



The 20th Annual Advanced
Pain Conference
and Practical Workshop

24-26 August 2015
Budapest, Hungary

The 29th FIPP Examination

27 August 2015
Budapest, Hungary

Program
Book and
Syllabus

Content

Greetings	3
WIP Council	5
Faculty	6
General Information	7
Useful Information	10
Detailed Program	11
FIPP and CIPS Awards Ceremony	15
Syllabus	19
Authors Index	40
Industry Technical Presentations	41
Acknowledgement	42
Exhibitor and Sponsor Profiles	43



GREETINGS

Dear Friends,

We are pleased to invite you to attend the 20th Advanced Interventional Pain Conference, 24-26 August 2015 in Budapest. The Conference originated with the desire to bring up to date and new information to a country that simply was not in a position to keep up with the progress of the leading countries of the world. We had information to share that could aid doctors help patients toward a less painful, bright future. We have always invited the best people primarily in the interventional pain treatment area that had contributed and were recognized as experts. When the decision was made to organize such a conference, we realized we needed support to make this happen and also felt that the people who give their time freely to teach at the conference should be treated appropriately.

The speakers invited came and delivered the best possible information to doctors who needed it. It was amazing to see friendship and camaraderie develop, and continue year after year. We could not have done it without our sponsors, and we express gratitude to those who have helped us year in and year out.

Neuromodulation and mechanisms of different treatment modalities, and without exception focus on how to prevent complications, have been prevailing themes for the conference. This year we are adding ultra sound teaching and examination. The concept of safer and better interventional pain management has survived and blossomed. We have immense gratitude for our university, Texas Tech University Health Sciences Center in Lubbock, Texas, where we have been for over 30 years. We have worked together and with many others to realize safer and better techniques that literally have affected the lives of millions of people. We have published extensively in journals, books and more recently online which helped grow and develop the field of interventional pain practice. These developments have attracted people with amazing minds and led to the formation of the World Institute of Pain.

The unique aspect of learning and teaching using a combination of didactic lectures and hands-on cadaver workshops started over 30 years ago at TTUHSC. We started organized cadaver teaching of interventional pain techniques. The opportunity to continue in Budapest, where we will celebrate the 20th anniversary of the Budapest Conference and conduct the 29th Fellow of Interventional Pain Practice (FIPP) Examination gives us great satisfaction. Since the first examination in 2001 in Budapest, we have had added additional examination sites in Memphis, Miami, New York City, San Juan, Puerto Rico, and Maastricht, The Netherlands in Europe.

As a result of the contributions by many through the Budapest Conference and the FIPP and CIPS Examinations, there now are 894 Fellows of Interventional Pain Practice with Sections and leaders in 56 countries. The new CIPS (Certified Interventional Pain Sonologist) Examination offered twice in 2015 now has 11 CIPS from six countries. We are very grateful to the leadership of the World Institute of Pain for embracing and continuing support for the Annual Budapest Conference where not only the international community but also the local Hungarian community is involved in propagating, teaching and learning for the betterment of all involved. New progress is being made in expanding teaching and the examination in multiple languages. This year, for the first time, we offered the examination in Miami in two languages – English and Spanish.

Significant figures involved in the WIP leadership include the current president Kris Vissers and immediate past president Richard Rauck, and the founders, Prithvi Raj, Ricardo Ruiz-Lopez, Serdar Erdine, and our deceased friend David Niv, who made the birth of WIP from a concept to a reality. We are proud of the corporate support for our mission. From the start, and still continuing, is support from Medtronic, St. Jude, Boston Scientific, Ziehm, Cosman and Epimed as well as early support from Radionics and Allergan. More recently we have gained support from new sponsors Stimwave and Nevro who feel they have something bright and new to contribute.

Developments through ultra sound companies and the very exciting miniaturization of neuromodulation devices (Stimwave) impact the field. High frequency stimulation has already made an impact, and the research will be visible at Nevro, St. Jude, Medtronic and Boston Scientific as well as new medications and medication delivery devices. Remarkable contributions have come from the field of radiofrequency with modification of the original concepts by giants like Menno Sluiter and other leaders in the field from all over the globe.

The city of Budapest has changed in the 20 years. The people are freer and work harder. The many years of oppression have changed Budapest to a more democratic, lively, beautiful city. The city is proud to welcome all that come to visit, contribute and benefit from the interactions at the Conference. The Budapest Conference could not have been possible without the help of Edit Racz, our local arrangement committee chairman; Sandra Vamos, our organizer and her colleague Bea Golovanova; the office of WIP with our new incoming president, Kris Vissers and staff, Dianne Willard and Mark Tolliver. The incredible Paula Brashear will be one of the most significant and beloved personalities present. She has been a permanent fixture in the life of WIP and our conference. During the 20 years of Budapest Conference, Professor Jim Heavner, DVM, PhD, FIPP (Hon) has left his impact on every part of the conference and to all who have known him. He would prefer I omit this from our letter to you, but he is a significant pillar and contributor to all that we represent for the betterment of our patients, and I thank him as my colleague and co-director.

We shall have again the representative spirit, fostered by the starry-eyed children dance group, the Hungarian dinners where the speakers mix with the participants and the resulting friendships that spread worldwide. I wish to thank all who have helped and will help to make our Conference possible again. See you in Budapest, 24-26 August 2015 and those who come to take the FIPP Examination on August 27. We look forward to seeing you there.

With fond regards to all,

Gabor B. Racz, MD, DABIPP, FIPP
Program Director
Grover E. Murray Professor,
Professor and Chairman Emeritus at TTUHSC
Founder and Past President WIP
Member of WIP Executive Board

James E. Heavner, DVM, PhD, FIPP (Hon)
Co-Program Director
Professor Emeritus
TTUHSC



WIP Council

Executive Board

President: Kris C. P. Vissers, MD, PhD, FIPP, President – The Netherlands
Craig T. Hartrick, MD, DABPM, FIPP, President-Elect – USA
Philippe Mavrocordatos, MD, FIPP, Honorary Secretary – Switzerland
Muhammad H. Ather, MBBS, DA, FFARCSI, FRCA, FIPP, FFPMRCA, Honorary Treasurer – UK
Richard L. Rauck, MD FIPP, Immediate Past President – USA
Ricardo Ruiz-López, MD, FIPP, Founder and Past President – Spain
Serdar Erdine, MD, FIPP, Founder and Past President – Turkey
Gabor B. Racz, MD, DABIPP, FIPP, Founder and Past President – USA
P. Prithvi Raj, MD, DABIPP, DABPM, FIPP, Founder and Past President – USA
Athina Vadalouca, MD, PhD, FIPP, Chair, Advisory Board – Greece
Jan Van Zundert, MD, PhD, FIPP, Chair, Board of Sections – Belgium
Maarten van Kleef, MD, PhD, FIPP, Chair, Board of Examination – The Netherlands
To be appointed, Editor-in-Chief, Pain Practice – USA
Dianne L. Willard, Executive Officer – USA

