.[9-11] The euphoric effect is a positive reinforcing effect that reinforces drug-seeking behaviors.

Although the positive reinforcing effects of addictive drugs are important in initiating drug addiction, especially during illicit use, drug addiction is sustained not through positive reinforcement, which tends to fade, but largely through negative reinforcement.[12] Negative reinforcement is a consequence of withdrawal, whereby unpleasant symptoms such as anhedonia, hyperalgesia, and a constellation of noradrenergic effects begin to drive drug seeking in order to relieve the symptoms of withdrawal.

Drug tolerance (the need to take more of a drug in order to achieve the same effect) is another consequence of continued drug use, and tolerance that is not satisfied with a dose increase will manifest as withdrawal. Since tolerance has psychological (associative) as well as pharmacological (non-associative) origins, changes in mood or circumstance can produce withdrawal (or overdose).[13,14] What is seen with continued drug use is that tolerance and dependence together determine drug need and become significant driving forces for drug-seeking behavior (Fig. 2).[15]

When opioids are taken continuously for the treatment of chronic pain, the adaptations that arise are similar to

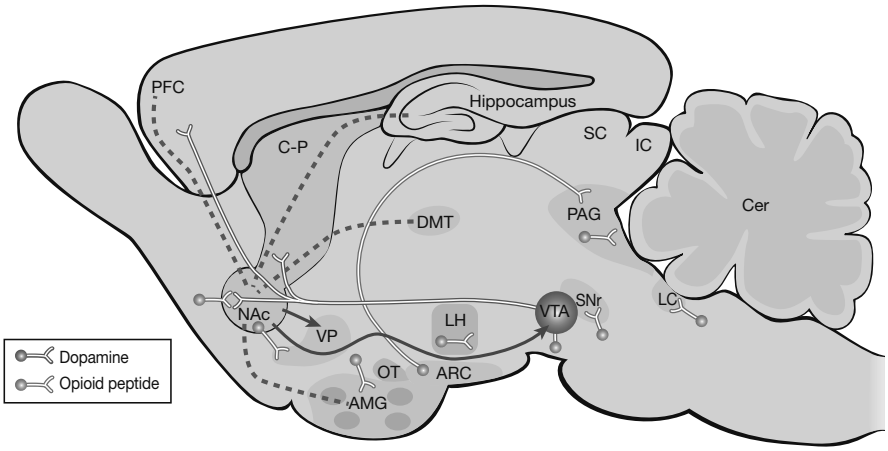

Fig. 1. Key neural circuits of addiction. Adapted with permission from Nestler.[7] Dotted lines indicate limbic afferents to the nucleus accumbens (Nac). Blue lines represent efferents from the Nac thought to be involved in drug reward. Red lines indicate projections of the mesolimbic dopamine system thought to be a critical substrate for drug reward. Dopamine neurons originate in the ventral tegmental area (VTA) and project to the Nac and other limbic structures, including the olfactory tubercle (OT), ventral domains of the caudate-putamen (C-P), the amygdala (AMG), and the prefrontal cortex (PFC). Green indicates opioid-peptide-containing neurons, which are involved in opiate, ethanol, and possibly nicotine reward. These opioid peptide systems include the local enkephalin circuits (short segments) and the hypothalamic midbrain beta-endorphin circuit (long segment). ARC, arcuate nucleus; Cer, cerebellum; DMT, dorsomedial thalamus; IC, inferior colliculus; LC, locus ceruleus; LH, lateral hypothalamus; PAG, periaqueductal gray; SC, superior colliculus; SNr, substantia nigra pars reticulata; VP, ventral pallidum. Taken from Ballantyne and LaForge.[6]

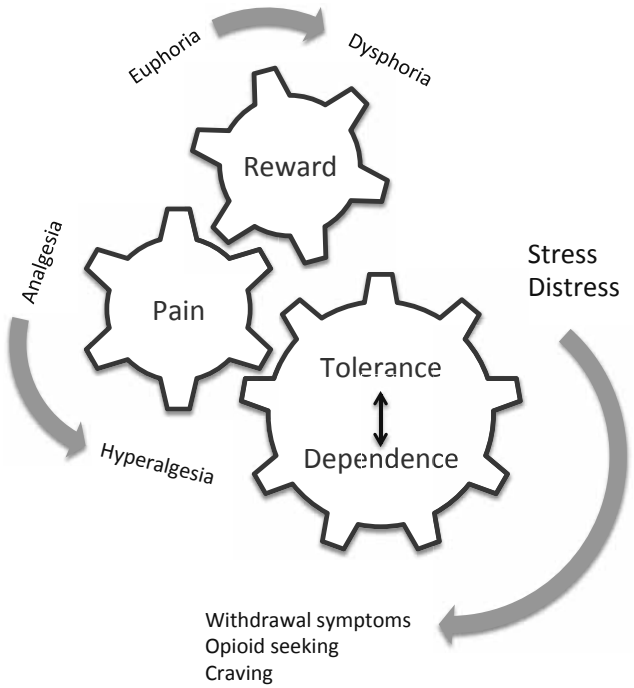

Fig. 2. Interdependence of mood, tolerance/dependence, and pain. Even in normal individuals, pain and mood are interdependent, in part through endogenous opioid mechanisms. Individuals taking exogenous opioids chronically and continuously adapt by developing tolerance and dependence. Psychological factors such as stress and distress can alter tolerance and thereby induce withdrawal symptoms. For the dependent individual, the need for more opioid becomes the predominant reaction to stress. Although pain is seen as the primary reason to dose-escalate, pain is often secondary to other factors. Taken from Ballantyne et al.[15]

those previously described: tolerance and dependence are expected; they determine drug need; and they may become significant forces for drug-seeking behavior. There are, however, substantial differences between the illicit drug user and the opioid-treated pain patient. Opioid-treated pain patients generally bypass the stage of positive reinforcement, and they do not necessarily present with the risk profile of the addict who initiates his or her own use (see Fig. 3).[6]