Section Chairs

Anwar Arshad, MD, FIPP – Malaysia
Diego Beltrutti, MD, FIPP – Italy
Meir Bennun, MD, FIPP – Israel
Honorio T. Benzon, MD, DABPM, FIPP – USA
Frantz J. Cólimon, MD, FIPP – Colombia
Peter G. Courtney, MBBS, FIPP - Australia
Fabricio Dias Assis, MD, FIPP – Brazil
Juan Carlos Flores, MD, FIPP – Latin America
Pankaj N. Surange, MBBS, MD, FIPP – India
Pauline Du Plessis, MD, FRCA, FIPP – Africa
Dominic Hegarty, BSc BMedSc, MB MSc, PhD, FCARSCI, FFPMCOA, FIPP – Ireland
Magdi Ramzi Iskander, MD, FFARCS, FIPP – Middle East
Edvin Koshi, MD, FRCA, FIPP – Canada
Sang Chul Lee, MD, PhD, FIPP – NE Asia
Martin Marianowicz, MD, FIPP – Central-Eastern Europe
Philippe Mavrocordatos, MD, FIPP – Switzerland
Patrick R. McGowan, MBChB, FRCA, FIPP, FFPMRCA – UK
Nuri Süleyman Özyalçın, MD, FIPP – Turkey
Carmen Pichot, MD, FIPP – Iberian
Edit Racz, MD, FIPP – Hungary
José R. Rodríguez Hernández, MD, FIPP – Puerto Rico
Mehran Kouckek, MD, FIPP – Iran
Irene K. Kouroukli, MD, PhD, FIPP – Mediterranean
Jan Van Zundert, MD, PhD, FIPP – Benelux, Belgium
Frank J.P.M. Huygen, MD, PhD, FIPP – Benelux, The Netherlands
Alex Sow Nam Yeo, MD, PhD, FIPP – SE Asia

FIPP Examination Board

Chair

Maarten van Kleef, MD, PhD, FIPP

Chair-elect

Peter Staats, MD, FIPP

Liaison to WIP

Richard Rauck, MD, FIPP

Registrar

Monique Steegers, MD, PhD, FIPP

Directors

Fabricio Dias Assis, MD FIPP

Nicholas Chua Hai Liang, MD FIPP

Frank Huygen, MD, PhD, FIPP

Michael Gofeld, MD FIPP CIPS

Milan Stojanovic, MD FIPP

Eric Wilson, Mb BCh FIPP

Congress Organizers

Program Director: Gabor B. Racz, MD, FIPP

Co-Director: James E. Heavner, DVM, PhD, FIPP (Hon)

Local Arrangement Committee

Chair: Edit Racz, MD, FIPP

Agnes Stogicza, MD, FIPP

Lorand Eross, MD, PhD, FIPP

Scientific Planning Committee

Kris Vissers, MD, FIPP

Sudhir Diwan, MD, FIPP

Aaron Calodney, MD, FIPP

Andrea Trescot, MD, FIPP

Peter Staats, MD, MBA, FIPP

Michael Gofeld, MD, FIPP

Conference Secretariat

CongressLine Ltd.

Sandra Vamos vamos@congressline.hu

Bea Golovanova golob@congressline.hu

H-1065 Budapest, Révay köz 2.

Phone: +361 429 0146, Fax: +361 429 0147

Faculty

Mert Akbas, MD, FIPP (Turkey)

Adnan A. Al-Kaisy, MB ChB, FIPP (UK)

Javier de Andres, MD, FIPP (Spain)

Hemmo Bosscher, MD, FIPP (USA)

Aaron Calodney, MD, FIPP (USA)

Kenneth B. Chapman, MD, FIPP (USA)

Miles Day, MD, FIPP (USA)

Serdar Erdine, MD, FIPP (Turkey)

Lorand Eross, MD, FIPP (Hungary)

Juan Carlos Flores, MD, FIPP (Argentina)

Ira Fox, MD, FIPP (USA)

Ludger Gerdesmeyer, MD, PhD, FIPP

(Germany)

Michael Gofeld, MD, FIPP (Canada)

Craig Hartrick, MD, FIPP (USA)

James E. Heavner, DVM, PhD, FIPP (HON)

(USA)

Standiford Helm, MD, FIPP (USA)

Robert Levy, MD (USA)

John Nelson, MD, FIPP (USA)

Carl Noe, MD, FIPP (USA)

Charles de Oliveira, MD, FIPP (Brazil)

Chan Hong Park, MD, PhD, FIPP

Edit Racz, MD, FIPP (Hungary)

Gabor B. Racz, MD, FIPP (USA)

P. Prithvi Raj, MD, FIPP (USA)

Ricardo Ruiz-López, MD, FIPP (Spain)

Matthew Rupert, MD, FIPP (USA)

Michael Sommer, MD, FIPP

(The Netherlands)

Peter Staats, MD, MBA, FIPP (USA)

Agnes Stogicza, MD, FIPP (Hungary)

Andrea Trescot, MD, FIPP (USA)

Maarten van Kleef, MD, FIPP

(The Netherlands)

Kris Vissers, MD, FIPP (The Netherlands)

Richard Weiner, MD (USA)

General Information

Conference Dates

The 20th Annual Advanced Pain Conference & Practical Workshop

24-26 August 2015

Conference Site

Kempinski Hotel Corvinus Budapest – Regina Ballroom

H-1051 Budapest, Erzsébet tér 7-8.

Practical Workshop Site

Semmelweis University Laboratories

H-1091 Budapest, Üllői út 93.

Daily bus transfers are provided within the venues.

The 29th FIPP Examination

27 August 2015

Venue: Semmelweis University Laboratories

Bus transfers are provided within the venues.

H-1091 Budapest, Üllői út 93.

Conference Website

www.congressline.hu/pain2015

Language

The official language of the Conference is English.

CME Accreditation and Designation

The 'World Institute of Pain (WIP)' (or '20th Annual Advanced Pain Conference and Practical Workshop') is accredited by the European Accreditation Council for Continuing Medical Education (EACCME) to provide the following CME activity for medical specialists. The EACCME is an institution of the European Union of Medical Specialists (UEMS), www.uems.net.

The '20th Annual Advanced Pain Conference and Practical Workshop' is designated for a maximum of (or 'for up to') 18 hours of European external CME credits. Each medical specialist should claim only those hours of credit that he/she actually spent in the educational activity.

Through an agreement between the European Union of Medical Specialists and the American Medical Association, physicians may convert EACCME credits to an equivalent number of AMA PRA Category 1 Credits™. Information on the process to convert EACCME credit to AMA credit can be found at www.ama-assn.org/go/internationalcme.

Live educational activities, occurring outside of Canada, recognized by the UEMS-EACCME for ECMEC credits are deemed to be Accredited Group Learning Activities (Section 1) as defined by the Maintenance of Certification Program of The Royal College of Physicians and Surgeons of Canada.

Opening Hours of the Registration Desk at Hotel Kempinski

Sunday, 23 August	14.00 – 19.00
Monday, 24 August	07.00 – 13.30
Tuesday, 25 August	07.00 – 13.30
Wednesday, 26 August	07.30 – 13.30

FIPP Exam Registration at Hotel Kempinski

Wednesday, 26 August	16.00 – 19.00
----------------------	---------------

Registration Fee

(Regular Fees after 15 July 2015)

Pain Conference & Practical Workshop WIP member	1600 Euro
Pain Conference & Practical Workshop non WIP member	1800 Euro
Pain Conference WIP member	1150 Euro
Pain Conference non WIP member	1350 Euro
Accompanying person fee	350 Euro
Award Ceremony Dinner	120 Euro
FIPP Exam registration fee	2500 USD

Meals

Coffee breaks, lunches, welcome cocktail and award ceremony dinner are included in the registration fee.

Internet

Free of charge Wi-Fi service available at the venue.

Commercial Exhibition

The exhibition will be opened from Monday, 24 August until 26 August at the Hotel Kempinski Ballroom foyer. Delegates will have the opportunity to meet representatives of pharmaceutical and diagnostic equipment companies at their stands to discuss new developments and receive up-to-date product information.

Hotels

Kempinski Hotel Corvinus Budapest ***** (Conference venue)

H-1051 Budapest, Erzsébet tér 7-8.

Hotel Central Basilica***

H-1051 Budapest, Hercegprímás u. 8.

Official Social Events

Faculty Dinner (only for Faculty Members)

Sunday, 23 August 2015, 19.00-21.00

Pavillon de Paris (1011 Fő utca 20-22.)

Dress Code: business casual

Meeting point: Hotel Kempinski lobby at 18.30

Welcome Cocktail (for all registered guests)

Monday, 24 August 2015, 20.00-22.00

Kempinski Hotel, Regina Ballroom

Program: Csillagszemű Dance Ensemble

Dress Code: Business casual

Award Ceremony Dinner (for all registered guests)

Tuesday, 25 August 2015, 20.00-23.00

Budapest History Museum (1014 Budapest, Szent György tér 2. – Buda Castle "E" building)

Program: Award Ceremony and Monarchia String Quartet

Dress Code: formal

Meeting point: Hotel Kempinski lobby at 19.30



Useful Information

How to get to the Conference Venue (Hotel Kempinski)

To reach the Conference Venue there are several means of transport:

Metro station "Deák Ferenc tér" junction (M1 – yellow line, M2 – red line, M3 – blue line)

From the airport to the conference venue use the Airport Minibus Service, fixed rates for passengers (Fixed rate: 2990 HUF / cca 11 EUR one-way from the airport to the Kempinski Hotel Corvinus Budapest or to inner city hotels), Tel: +36 1 296 8555; www.airportshuttle.hu or use the PAIN2014 Recommended Taxi Company (Rate: 7-9000 HUF = cca 23-30 Euro).

Recommended Taxi Company

To reach the Hotels or the Congress Venue and to avoid any inconvenience, please use the official PAIN2014 taxi company: City Taxi, Phone: +36 1 211 1111, www.citytaxi.hu

Credit card payment is available in every car of City Taxi.

Please note, that all licensed Budapest taxi companies have yellow cars and has same rates for all companies, placed clearly visible on the screens. Airport - Kempinski route fares should be around 7-9000 HUF = cca 23-30 Euro.



Climate

The climate of Budapest is continental. In August usually nice warm weather can be expected with a max. temperature of 25-28°C, while the lowest temperature during the night ranging between 12-15 °C. Nevertheless some rainy days can be expected.

Insurance

The registration fees do not include provision for the insurance of participants against personal accidents, illness, cancellation, theft, property loss or damage. Participants are advised to take adequate personal travel insurance.

Currency

The Forint (HUF) is the official national currency. The exchange rates applied in Budapest banks, official exchange offices and hotels may vary. All the major credit cards are accepted in Hungary in places displaying the emblem at the entrance. **Exchange rate: 1 Euro = 310 HUF 1 USD = 283 HUF in August, 2015**

Credit Cards

In general, VISA, EC/MC and American Express credit cards are accepted in most restaurants, cafés, shops and petrol stations.

Stores and Shopping

The opening hours of Budapest stores are generally 10.00-18.00 on weekdays and 10.00-13.00 on Saturday. The shopping centers are open from 10.00-21.00 from Monday to Saturday and from 10.00-18.00 on Sunday.

Pharmacies

Budapest's pharmacies (gyógyszertár in Hungarian) are well stocked and can provide medicaments for most common ailments. Each of the 23 districts has an all-night pharmacy open every day, a sign on the door of any pharmacy will help you locate the closest one.

Electricity

The voltage in Hungary is 230V, 50 Hz AC.

Parking

If you drive a personal or rented car, always try to park at a guarded parking lot and do not leave any valuables in the car. Please note, that Budapest is divided into paying areas, with one parking meter in each street. The maximum parking time duration is 2 hours, tariffs may vary.

Detailed Program

MONDAY, 24 AUGUST 2015

General Lectures

Regina Ballroom I

- 07:40** **Opening Remarks**
Gabor B. Racz, MD, FIPP, Program Director
Kris Vissers, MD, FIPP, President of WIP
Edit Racz, MD, FIPP, Chair Local Arrangement Committee

Moderator: Serdar Erdine, MD, FIPP
- 08:00** **Scarring Triangle Cases – Questions and Answers**
Gabor B. Racz, MD, FIPP
- 08:30** **Drugs and Pumps for Intrathecal Drug Delivery**
Ira Fox, MD, FIPP
- 09:00** **Electrical Neuromodulation – Optimal Stimulation Site and Parameters**
Peter Staats, MD, MBA, FIPP
- 09:30** **Vertebral Augmentation**
Matthew Rupert, MD, FIPP
- 10:00** **Coffee Break**

Moderator: John Nelson, MD, FIPP
- 10:30** **RF – Advances for Interventional Pain Management**
Ricardo Ruiz-Lopez, MD, FIPP
- 11:00** **Application of Ultrasound in Interventional Pain Therapy**
Chan Hong Park, MD, PhD, FIPP
- 11:30** **Failed Neck Surgery Syndrome**
Gabor B. Racz, MD, FIPP
- 12:00** **Radiation Safety Observations and Guidelines**
Juan Carlos Flores, MD, FIPP
- 12:30** **Lunch**
- 13:30** **Transport to University**
Labs Afternoon workshops
Ultrasound and Fluoroscopic-guided Procedures
Live Model Ultrasound Procedures

Ultrasound Lectures

Regina Ballroom II.