While the mechanisms of drug reinforcement described here are fairly well understood, what is far less obvious is how and why drug seeking becomes compulsive and thus enters the realm of drug addiction, which, unlike tolerance and dependence, is considered irreversible because affected individuals remain vulnerable to relapse even after drug cessation. Insofar as memory and learning are critical factors, drug addiction seems to result from conditioning, where repeated drug-seeking behavior is combined with drug use.[16] Mechanisms underlying the irreversibility of such conditioning could include gene regulation and actual physical remodeling of synapses and circuits in higher centers such as the amygdala, hippocampus, and prefrontal cortex.[16]

The opioid-treated pain patient represents a real quandary when it comes to understanding or identifying addiction. In pain patients, unlike illicit drug users, opioid seeking, even if it seems compulsive, may not necessarily be indicative of addiction. There are many reasons why pain patients seek opioids, including their memory of untreated pain, memory of pain relief, relief of withdrawal symptoms, and relief of distress (chemical coping). Importantly, dependence, an inevitable accompaniment to continued opioid use, is a powerful driving force for opioid-seeking behavior, and such behavior can appear much like addiction and even meet DSM criteria for addiction. Such dependence is often specified as "physical," yet there are also psychological components of

In pain patients, unlike illicit drug users, opioid seeking, even if it seems compulsive, may not necessarily be indicative of addiction.

dependence—withdrawal produces psychological distress, including let-down and anhedonia—and symptoms are not purely physiological. Even after successful tapering of opioids, symptoms of withdrawal such as anhedonia and hyperalgesia can persist for months. Dependence itself can be enduring and may resemble addiction. When opioid seeking appears problematic in pain patients, do we really know whether or not there is addiction?[15]

Evolution of Addiction Definitions and DSM-V

Definitions and criteria for disease are developed in order to achieve consensus about what constitutes a particular disease state. Additionally, diagnostic terminology and coding are used both nationally and globally to determine what services and treatments are appropriate or needed and where. Consensus definitions thereby become crucial to the provision of services. Service needs have been an important driving force behind the evolution of addiction definitions, and they are again becoming an important factor, especially in the United States, where prescription opioid abuse has burgeoned and presents a huge unmet service need. There is little consensus about what constitutes dependence or addiction in opioid-treated pain patients. There are no agreed criteria, and efforts to mold DSM criteria to accommodate the state of dependence or addiction in pain patients have been largely unhelpful and even damaging.