- 07:40** **Opening Remarks**
Michael Gofeld, MD, FIPP, Ultrasound Planning Committee
Agnes Stogicza, MD, FIPP, Local Arrangement Committee

Moderator: Miles Day, MD, FIPP
- 08:00** **Ultrasound Basics**
Chan Hong Park, MD, PhD, FIPP
- 08:30** **Review of Normal and Ultrasound Anatomy of Upper Extremity with Emphasis on Common Procedural Objectives**
Michael Gofeld, MD, FIPP
- 09:00** **Review of Normal and Ultrasound Anatomy of Lower Extremity with Emphasis on Common Procedural Objectives**
Charles de Oliveira, MD, FIPP
- 09:30** **Review of Normal and Ultrasound Anatomy of Trunk with Emphasis on Common Procedural Objectives**
Agnes Stogicza, MD, FIPP
- 10:00** **Coffee Break**

Moderator: Peter Staats, MD, MBA, FIPP
- 10:30** **Review of Normal and Ultrasound Anatomy of Neck and Head with Emphasis on Common Procedural Objectives**
Michael Gofeld, MD, FIPP
- 11:00** **Review of Normal and Ultrasound Anatomy of Lumbar Spine and Pelvis with Emphasis on Common Procedural Objectives**
Andrea Trescot, MD, FIPP
- 11:30** **Certification in Interventional Pain Ultrasonography: Essential Steps to Succeed**
Michael Gofeld, MD, FIPP
- 12:00** **Lunch**
- 13:30** **Transport to University**
Labs Afternoon workshops
Ultrasound and Fluoroscopic-guided Procedures
Live Model Ultrasound Procedures

TUESDAY, 25 August 2015

Regina Ballroom I+II

07:30 – 09:15

Moderators: Gabor B. Racz, MD, FIPP, Ira Fox, MD, FIPP

Industry Technical Presentations

(not part of CME program; see industry section of program on Page 41.)

09:15 **Coffee Break**

Moderator: Mert Akbas, MD, FIPP

09:45 **Radiofrequency Facet Denervation**

Michael Gofeld, MD, FIPP

10:15 **Update on a New Neuromodulation System**

Richard Weiner, MD

10:45 **Critical Review of Epidural Adhesiolysis Studies**

Ludger Gerdsmeyer, MD, PhD, FIPP

11:15 **Management of Axial Back Pain with High Frequency Spinal Cord Stimulation**

Adnan A. Al-Kaisy, MD, FIPP

11:45 **Removing Bias from Evidence Based Guidelines**

Standiford Helm, MD, FIPP

12:15 **Lunch**

13:30 **Transport to University**

Labs Afternoon workshops

Ultrasound and Fluoroscopic-guided Procedures

Live Model Ultrasound Procedures

WEDNESDAY, 26 August 2015

Regina Ballroom I+II

Moderator: **Kenneth B. Chapman**, MD, FIPP

08:00 **Perspectives in the Management of Cancer Pain**

Kris Vissers, MD, FIPP

08:30 **Lumbosacral Spinal Canal Endoscopy - the Next Step**

Hemmo Bosscher, MD, FIPP and **J.E. Heavner**, DVM, PhD, FIPP (Hon)

09:00 **Treatment of Neuropathic Pain My Technique**

Robert Levy, MD

Andrea Trescot, MD, FIPP

09:30 **Spinal and Systemic Opioid Management**

Carl Noe, MD, FIPP

10:00 **Neurosurgical Approaches to Chronic Pain Management**

Lorand Eross, MD, PhD, FIPP

10:30 **Coffee Break**

Moderator: **Javier De Andrés Ares**, MD, FIPP

11:00 **Advanced Techniques in the Treatment of Facial Pain**

Miles Day, MD, FIPP

11:30 **Regenerative Medicine Pain Therapy**

Aaron Calodney, MD, FIPP

12:00 **Editors Roundtable Discussion – Does Impact Factor Matter?
If So, to Whom and Why?**

Moderators: **Maarten van Kleef**, MD, FIPP, **P. Prithvi Raj**, MD, DABIPP, DABPM, FIPP

Craig Hartrick, MD, FIPP, **Robert Levy**, MD

12:45 **Lunch**

13:30 **Transport to University**

Labs Afternoon workshops

Ultrasound and Fluoroscopic-guided Procedures

Live Model Ultrasound Procedures

FIPP and CIPS Awards Ceremony

25 August 2015

Masters of Ceremony for the Evening

Gabor B. Racz, MD, FIPP and **James Heavner**, DVM, PhD, FIPP(Hon)

Opening Remarks

Edit Racz, MD, FIPP, Local Organizing Committee Chair and

Gabor B. Racz, MD, FIPP, Conference Director

Acknowledge

P. Prithvi Raj, MD, FIPP and

Menno Sluijter, MD, FIPP – Leadership and Path Finders Award

Comments

Kris Vissers, MD, FIPP, WIP President

Comments

Maarten van Kleef, MD, FIPP, WIP Board of Examination Chair

Presentation of FIPP and CIPS certificates

Marten van Kleef, Menno Suijter, P. Prithvi Raj

and Board of Examination Members

FIPP (Fellow of Interventional Pain Practice) honorees from Budapest 2014,

Miami 2014 and Maastricht 2015

CIPS (Certified Interventional Pain Sonologist) honorees from Miami 2015

and Maastricht 2015



Budapest FIPP (Fellow of Interventional Pain Practice) Examination Honorees

26 August 2014

826	Abdelraheem Mahmoud Mohamed Abdelraheem, MD, FIPP	Egypt
827	Rubina Iftkhar Ahmad, MBBS, MD, MCPS, MSc Pain Mgt, FIPP	UK
828	Khalid Muhussin Murad Al-Abudi, MBChB, DA, FIPP	Iraq
829	Mohamed Ibrahim Badr, MBChB: M.Sc, M.D, FIPP	UAE
830	Ulrich H. Beese, MD, FIPP	Germany
831	Alan Berkman, MBChB, FRCPC, FIPP	Canada
832	Jean-Francois Canuel, MD, FRCPC, FIPP	Switzerland
833	Amit Dua, MBBS, MD, DHCM, Fellowship Pain Mgt(Singapore), FIPP	India
834	Cherilyn Fenech, MD, MRCP, DESA, FIPP	Malta
835	Ann-Katrin Fritz, Medical State Exam, FRCA, FFPMRCA, FIPP	UK
836	Elly Geypen, MD, FIPP	Belgium
837	Mamdouh Haddara, MBChB, CCST, DAKys, FIPP	Saudi Arabia
838	Sangyoon Jeon, MD, FIPP	South Korea
839	Ozlan Izma Muhamed Kamil, MD, MS (Orth), FIPP	Malaysia
840	Muhammad Amjad Khan, MBBS, MD, DABA, FIPP	Pakistan
841	Pranab Kumar, MBBS, MD, FRCA, FIPP	UK
842	Raj Kumar, MD, FIPP	India
843	Christine Elizabeth Nicole Lescrenier, MD, FIPP	Belgium
844	Ekramy Mansour Abdelghafar Owis, MBBCh, MD, FIPP	Egypt
845	María Luz Padilla del Rey, MD, FIPP	Spain
846	Mahaboob Subhani Shaik, MBBS, FCARCSI, FIPP	Ireland
847	Devendra Singh, DNB, PDCC, FIPP	India
848	Dina Nabil Abbas Sobhi, MBBCh, MSc, MD, FIPP	Egypt
849	Yaroslav Stefak, MBBS FRCA, FFPMRCA, EDRA, FIPP	UK
850	Vadim Tashlykov, MD, MSc, FIPP	Israel
851	Wilson Tay Ching Yit, MBBS, MMED, FIPP	Singapore
852	Sanjeev Tyagi, MD, FIPP	India
853	Akilan Velayudhan MBBS, FRCA, FCARCSI, FIPP	UK
854	Maria Josephina Verbeek, MD, FIPP	The Netherlands
855	Eyad Ahmed Ramzi Arafa Wali, MBBCh, MD, FIPP	Egypt