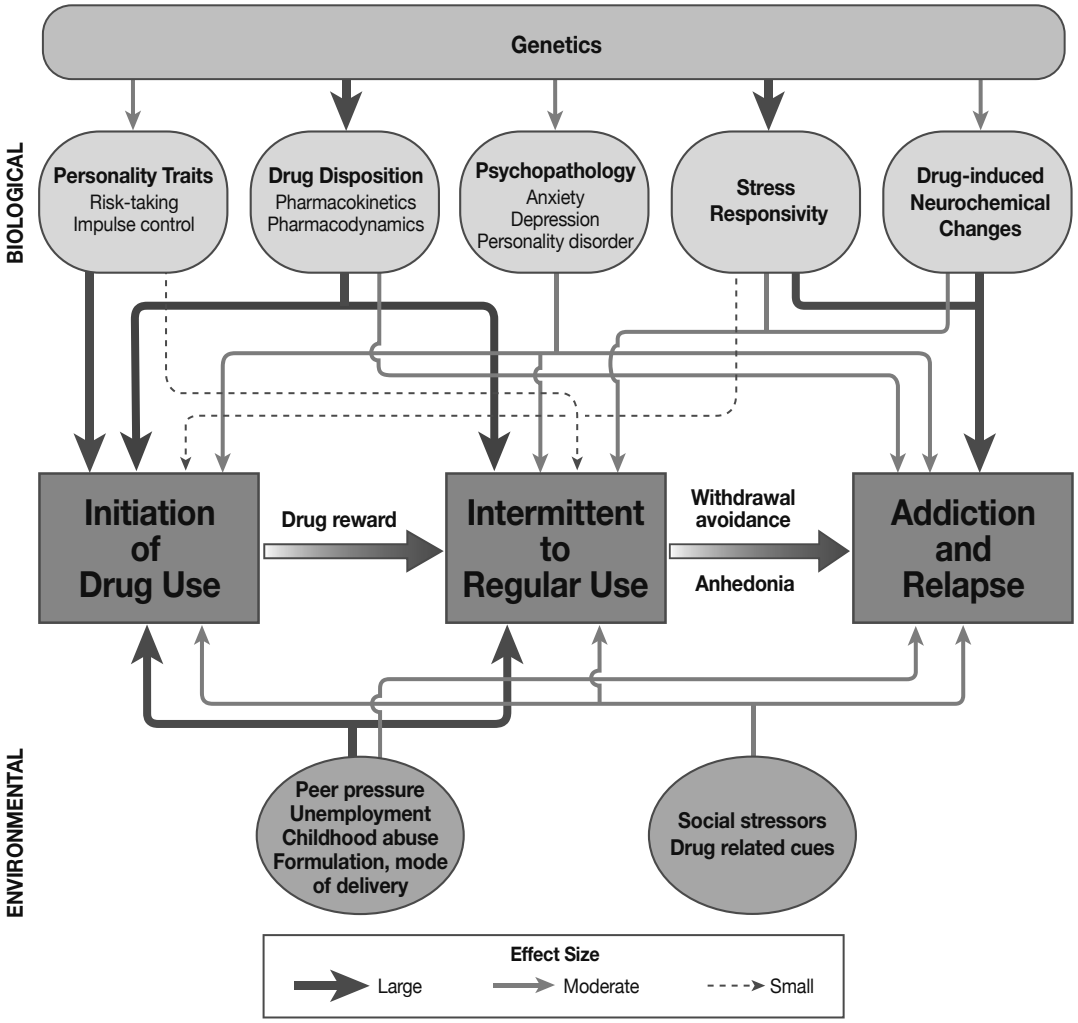

Fig. 3. Influences on stages of addiction. Personality traits are likely to have their strongest influence on the initiation phase of drug use. Social pressures, drug formulation, and drug disposition (the latter substantially genetically determined) contribute significantly to both initiation and early repeated use. Personality factors probably contribute less to addiction and relapse later after chronic drug exposure has induced changes in the brain. Personality factors, drug disposition, comorbidity and stress responsivity, continued drug use, and environmental factors interact in influencing the progression from initial use to addiction. Genetic factors, also interacting with environmental factors, contribute in varying degrees to each type of biological influence. Taken from Ballantyne and LaForge.[6]

Before the 1950s, addiction was considered a weakness of character or control, not a medical illness. At the time, understanding of addiction neurobiology was rudimentary, and the existence of endogenous opioid systems only imagined. In the 1950s, criteria for addiction were sought in order to medicalize it and facilitate treatment. The first *Diagnostic and Statistic Manual* (DSM) of the American Psychiatric Association, published in 1952, grouped alcohol and substance abuse under Sociopathic Personality Disturbances and did not recognize the key role of tolerance and withdrawal in drug addiction. It was not until the publication of DSM-III in 1980 that tolerance and withdrawal were included as criteria together with social and cultural factors. This edition was also the first to formally use the term "dependence" to denote drug addiction. "Dependence" is distinguished from "abuse," which is maladaptive use without tolerance, withdrawal, or a pattern of compulsive use. The reader will readily see that the definition of these terms in DSM-III and DSM-IV (mirrored in the International Classification of Diseases) is not the same as is generally understood in colloquial English.[17,18] This difference in itself produces much confusion. Over the years, many words have found their way in and out of addiction nosology, including the terms "habituation," "misuse," "abuse," "dependence," and "addiction." The word "addiction" in medical definitions has been eschewed lately because of its associated stigma. What is particularly problematic about the choice of the term "substance dependence" to describe drug addiction is that it produces confusion when it comes to treating pain with opioids, because continuously treated pain patients can be expected to be dependent (i.e., have difficulty discontinuing treatment) but are not necessarily addicted (i.e., compulsively drug seeking).

New definitions for drug addiction were published by the American Psychiatric Association in May 2013 in DSM-V.[19] Two significant changes were made in deference to the problems experienced conceptualizing dependence and addiction when they arise in opioid-treated pain patients.

Table I	
A maladaptive pattern of substance use leading to clinically significant impairment or distress, as manifested by two or more of the following:	**Behaviors suggesting prescription drug abuse:**
▪ Failure to fulfill major role obligations at work, school or home ▪ Continued use in situations in which it is physically hazardous (e.g., driving) ▪ Persistent or recurrent social or interpersonal problems ▪ Substance taken in larger amounts or longer than was intended ▪ Persistent desire or unsuccessful effort to cut down ▪ Great deal of time spent in activities necessary to obtain substance, use substance, or recover from substance use ▪ Important social, occupational, or recreational activities given up or reduced ▪ Continued use despite knowledge of harm ▪ Craving	▪ Multiple prescribers ▪ Frequent emergency room visits ▪ Multiple drug intolerances described as "allergies" and refusal to pursue nonopioid treatments ▪ Frequent dose escalations and self-dose escalation ▪ Frequent running out of medication early ▪ Frequent telephone calls to clinic and early appointments ▪ Focusing mainly on opioid issues during visits ▪ Repeated prescription loss with "classic" excuses such as the dog ate my prescription, the airline lost my baggage, the medicine was stolen
Behavioral criteria used for Substance Use Disorder, *Diagnostic and Statistical Manual of Mental Disorders,* 5th edition (DSM-V).[19]	Adapted from Wilsey and Fishman.[24]

The first change was to abandon the term "substance dependence," which had been used in both DSM-III and DSM-IV to denote drug addiction.[17] In DSM-V, "substance dependence" has been superseded by terms such as "substance use disorder" and "opioid use disorder."

The second important change was to specify that two items are needed from the list of behaviors suggesting compulsive use (see Table I) in order to meet criteria for substance use disorder. Tolerance and withdrawal are not counted for those taking prescribed medications under medical supervision such as analgesics, antidepressants, anti-anxiety medications, or beta-blockers. For DSM-IV, three items were needed in order to meet criteria for substance dependence, and they could include tolerance and withdrawal. Thus, for continuously treated pain patients who would almost always display tolerance and withdrawal, only one behavioral criterion was needed. It was easier, therefore, for an opioid-treated pain patient to meet criteria for addiction under DSM-IV than it will be under DSM-V.

Conceptualizing Dependence and Addiction

As this history has unfolded, we can see how radically our understanding of addiction has changed on the basis of scientific exploration (neurobiology), as well as the intellectualization of addiction as a disease worthy of treatment rather than a character flaw (development of addiction definitions and criteria). Yet, much uncertainty remains about exactly what addiction is and how best to treat it. That uncertainty is particularly problematic in the case of iatrogenic addiction (addiction arising as a direct consequence of medical treatment with an addictive drug), as reflected in efforts to develop definitions for dependence and addiction in pain patients, which remain unsatisfactory. Whereas for the illicit drug user, a pathway toward addiction (from risky initiation toward habituation, Fig. 3)[6,20] can be relatively easily theorized, the pain patient presents a much less certain trajectory toward addiction. Moreover, unlike the illicit drug user who persists in usage, the pain patient who persists in usage may not be addicted.

Two major distinctions between iatrogenic and non-iatrogenic addiction are worthy of mention: differences in presentation and differences in disease progression.