Miami FIPP (Fellow of Interventional Pain Practice) Examination Honorees

15 November 2014

856	Ali Salman Askary, MBBS, FCARCSI, CSMHMI, FIPP	Ireland
857	Elias Atencio, MD, FIPP	Panama
858	Yira Blanco Rodríguez, MD, FIPP	Argentina
859	Rafael Calvo Falcon, MD, FIPP	Spain
860	Philip Chan, MD, FRCPC, FIPP	Canada
861	Gonzalo Diaz Regañon Vilches, MD, FIPP	Spain

862	Karine Fillion, MD, FIPP	Canada
863	Mauricio Forero Mantilla, MD, FIPP	Canada
864	Michael Hana, MD, DABA, DABPM, FIPP	USA
865	Bill W. Haney, MD, FIPP	USA
866	Berenice Carolina Hernández-Porras, MD, FIPP	Mexico
867	Sarfaraz M. Khan, MD, FIPP	Saudi Arabia
868	André Marques Mansano, MD, PhD, FIPP	Brazil
869	Einar Ottestad, MD, FIPP	USA
870	Ovelio Quiroga, MD, FIPP	Venezuela
871	Antonio Carlos Rezoagli, MD, FIPP	Argentina
872	Rene Rodriguez, MD, MSC, FIPP	Colombia
873	Kawsar Sardar, MBBS, MD, FIPP	Bangladesh
874	Ricardo A. Sierra Almeida, MD, FIPP	Chile
875	Michael Sommer, MD, PhD, FIPP	The Netherlands
876	Upendra Thaker, MD, FIPP	USA
877	Emmanuel Kgoro Thobejane, MBChB, Mmed-Neurosurgery, FIPP	Namibia
878	Harry Trigoso Venario, MD, FIPP	Argentina
879	Robert E. Wright, MD, DABPM, FIPP	USA
880	Chadi Yaacoub, MD, FIPP	USA

Maastricht FIPP (Fellow of Interventional Pain Practice) Examination Honorees

6 June 2015

881	Abdullah Bakr Abolkhair, MD, FIPP	Riyadh, Saudi Arabia
882	Uel J. Alexis, MD, FIPP	USA
883	Massimo Allegri, MD, FIPP	Italy
884	Mohamed Ali Mahmoud Dorgham, MD, FIPP	UK
885	Eric Francois, MD, FIPP	Belgium
886	Christopher Gilligan, MD, FIPP	USA
887	Bregje Anna Antoon Huisman, MD, FIPP	The Netherlands
888	In Jong Kim, MD, FIPP	South Korea
889	Jee Youn Moon, MD, FIPP	South Korea
890	Heinrich Moser, MD, FIPP	The Netherlands
891	Wael Saleem, MD, PhD, FIPP	Qatar
892	Pieter Schotte, MD, FIPP	Belgium
893	Joon Kyung Sung, MD, FIPP	South Korea
894	F. G. A. M. van Haren, MD, FIPP	The Netherlands

Miami CIPS (Certified Interventional Pain Sonologist) Examination Honorees 16 January 2015

1	Michael Gofeld, MD, FIPP, CIPS	Canada
2	Mark Friedrich Hurdle, MD, CIPS	USA
3	Einar Ottestad, MD, FIPP, CIPS	USA
4	Amitabh Gulati, MD, FIPP, CIPS	USA
5	Anuj Bhatia, MD, FIPP, CIPS	Canada
6	Michael Sommer, MD, PhD, FIPP	The Netherlands
7	Hariharan Shankar, MBBS, CIPS	USA

Maastricht CIPS (Certified Interventional Pain Sonologist) Examination Honorees 7 June 2015

8	Sadiq Salim Bhayani, MBBS, FRCA, EDRA, FPPMRC, CIPS	UK
9	Jee Youn Moon, MD, PhD, FIPP, CIPS	South Korea
10	Thiago Nouer Frederico, MD, CIPS	Brazil
11	Joon Kyung Sung, MD, FIPP, CIPS	South Korea

The 57 countries where 894 FIPPs live (June 2015) are

Argentina, Australia, Austria, Bangladesh, Belgium, Brazil, Canada, Chile, Colombia, Costa Rica, Egypt, Germany, Greece, Hong Kong, Hungary, India, Indonesia, Iraq, Iran, Ireland, Israel, Italy, Japan, Jordan, Kuwait, Lithuania, Malaysia, Malta, Mauritius, Mexico, New Zealand, Namibia, Nigeria, Panama, Pakistan, Philippines, Poland, Portugal, Puerto Rico, Qatar, Saudi Arabia, Singapore, Slovak Republic, South Africa, South Korea, Sri Lanka, Spain, Switzerland, Taiwan, Thailand, The Netherlands, Turkey, Ukraine, United Arab Emirates, United Kingdom, United States of America, Venezuela



Syllabus

GABOR B. RACZ, MD, ABIPP, FIPP

BIOGRAPHICAL SKETCH

Dr. Racz graduated from The University of Liverpool Medical School, completed his residency at State University of New York and served on staff until 1978. He joined Texas Tech University Health Sciences Center in Lubbock, Texas as organizing chairman of anesthesiology. He is Grover Murray Professor, Professor and Chair Emeritus in Department of Anesthesiology and Co-Director of the Pain Services and continues his active pain practice at this date.

Dr. Racz is Founder and Director of the Annual Advanced Pain Conference and Practical Workshop in Budapest since the first conference in 1996 and continues his leadership for this 20th Anniversary Conference in 2015. He is a Founder and Past President (2005-2008) of WIP, currently serving on the WIP Executive Board as well as Executive Board of American Society of Interventional Pain Physicians. He is a Founder and first President of Texas Pain Society and serves on the Board of Directors. He is a Founder and Director of the annual TTUHSC Pain Symposium from 1983-2012 and supports the current director, Dr. Miles Day, as the TTUHSC Pain Symposium continues in 2015. He is widely published in book chapters, journal articles and three books describing his techniques in spinal cord and peripheral nerve stimulation, neurolysis, radiofrequency thermocoagulation and other interventional procedures. He currently is working with Dr. Carl Noe on their third book Techniques of Neurolysis (online InTech book edited by Racz and Noe). He travels around the world lecturing and instructing workshops. He has received numerous recognitions and awards from organizations around the world including Distinguished Professor Award for Lifetime Achievement from Texas Tech University Health Sciences Center and the Lifetime Achievement Award from American Society of Interventional Pain Physicians, Florida Pain Society, New York Pain Society and New Jersey Pain Society, West Virginia Society of Interventional Pain Practice and the MORICCA AWARD presented by the Italian Pain Society. He is affiliated with many organizations and continues active membership and participation as well as his practice of medicine.