Differences in Presentation

If one looks at the behaviors listed in DSM-V (left-hand column of Table I, which are similar to behaviors listed in DSM-IV), it is easy to see that although an opioid-treated pain patient may meet these criteria, the degree to which they are diagnostic for addiction is open to interpretation. All of the behaviors are fairly common in opioid-treated pain patients, but they are usually attributed to pain rather than to addiction? Signs of compulsive use in the pain setting may be different, and one suggested scheme is represented in the right-hand column of Table I. Even accepting that these are signs of compulsive use, such behaviors are also often attributed to uncontrolled pain and not to addiction, and presentations may vary depending on a number of contextual and cultural factors. There is really no current agreement about when the compulsive behaviors seen

in opioid-treated pain patients might be considered signs of addiction.

Differences in Disease Progression

It is generally accepted that patients treated continuously with opioids are likely to develop tolerance (need periodic dose escalation) and physical dependence (experience withdrawal in the case of inadequate dose). There may be exceptions, but neuroadaptations similar to the adaptations that occur during illicit opioid use can be expected during the treatment of pain with opioids. The main difference is that the behaviors that develop and become established as memories are different (Table I). Dependence is important because, as already discussed, whether or not it is part of a drug use disorder, it is a powerful driver of opioid-seeking behavior. In a pain patient, it is never clear exactly why opioids are sought. What is clear, however, is that dependence plays an important role in insistent continuation of treatment despite poor effect and may contribute to observed opioid-seeking behaviors. There is no clear demarcation between dependence and addiction in pain patients, even though there may be clarity at both ends of the spectrum (Fig. 4).

These differences in presentation and disease progression point to an urgent need both to continue our reappraisal and refinement of addiction definitions for this group of patients and to meet the current clinical challenge of how to manage and support the many patients who fall between the two ends of the pain-addiction spectrum.

Conclusion

In the United States, the popularization of chronic opioid therapy has produced three-fold increases in opioid prescribing for chronic pain, parallel increases in known cases of opioid abuse, and thousands of patients who have developed complex opioid dependence.[15,21] Other developed countries have witnessed a similar, though less marked,

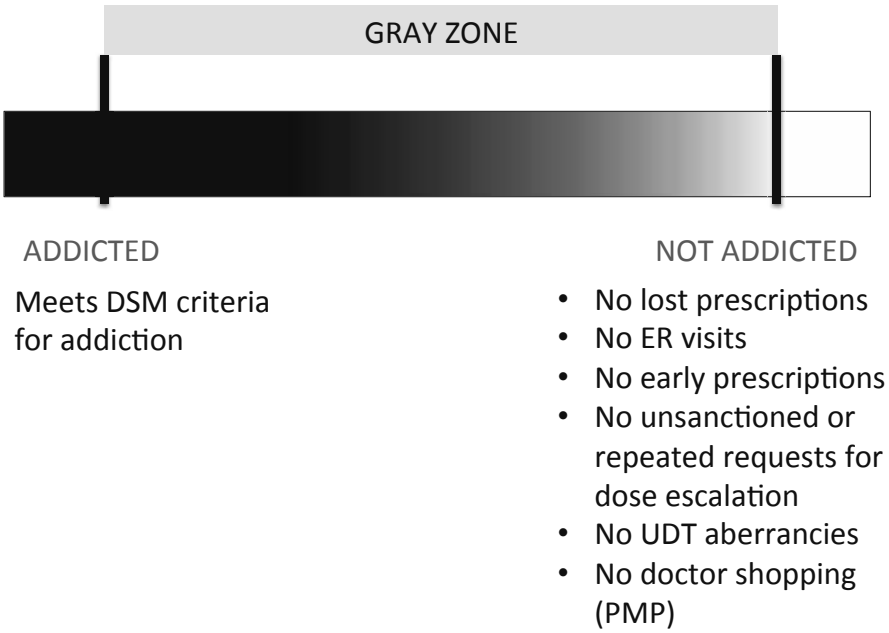

Fig. 4. Spectrum of dependence and addiction. ER, emergency room; PMP, prescription monitoring program (now available in several states in the United States, in continued development); UDT, urine drug test. Doctor shopping occurs in the United States because many patients have multiple providers, unlike countries with national health systems, where patients have a medical "home."

trend. When opioid dependence becomes complex and hard to reverse, it resembles addiction. It shares enough similarity to addiction that it requires similar treatment, made even more challenging by the coexistence of pain.

There is no easy formula that fits all patients. Even the basic decision whether to try and taper or discontinue the opioid is complex: Will maintenance work better for the patient and for the pain than abstinence? Has the dose become unacceptably high? How should tapering be achieved if this strategy is decided upon? For example, should there be a slow taper, a rapid buprenorphine taper, an opioid rotation, or a methadone taper?

Yet another vital layer of complicated treatment decision-making is how to encourage and motivate the patient through the process of optimizing treatment. Appropriate services and appropriately trained providers are in critically short supply in the United States, which is uniquely burdened because of prolific opioid use. Similarly, in the United Kingdom, although there is a publicly stated aim that addiction services should support patients regardless of their route into dependency, these services have neither the resources nor the expertise to manage emergent or worsening pain when opioids are reduced. The availability of multidisciplinary biopsychosocial care with a prominent component of self-management, generally accepted as the gold standard of care for chronic pain, has all but disappeared in the United States, although we may be beginning to see a reawakening of these approaches in the context of co-occurring pain and addiction.[22] The unfortunate consequence is the continuation of the fragmented, polarized approach that often results in neglect of dependence, neglect of pain, or even loss of hope that medicine can help at all. The catastrophic result often is a resort to illicit sources of pain medication. When severe refractory chronic pain and opioid dependence arise together, the combination presents an enormous challenge to clinicians, who need to be provided with the right constructs, training, tools, and resources for collaborative work that are all needed to manage this condition.

New addiction criteria may have removed some of the confusion associated with the word "dependence," but if anything, the new criteria have left an even bigger question mark as to how we can achieve a consensus on diagnosing opioid addiction during opioid treatment of pain so that we can appropriately recognize and treat it.[23]

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Glossopharyngeal Neuralgia

Definition

Glossopharyngeal neuralgia (GPN) is a unilateral painful disorder that is characterized by brief, electric-shock-like pains, is abrupt in onset and termination, and is localized to the ear, the base of the tongue, the tonsillar fossa, or beneath the angle of the jaw. It has many of the same characteristics as trigeminal neuralgia (TN).

Epidemiology

GPN is a very rare disease, and there are very few studies on its prevalence. Its incidence in the general population has been reported as 0.2 per 100,000 people per year. It can coexist with TN.

Pathophysiology

Current opinion is that GPN is caused by compression of the glossopharyngeal nerve root close to the brainstem (dorsal root entry zone) by a tortuous blood vessel (an artery or vein), leading to mechanically twisted nerve fibers and secondary demyelination, probably mediated by microvascular ischemic damages. These changes lower the excitability threshold of affected fibers and promote cross-talk between adjacent fibers. Thus, tactile signals coming from the fast myelinated (A-beta) fibers can directly activate the slow nociceptive (A-delta) fibers, and sometimes also the C fibers, resulting in the high-frequency discharges characteristic of GPN.

Clinical Features

Location, radiation: The pain is unilateral and may be felt in any one of or all the following locations: the ear, the base of the tongue, the back of the throat (especially the tonsillar fossa), and beneath the angle of the jaw, and it can radiate down the neck.

Character: Electric-shock-like, shooting, stabbing, or sharp.

Severity: Mild to moderate.

Duration, periodicity: Each attack of pain lasts between a few seconds and two minutes, but can rapidly be followed by another attack. Spontaneous remission periods can occur, which initially

can last for months or years, but with time the remission periods get shorter, and the attacks also increase in severity.

Factors affecting it: Provoked by swallowing, talking, or coughing.

Associated features: Cardiac dysrhythmias and syncope may occur due to stimulation of the vagus.

Investigations

Computed tomography (CT) or magnetic resonance imaging (MRI) may reveal lesions, as well as neurovascular compression. They may also show an elongated styloid process, which, rarely, can cause the same pain and is termed Eagle's syndrome.

Therapy

No trials have been conducted in patients with GPN, and so treatment is the same as for TN. First-line therapy should be carbamazepine (200–1200 mg/day) or oxcarbazepine (600–1800 mg/day).

Surgical Treatment

If medical treatment is not successful, surgical procedures can be considered. Microvascular decompression of the glossopharyngeal nerve is technically more difficult than for TN, but the results are similar. The major complications include dysphagia, hoarseness, and facial paresis.

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Online Resources

Patient support groups: http://www.tna.org.uk; http://www.endthepain.org; http://www.tnaaustralia.org.au

Burning Mouth Syndrome

Definition
Burning mouth syndrome (BMS) (also known as glossodynia, glossopyrosis, oral dysesthesia, or stomatodynia) is chronic oral mucosal pain or discomfort that has no identifiable causative lesions and is not caused by any other condition or disease.

Epidemiology
The reported prevalence in general populations varies from 1% to 15%, depending on diagnostic criteria. Women are affected 3 to 20 times more than men, usually at menopausal or postmenopausal age. Improvement has been cited in half to two-thirds of patients within 6 to 7 years of onset, with spontaneous remission rates of 20% during that time frame.

Pathophysiology
Once thought to be a purely psychological in etiology, this disorder now shows increasing evidence of neuropathic elements, with central changes indicated by both neurophysiological testing and functional magnetic resonance imaging.

Clinical Features
Location, radiation: Mainly bilateral, involving the anterior tongue in most cases, and sometimes also the lips, palate, and pharynx.
Character: Burning, tingling, pricking, discomfort.
Severity: Variable intensity.
Duration, periodicity: Gradual and spontaneous onset, with burning sensations occurring daily, although periods of no pain during the day are reported.
Factors affecting it: Symptoms can increase when talking, when eating hot or spicy foods, and in times of stress. Symptoms can be reduced by eating certain foods or by drinking, by sleep or rest, and by distraction.
Associated features: Altered taste, changes in salivation, and often high scores on psychometric tests for anxiety and depression.

Diagnosis is obtained based on a thorough history and the elimination of local factors (e.g., candidiasis, herpes, hyposalivation, allergy, or mucosal lesions) or systemic factors (e.g.: vitamin deficiencies, diabetes, hypothyroidism, medications [e.g.: ACE inhibitors], autoimmune disorders) as causes of symptoms.

Investigations
Diagnostic tests include blood tests (hematological, biochemical, and immunological) and microbial tests (viral or fungal culture).

Therapy
Treatment for BMS is primarily pharmacological, using medications for neuropathic pain. There is some evidence that cognitive-behavioral therapy may be helpful. Associated anxiety or depression may need treatment. Reassurance is extremely important because patients are concerned that they may have a malignancy and that nobody believes that they are in pain.

References
[1] Fedele S, Fricchione G, Porter SR, Mignogna MD. Burning mouth syndrome (stomatodynia). Q J Med 2007;100:527–30.
[2] Taiminen T, Kuusalo L, Lehtinen L, et al. Psychiatric (axis 1) and personality (axis11) disorders in patients with burning mouth syndrome or atypical facial pain. Scand J Pain 2011;2:155–60.

Mundipharma Pain Symposium

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Mundipharma held its first Pain Symposium on 12 April 2014 in Cape Town at the Clock Tower, Waterfront. Mundipharma's investment in this initiative reinforces the company's global endeavour to draw much needed attention and education to the topic of pain. There was a total of 53 attendees from in and around the Cape Town region and was a resounding success.