LECTURE

SCARRING TRIANGLE CASES – QUESTIONS AND ANSWERS

Numerous studies have confirmed the safety and efficacy of Percutaneous Lysis of Adhesions in the lumbosacral, thoracic, and cervical areas.¹⁻⁹ The clinical experience is overwhelming in favor of percutaneous lysis in patients suffering from radicular as well as back pain. Additionally, systematic literature review of lysis in spinal stenosis is strongly supportive. Along the way, a number of concepts were recognized that enhanced the safety of the procedures. One of the significant concerns with any intraspinal injections is loculation of the injected fluid in a confined space. These dangers are present with single-shot epidural injections, transforaminal injections, as well as catheter placements. One of the main lessons learned was the danger of mid-canal placements in the presence of lateral recess scarring. The consequence of fluid injection is it can compress the blood supply to the spinal cord and in the lumbar area to the cauda equina. The recognition on how to deal with midline loculation in the subdural space is shown.³⁻⁶ Large loculation in the subdural space may need simple aspiration. Flexion rotation has helped in the thoracic subdural loculation.⁷ The flexion rotation technique has been helpful especially in the dispersal of injections in the lateral cervical lysis procedures.

A rare case where caudal lysis runs into a problem is on top of the sacrum lateral to the S1 nerve root and medial to the L5 nerve root. For over 30 years, it was misinterpreted as possibly a bony abnormality of the sacrum. During the last couple of years, the work of Teske et al and the recognition of Matsumoto's S1 transforaminal of an 18g RX-2™ Coudé® needle placement, allows a small gauge

VERSA-KATH in through the very area that was an unexplained obstruction. Using the principle of Angelo Rocco where injection within the ventral scar area, high pressure fluid initially includes contrast followed by hyaluronidase, local anesthetic and steroid, then 20-30 min later 10% sodium chloride.⁹ It has given remarkably good responses on the 6-month follow up in 39 patients⁸. Furthermore, the study has continued to the 12-month follow up and has not been published at the time of writing but has been reported to have favorable outcomes. The correlation of the Teske et al discovery of the 1.1 mL triangle space bilaterally between the L5 and S1 nerve roots, initially injected material before scarring was reported to go a long way with small volume injections but also described as a space that is able to accept the average size disc fragment. Most likely, the leaky disc nucleus pulposus material appeared to have become the foundation of the principle known as the scarring triangle. The major impact of the scarring is that it causes back pain from the dura being stuck to the posterior longitudinal ligament as well as L5-S1 radiculopathy and dysesthesia.

Large numbers of failed surgery cases resulted from fusion and disc replacement because these procedures assumed the pathology appears to be in the lateral recess. The pain relief is measured from 1 to few months with persistent pain and dysesthesia particular in the L5 distribution. Almost no surgical practice has immunity to this predictable failed surgery. The approach can be done through the S1⁸, transforaminal ipsilateral, or contralateral catheter placements. It is highly predictable that many of these patients will end up with dorsal root ganglion neuromodulation and stimulation. The frequency of these cases is relatively rare but preventable by the approach described above.

REFERENCES

1. Ludger Gerdesmeyer, MD, PhD, et al. Percutaneous Epidural Lysis of Adhesions in Chronic Lumbar Radicular Pain: A Randomized, Double-Blind, Placebo-Controlled Trial. *Pain Physician* 2013; 185-196
2. Park EJ, Park SY, Lee SJ, Kim NS, Koh DY. Clinical Outcomes of Epidural Neuroplasty for Cervical Disc Herniation. *J Korean Med Sci* 2013; 28: 461-465
3. Racz GB, Heavner JR. Complications Associated with Lysis of Epidural Adhesions and Epiduroscopy. In: Neal JM, Rathmell JP, eds. *Complications in Regional Anesthesia and Pain Medicine*. 1st ed. Philadelphia, PA: Saunders Elsevier; 2007; Chapter 30: 301-311
4. Racz GB, Heavner JE. Complications Associated with Lysis of Epidural Adhesions and Epiduroscopy. In: Neal JM, Rathmell JP, eds. *Complications in Regional Anesthesia and Pain Medicine*. 2nd ed. Philadelphia, PA: Lippincott Williams & Wilkins; 2013; Chapter 33: 373-384
5. Racz GB, Day MR, Heavner JE, Smith JP. The Racz Procedure: Lysis of Epidural Adhesions (Percutaneous Neuroplasty). In: Deer TR, Leong MS, Buvanendran A, Gordin V, Kim PS, Panchal SJ, Ray AL, eds. *Comprehensive Treatment of Chronic Pain by Medical, Interventional, and Integrative Approaches*. Vol. 50, 1st ed. New York, NY: Springer; 2013:521-534
6. Gabor B. Racz, James E. Heavner, Jeffrey P. Smith, Carl E. Noe, Adnan Al-Kaisy, Tomikichi Matsumoto, Sang Chul Lee and Laszlo Nagy (2014). *Epidural Lysis of Adhesions and Percutaneous Neuroplasty, Pain and Treatment*, Dr. Gabor Racz (Ed.), Chapter 10; ISBN: 978-953-51-1629-5, InTech, DOI: 10.5772/58753. Available from: <http://www.intechopen.com/books/pain-and-treatment/epidural-lysis-of-adhesions-and-percutaneous-neuroplasty>
7. Racz GB, Apicella E, Vohra P. Collegial Communication and Problem-Solving Intraspinous Canal Manipulation, Consultants Corner. *Pain Practice* 2013; Volume 13, Issue 8, pp. 667-670.
8. Matsumoto T, Kitagawa H. Treatment of lower back and leg pain using Racz Catheter-Matsumoto Way (via S1 intervertebral foramen). Poster Presentation. 2014 WIP World Congress Maastricht.
9. Rocco, AG. Epidural space as a Starling resistor and elevation of inflow resistance in a diseased epidural space. *Regional Anesthesia* 1997; 22: 167-177.

IRA FOX, MD, FIPP

BIOGRAPHICAL SKETCH

Ira B. Fox, MD, DABPM, FIPP, ABIPP founded Anesthesia Pain Care Consultants in June 1996. He has spent more than 25 years treating patients with acute and chronic pain. Dr. Fox did his residency in anesthesiology and pain in New Jersey where he was chief resident.

Dr. Fox maintains five board certifications: American Board of Interventional Pain Physicians (ABIPP); World Institute of Pain (WIP) – Fellow of Interventional Pain Practice (FIPP); American Board of Pain Medicine (DABPM); and the American Board of Anesthesiology with added certification in Pain Management. Dr. Fox serves as an examiner for the FIPP Board Certification and ABIPP Interventional Practical Examination.

He is chairman of the World Institute of Pain Committee on Project Development. He has been chairman of the Advisory Board, honorary treasurer, and on the Executive Board since 2011. Dr Fox served as a trustee for the World Institute of Pain Foundation. He is a lifetime member of the American Society of Interventional Pain Physicians. Dr. Fox holds the distinction of being the Inaugural Executive Examiner at the WIP & American Academy of Pain Medicine Ultrasonography (AAPMU) 1st Annual WAAPMU International Congress.