Presentations were undertaken by key opinion leaders in their respective fields, providing insights into core aspects of pain management which aimed to address the questions and concerns that healthcare practitioners are faced with on a daily basis. The focus of the talks extended across various disease areas (Osteoarthritis, Rheumatoid Arthritis, Cancer, and Acute pain), as well as looking at the implications of not managing pain effectively.

Dr M Raff, who runs a pain clinic at Christiaan Barnard Memorial and Vincent Pallotti hospitals, focused on the economic burden of not treating pain effectively. He pointed out that although acquisition costs to treat pain may seem high initially, the secondary knock on effects of poorly managed pain can lead to increased costs that extend beyond just direct healthcare expenditure, but also the impact on patients quality of life, and future disability claims. He concluded by appealing to doctors to ensure that pain is effectively managed in the early stages of disease, both social and economic costs spiralling out of control can be avoided.

Prof H Reuter, specialist rheumatologist practicing in Stellenbosch, provided an overview on rheumatic conditions commonly encountered in practice but often misunderstood when it came to management. The treatment of Rheumatoid Arthritis requires a multimodal approach. He emphasised that the use of NSAIDs/COX 2 inhibitors should be limited to low dose, short term use, and that caution must be exercised when considering long term NSAIDs/COX 2 inhibitor use, due to their effects on renal/cardiovascular and gastrointestinal systems. The caveat to this being treatment for Ankylosing Spondylitis where NSAIDs/COX 2 have an important role in limiting disease progression.

Dr R Donald, a specialist anaesthetist in Somerset West who also runs a pain clinic, delved into the WHO analgesic ladder and the current recommendations to its use and adaptation to the newer analgesics and modalities of pain treatment. He highlighted the importance of undertaking patient assessments prior to initiating therapy as well as ensuring that they are regularly reassessed to determine whether treatment outcomes are being achieved The different pharmacological class of treatments were compared and their efficacy to bring about pain relief for patients was highlighted. He noted that the use of novel opioids, now available on the South African market, has provided healthcare practitioners with new treatment options to handle pain through all levels of the WHO analgesic ladder.

Dr D Moodley, a specialist radiation oncologist practicing at WITS Donald Gordon Medical Centre highlighted the problem of managing pain in cancer patients. Globally there are 19 million new cancer cases per year. Despite improvements in clinical outcomes, pain is still often overlooked. Sixty – ninety percent of advanced cancer patients suffer from moderate to severe pain. Patients suffering from pain related to cancer require a multimodal approach to pain management due to the multifactoral nature of their pain. He also touched on the fact that treatment for pain should match the pain intensity, and patients pain levels are significantly improved when using strong opioids e.g. oxycodone earlier in the WHO analgesic ladder (Step 2). Titration is also easier when different strengths are available and treatment regimes can be adjusted without burdening the patients. The simplicity of providing a long acting agent for background control as well as an instant release formulation for breakthrough pain has resulted in the majority of cancer patients having their pain successfully controlled.

Dr L Weich, a psychiatrist coordinating the substance abuse programmes for the Western Cape, approached the often misunderstood topic of opioid addiction and clarified the differences between addiction, pseudo-addiction and dependence. The predicament that most healthcare professionals face continues to be the treatment of chronic non-cancer pain with opioids. Dr Weich provided a practical approach to treating chronic non-cancer pain as well as advice on how to stratify risk to ensure that patients receive the best therapy and are monitored accordingly.

Dr M Raff closed the day highlighting that pain management is a fundamental human right and despite the fact that morphine has been around for a more than 200 years, only 6 nations account for 79% of medical morphine consumption. This is not only a result of restriction to access but also through various political or cultural influences. All developed and developing countries have the capacity to improve the treatment of pain therefore patients should not be inadequately treated for pain.

It is Mundipharma's intention to host similar Symposia in other regions around South Africa in order to expand access to this educational platform.

The accredited video presentations will be published shortly on www.mundipharma.co.za for viewing under the HCP section.

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References: 1. *Sovenor®* Abbreviated Package Insert, 25 November 2011. **2.** James, I.G.V., O'Brien, C.M., McDonald, C.J., A Randomized, Double-Dummy Comparison of the Efficacy and Tolerability of low dose Transdermal Buprenorphine (BuTrans Seven-Day Patches) With Buprenorphine Sublingual Tablets (Temgesic) in Patients With Osteoarthritis Pain. Journal of Pain and Symptom Management 40 (2):266-278,2010. **3. *OxyContin®*** Approved Package Insert. **4. *OxyNorm®*** Approved Package Insert.

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Comparing Etoricoxib and Celecoxib for Pre-emptive Analgesia for Acute Postoperative Pain in Patients Undergoing Arthroscopic Anterior Cruciate Ligament Reconstruction: a Randomized Controlled Trial.

Multimodal analgesia, using a combination of analgesics throughout the perioperative period to control postoperative pain, has been increasingly popular and well accepted [1,2]. Nonsteroidal anti-inflammatory drugs (NSAIDs) have a significant role in postoperative pain control as they reduce the use of opioids [3-5] which are associated with a variety of postoperative side effects [6,7].

Selective COX-2 inhibitors offer significantly less gastrointestinal toxicity and no effects on platelet aggregation [8], therefore are more suitable for perioperative use. A number of studies have shown that these selective COX-2 inhibitors effectively reduce pain in the postoperative period [3-5,7,9-15] and are more effective if given both before and after surgery [5,16].

The purpose of this study was to compare analgesic efficacy of a single preoperative administration of etoricoxib versus celecoxib for post-operative pain relief after arthroscopic anterior cruciate ligament reconstruction.

METHODS

Primary and Secondary Hypotheses:

1. To compare the efficacy of a single preoperative dose of etoricoxib versus celecoxib and placebo for post-operative pain relief after arthroscopic anterior cruciate ligament reconstruction
2. To evaluate the time to first rescue analgesic, total amount of analgesics used, the amount of drain output (representing blood loss) and 48hr patient pain control satisfaction.

Entry Criteria:

Inclusion Criteria	Exclusion Criteria
Patients diagnosed with anterior cruciate ligament injury, 15 to 50 years, scheduled for surgery	• Known allergy, sensitivity or contraindications for opiods or NSAIDS • History of dyspepsia, peptic ulcer or abnormal bleeding • Coronary and peripheral arterial disease • Patients who had used NSAIDs, opiods, salicylate within 7 days of surgery

Trial Design:

- During the post-operative period, patients were asked to quantify their pain using a Verbal Analog Pain Scale (VbAPS) of 0 - 100 mm, where 0 mm represents no pain and 100 mm represents unbearable pain.
- First pain evaluation was made just before they left the recovery room and then repeated at 4, 8, 12, 16, 20, 24, 30, 36, 42 and 48 hours postoperatively.
- The postoperative pain medications allowed were oral paracetamol 1000 mg/6 hrs taken as needed and/or intravenous fentanyl 1 ug/kg/3 hrs as requested by patients. The time to first use of each analgesic medication was recorded.
- Patients were also asked to grade their satisfaction with pain control at 48 hours using the 0 - 100 mm VbAPS scale.

RESULTS

- Among 102 patients, 35 were on etoricoxib, 35 on celecoxib and 32 on placebo treatment.
- The etoricoxib group experienced significantly less pain intensity when compared to celecoxib or the placebo group within the recovery room and up to 8 hours post-surgery (See Figure 1).
- There were no significant differences observed for the other evaluation time points, while celecoxib showed no significant difference compared to placebo at any time point (See Figure 1).

- There were no differences among groups for the time to first dose of rescue analgesic medication, amount of paracetamol and fentanyl used, and 48 hour patient satisfaction with pain control.
- No significant difference in the total numbers of adverse events among the three groups (Table 1).

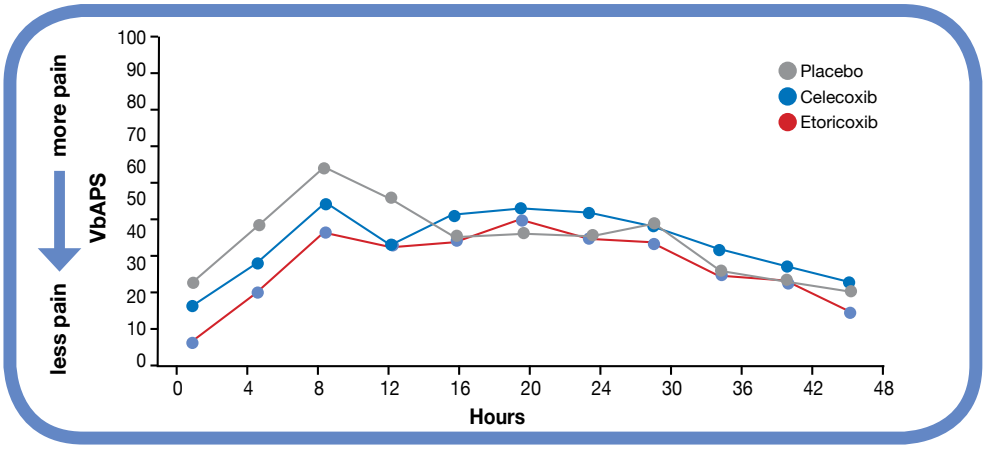

Fig 1: Pain intensity among each group during 48 hours after surgery

Adverse Events	Etoricoxib	Celecoxib	Placebo	P value
GI: Constipation	0 (0)	0 (0)	3 (9.38)	0.025
Neurological: Dizziness	3 (8.57)	2 (5.71)	4 (12.50)	0.59
Cardiovascular: Hypertension	3 (8.57)	2 (5.71)	5 (15.63)	0.35
Other: Fever	2 (5.71)	12 (34.29)	11 (34.38)	0.005

Table 1: Adverse events among groups (Numbers indicate patient numbers while parentheses indicate % incidence)

CONCLUSIONS

- This study is the first head-to-head study of using COX-2 selective inhibitors for pre-emptive analgesia for major orthopaedic surgery.
- Results found that only etoricoxib and not celecoxib was efficacious for use as pre-emptive analgesia for major orthopaedic surgery.
- The etoricoxib group experienced significantly less pain intensity when compared to celecoxib or the placebo group within the recovery room and up to 8 hours post-surgery.
- However, the time to first dose of analgesic rescue medication, total amount of analgesics used, and patient's satisfaction with pain control (over 48hrs) were not significantly different among the three groups.
- In another study by Rassmussen et al., the efficacy of etoricoxib for perioperative pain control was also demonstrated [15].
- Etoricoxib is more effective than celecoxib and placebo for use as pre-emptive analgesia for acute postoperative pain control in patients undergoing arthroscopic anterior cruciate ligament reconstruction.