He was elected "America's Top Physician" by the Pain Management Consumers' Research Council of America, and is listed as a Top Doctor in Broward County by Castle Connolly Medical Ltd. each of the past nine years. Anesthesia Pain Care Consultants won the South Florida Business Journal Award for Excellence in Health Care in 2008. Dr. Fox has published extensively. He lectures internationally and has made numerous media appearances which can be seen on the Anesthesia Pain Care Consultants website at www.AnesthesiaPainCare.com.

LECTURE

DRUGS AND PUMPS FOR INTRATHECAL DRUG DELIVERY

OBJECTIVES AND KEY POINTS

- Review indications and trial methods for IT drug delivery devices
- Summarize literature / studies
- Discuss new technology in IT therapy
- Describe current opioids and non-opioids for IT drug delivery
- Present new drugs and therapy decision making for IT therapy

PETER STAATS, MD, MBA, FIPP

BIOGRAPHICAL SKETCH

Dr. Peter Staats is a board-certified physician who has specialized in pain medicine for more than two decades. He has been consistently recognized as one of the country's foremost pain management doctors.

Dr. Staats co-founded and practices at Premier Pain Centers, the largest pain management practice in New Jersey. In addition to his practice, he serves as an Adjunct Associate Professor at Johns Hopkins University School of Medicine and is the founder of the Division of Pain Medicine at JHU.

Dr. Staats is the past president of the NJ Society of Interventional Pain and on the executive board of ASIPP.

LECTURE

ELECTRICAL NEUROMODULATION – OPTIMAL STIMULATION SITE AND PARAMETERS

MATTHEW RUPERT, MD, FIPP

BIOGRAPHICAL SKETCH

Dr. Rupert started out in engineering before shifting gears to medicine. He received two engineering degrees from the University of Cincinnati. He graduated summa cum laude in Aerospace Engineering and returned for a Masters degree in Biomechanical Engineering. Research in orthopedic spine, knee and shoulder spurred his interest in medicine. He was also involved in prototype designing and construction in testing apparatuses as well as several innovative medical instruments, including a spine staple to treat scoliosis. Matt completed his Medical Doctorate at the University of Texas Southwestern Medical School in Dallas, Texas. He was in General/Vascular Surgery in Cincinnati before completing a residency in Anesthesia. From there, he trained with Gabor Racz and Miles Day at Texas Tech University. He continued advanced training with the WIP (FIPP #280) and ASIPP (DABIPP #0034). He continues to lecture and teach for both. Work has been both academic and private practice. His technical interests are neuromodulation, vertebral augmentation and spinal endoscopy. He has three young children and a beautiful wife of 14 years. His interests include soccer, farming and laser art.

LECTURE

VERTEBRAL AUGMENTATION

OBJECTIVES

- Upon completion of this presentation attendees will be able to discuss
- When to treat or not treat compression fractures
- The anatomy of a vertebral compression fracture
- The indications and contraindications to vertebral augmentation
- Radiographic evaluation for diagnosis and surgical planning
- Options of tools to treat OVCF
- Expected outcomes and controversy surrounding treatment
- How fracture repair fits into a spectrum of care
- Clinical pearls and potential complications

KEY POINTS

- Osteoporosis is very common and the majority of insufficiency fractures are vertebral.
- Vertebral augmentation can be performed with a high degree of safety and efficacy in appropriately selected patients.
- There are few contraindications in those who have failed conservative treatment.
- Radiologic evaluation and planning by the surgeon is key to appropriate treatment.
- Dynamic imaging is key to safe delivery of care.
- Vertebral augmentation is a part of a spectrum of care.

RICARDO RUIZ-LOPEZ, MD, FIPP

BIOGRAPHICAL SKETCH

Ricardo Ruiz-Lopez, MD, Neurosurg., FIPP, is Director of Barcelona Spine and Pain Institute (Institut de Columna Vertebral/Clinica del Dolor de Barcelona), Executive Member of the Board of Directors of Hospital Delfos (Barcelona) and CEO Project for Barcelona Spine & Surgery Clinic. After receiving his MD degree from the University of Madrid in 1975 and the Board of Neurosurgery in 1980, he founded in 1986 Clinica del Dolor de Barcelona. His major areas of scientific interest are the Neurosurgery of Pain, the Interventional Techniques and Surgery for Spinal Chronic Pain Conditions, and the development of new organizational models for patient care. Editor of a number of medical journals, he has published extensively on Pain Management and Interventional Pain Therapies. He is a Founding Member of various national and international societies on the pain field, and Visiting

Professor and Lecturer at European and American Universities. Immediate Past President of the World Institute of Pain 2011-2013, and President of the Catalan Pain Society 2006-2010.

LECTURE

RF – ADVANCES FOR INTERVENTIONAL PAIN MANAGEMENT

CHAN HONG PARK, MD, PHD, FIPP

BIOGRAPHICAL SKETCH

Dr. Park is Former associate professor of Anesthesiology and Pain Medicine in Daegu Catholic University Medical center, and Director of Dongrae Wooridul Spine Hospital, Busan, Korea.

LECTURE

APPLICATION OF ULTRASOUND IN INTERVENTIONAL PAIN THERAPY

„The more a new discovery increases our knowledge the wider are the unknown boundaries of knowledge”

OBJECTIVES

- Upon completion of this presentation attendees will be able to
- Discuss how to improve needle visibility
- Understand basic anatomy – nerve, tendon
- Understand US spine anatomy
- Understand US – guided intervention

KEY POINTS

- Ultrasound is thus not surprising that some of the description on approach within parts of spine, or all structure by sonography.
- In addition, more than elsewhere in applying US in pain medicine one has to be familiar with the use of the right transducer in the right area of individual patients and different setting
- All available transducer and frequency play a practical role in proper spine image.

GABOR B. RACZ, MD, FIPP

LECTURE

FAILED NECK SURGERY SYNDROME

Failed Neck Surgery syndrome is becoming a recognized entity. The explanations for any or all failed surgeries are numerous. To address the commonest and to a large extent, preventable reasons, the intent of the presentation is to share 30 year's of experience in placing site-specific catheters in appropriate target sites within the cervical spinal canal, primarily, in the epidural space. Test placements initially started with the intent of blocking post-surgical pain by selective injection, initially later, infusions of dilute local anesthetic solutions. Simultaneously, the evidence for the use of epidural steroids, hypertonic saline, hyaluronidase, and various opioids mixtures became known and practical. In addition, the recognition that the injured nerve changes function in converting from a silent nerve to a spontaneously firing nerve from recording for the first time of a median nerve that responded to implantation of peripheral nerve stimulator implants, resolves to what has become CRPS Type II.¹ Somewhat later, the understanding work of Marshal Devour mentions that the dorsal root ganglion cells also fires spontaneously in the RAT Injury Model.³

One of the most frequently seen problems is the site of surgery. The methodology of diagnosing where the pain generator came from led to the use of selective stimulation nerve root by nerve root by the dorsal root ganglion area. Stimulation of the nerve root, just to the point of paresthesia and not pain, led the patient to recognize the exact site where the pain is coming from.^{1,2,3}

Practical and technical considerations from the clinical experience led to the danger and recognition of loculation-related compression of blood supply in the spinal cord (PVCS). The remedy for opening up the lateral runoff is by using the head and neck flexion rotation during the procedure. This is done by chin to shoulder going from left to right.