T. Boonriong, B. Tangtrakulwanich, P. Glabglay, and S. Nimmaanrat. / BMC Musculoskeletal Disorders 2010,11: 246-250.

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Symptomatic relief of: [1]

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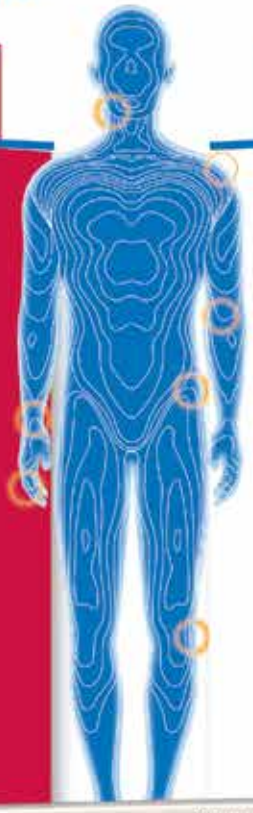

EXISTING INDICATIONS

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Symptomatic relief of: [1]

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The Essential Pain Bookshelf

Cancer Pain: From Molecules to Suffering
edited by Judith A. Paice, Rae F. Bell, Eija A. Kalso, and Olaitan A. Soyannwo

An in-depth analysis by noted international experts of basic and clinical research on cancer pain, *Cancer Pain: From Molecules to Suffering* describes underlying mechanisms of cancer pain and reviews opioid treatment issues. It covers current drug trials and research, clinical trial designs, common reactions including inflammation and hyperalgesia, the psychology of cancer pain, and disparities in the availability of cancer care worldwide.

Price: **US$75** (IASP Members: US$60)

Chronic Pain: An Integrated Biobehavioral Approach
edited by Herta Flor and Dennis C. Turk

Flor and Turk successfully integrate current psychological understanding with biomedical knowledge about chronic pain. With an emphasis on psychological factors associated with chronic pain states, this volume includes recommendations for a structured assessment plan. Using detailed treatment protocols and case examples, the authors aim to guide clinicians in developing effective individualized treatments for their chronic pain patients.

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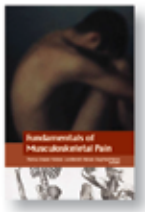

Fundamentals of Musculoskeletal Pain
edited by Thomas Graven-Nielsen, Lars Arendt-Nielsen, and Siegfried Mense

Musculoskeletal pain is a major medical and economic problem that encompasses a broad range of conditions, including fibromyalgia, work-related myalgia, low back pain, and arthritis. The editors integrate research findings from the field of musculoskeletal pain into a comprehensive publication that explores translational aspects relevant to clinical pain.

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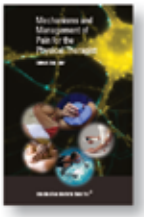

Mechanisms and Management of Pain for the Physical Therapist
edited by Kathleen A. Sluka

Mechanisms and Management of Pain for the Physical Therapist covers the basics of pain neurobiology and review evidence on the mechanisms of action of physical therapy treatments, as well as their clinical effectiveness in specific pain syndromes. The book is a comprehensive textbook for the management of pain for the physical therapy student and reference for the practicing physical therapist.

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Pain Management for Older Adults: A Self-Help Guide
by Thomas Hadjistavropoulos and Heather D. Hadjistavropoulos

A useful resource for older adults that offers a variety of practical, easy-to-follow techniques to help them manage their pain.

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Pharmacology of Pain
edited by P. Beaulieu, D. Lussier, F. Porreca, and A. Dickenson

A complete review of the pharmacology of pain, including mechanisms of drug actions, clinical aspects of drug usage, and recent developments. A useful resource for basic researchers and clinicians, this authoritative book describes the different systems involved in the perception, transmission, and modulation of pain and discusses the available options for pharmacological treatment of pain.

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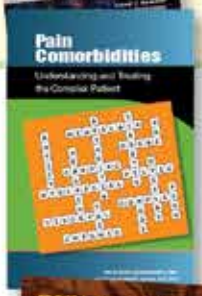

Pain Comorbidities: Understanding and Treating the Complex Patient
edited by Maria Adele Giamberardino and Troels Staehelin Jensen

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by Johan Vlaeyen, Stephen Morley, Steven J. Linton, Katja Boersma, and Jeroen de Jong

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Xefo®rapid is a tablet with a delivery method that has comparable pharmacokinetics to an intramuscular injection,[1] resulting in rapid relief from pain and inflammation [2, 3]

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- **Rapid onset** of action for effective pain relief [2]
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- Balanced **COX-1** and **COX-2** [4]

References: 1. Radhofer-Welte S, Dittrich P, Simin M, Branebjerg PE. Comparative Bioavailability of Lornoxicam as Single Doses of Quick-Release Tablet, Standard Tablet and Intramuscular Injection. A randomized, Open-Label, Crossover Phase I Study in Healthy Volunteers. *Clin Drug Invest* 2008;**28**(6):345-351. **2.** Møller PL, Nørholt SE. Analgesic Efficacy of Quick-Release versus Standard Lornoxicam for Pain after Third Molar Surgery. A Randomized, Double-Blind, Placebo-Controlled, Single-Dose Trial. *Clin Drug Invest* 2008;**28**(12):757-766. **3.** Yakhno N, Guekht A, Skoromets A, Spirin N, Strachunskaya E, Ternavsky A, *et al.* Analgesic Efficacy and Safety of Lornoxicam Quick-Release Formulation Compared with Diclofenac Potassium. Randomised, Double-Blind Trial in Acute Low Back Pain. *Clin Drug Invest* 2006;**26**(5):267-277. **4.** Berg J, Fellier H, Christoph T, Grarup J, Stimmeder D. The analgesic NSAID lornoxicam inhibits cyclooxygenase (COX)-1/-2, inducible nitric oxide synthase (iNOS), and the formation of interleukin (IL)-6 *in vitro*. *Inflamm Res* 1999;**48**:369-379.

S3 **XEFO® RAPID tablets.** Reg. No. 44/3.1/0331. Each film-coated tablet contains 8 mg lornoxicam and is sugar-free. S3 **XEFO® 4 mg Tablets.** Reg No: 33/3.1/0247. Each film-coated tablet contains 4 mg lornoxicam. S3 **XEFO® 8mg Tablets.** Reg No: 33/3.1/0248. Each film-coated tablet contains 8 mg lornoxicam. S3 **XEFO® IV/IM Injection.** Reg No:33/3.1/0249. Each vial contains 8 mg lornoxicam.

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