Also recognized is the significant mobility of the dura as well as the spinal cord within the spinal canal and the adhesions that prevent such movement leads to severe neck pain. A recent 128 patient's prospective randomized study demonstrated that cervical lysis of adhesions works and reduces unnecessary surgical intervention.⁵ The site of surgery issue will be shown through the migration of a trial stimulating electrode for spinal cord stimulation where the four level fusion missed the site of pain because of the methodology described above of losing stimulation as the best identifier for the level of pain.

Cervical spinal stenosis responds equally well in severe and moderately severe stenosis. Midline injections must be avoided in the procedures in the cervical spinal canal as the emphasis must be on the opening lateral runoff.⁶

REFERENCES

1. Heavner JE, Racz G, Diederich JM. Peripheral nerve stimulation: current concepts; in Waldman SD, Winnie AP (eds): *Interventional Pain Management*. Philadelphia, Saunders, 1996, pp 423-425
2. Carragee E, Larkin TM, Cohen S. A Novel Technique for Delivery of Epidural Steroids and Diagnosing the Level of Nerve Root Pathology. *Journal of Spinal Disorders & Techniques*. Philadelphia, Lippincott Williams & Wilkins Inc., Volume 16, No. 2, pp. 186-192.
3. Devour M, Janig W, McLachlan E, Michaels M. Peripheral Nerve Injury Triggers Noradrenergic Sprouting Within Dorsal Root Ganglia. *Nature* 363, 543-546.
4. Ludger Gerdemeyer, MD, PhD, et al. Percutaneous Epidural Lysis of Adhesions in Chronic Lumbar Radicular Pain: A Randomized, Double-Blind, Placebo-Controlled Trial. *Pain Physician* 2013; 185-196
5. Park EJ, Park SY, Lee SJ, Kim NS, Koh DY. Clinical Outcomes of Epidural Neuroplasty for Cervical Disc Herniation. *J Korean Med Sci* 2013; 28: 461-465
6. Park CH, Lee SH, Jung JY. Dural Sac Cross-Sectional Area Does Not Correlate with Efficacy of Percutaneous Adhesiolysis in Single Level Lumbar Spinal Stenosis. *Pain Physician* 2011; 14: 377-382.

CHAN HONG PARK, MD, PHD, FIPP

LECTURE

ULTRASOUND BASICS

OBJECTIVES

Upon completion of this presentation attendees will be able to

- Understand ultrasound basic principle
- Understand generation of US pulses
- Understand US wavelength and frequency
- Understand US tissue interaction
- Understand US image affected by depth, gain, time gain compensation, focus, color doppler, compound imaging, tissue harmonic imaging

KEY POINTS

- Ultrasound has been used to image the human body for over half a century.

- US is one of the most widely used imaging technologies in medicine
- US is portable, free of radiation risk, and relatively inexpensive.
- The images can be acquired in "real time", thus providing instantaneous visual guidance for many interventional procedures.

MICHAEL GOFELD, MD, FIPP

BIOGRAPHICAL SKETCH

Current appointment:

- Associate Professor, University of Toronto
- Staff Physician, Departments of Anesthesia, St Michael's and Women's College Hospitals, Toronto, Canada
- Advisor (Chronic Pain), Department of Anesthesia, University of Toronto
- Adult Chronic Pain Network MOHLTC, Chair of Registry Committee

Current Certifications:

- Certified Interventional Pain Sonologist (CIPS)
- Diplomate European Academy of Anesthesiology (DEEA)
- Fellow of Interventional Pain Practice (FIPP)

Professional Societies:

- President: World Academy of Pain Medicine Ultrasonography
- Member, Board of Examination, World Institute of Pain and Chair of Subcommittee on Ultrasound
- Founder and Executive Member of Interventional Pain Special Interest Group: Canadian Pain Society

Academic Activities:

- Section Editor (Neuromodulation): *Current Headache and Pain Reports*
- Section Editor (Ultrasound): *Pain Practice*
- Associate Editor: *Regional Anesthesia and Pain Medicine*
- Peer-Review Publications: 38 (PubMed) Book Chapters: 36 Book Editor: 1

Received Grants: \$753,000

Experience:

- Measurement-based chronic pain care, medical devices research and development, neuromodulation (spinal cord and peripheral stimulation, intrathecal drug delivery), musculoskeletal and neurological diagnostic and procedural ultrasonography, radiofrequency, vertebral augmentation, spinal injections, managing complex cancer and non-cancer pain, advanced imaging (high-frequency ultrasound, CT, navigation)

Research Interests:

- Mechanisms of neuromodulation, novel image-guided approaches, pain assessment, chronic pain treatment outcomes

Clinical interests:

- Non-surgical treatment of osteoarthritis and other musculoskeletal conditions, nerve injuries, facial pain and headaches

LECTURE

REVIEW OF NORMAL AND ULTRASOUND ANATOMY OF UPPER EXTREMITY WITH EMPHASIS ON COMMON PROCEDURAL OBJECTIVES

Ultrasonography of musculoskeletal anatomy and peripheral nerves will be outlined. Ultrasound-guided procedures including injections, tenotomies and regenerative medicine will be highlighted.

CHARLES DE OLIVEIRA, MD, FIPP

BIOGRAPHICAL SKETCH

Dr. Charles Oliveira is an Interventional Pain Physician at Singular Pain Center, Campinas-SP, Brazil.

LECTURE

REVIEW OF NORMAL AND ULTRASOUND ANATOMY OF LOWER EXTREMITY WITH EMPHASIS ON COMMON PROCEDURAL OBJECTIVES

The main objective of this explanation is to expound the importance of ultrasonographic methods as an aid in diagnosis and treatment of lower limb pain with focus on hip, knee and ankle.

AGNES STOGICZA, MD, FIPP

BIOGRAPHICAL SKETCH

Dr Agnes Stogicza has 13 years of experience in pain management with an anesthesia and critical care background. She is currently the Medical Director of the Acute Pain Service in Harborview Medical Center, University of Washington, Seattle.

Dr Stogicza performs and teaches a wide spectrum of ultrasound and fluoroscopy guided minimally invasive interventional acute and chronic pain procedures, as well as medication management for medically challenging chronic pain patients.

With the close cooperation of UW Hernia Center she has extensive experience with neuroablative techniques for chronic abdominal and groin pain patients.

LECTURE

REVIEW OF NORMAL AND ULTRASOUND ANATOMY OF TRUNK WITH EMPHASIS ON COMMON PROCEDURAL OBJECTIVES

Ultrasound is increasingly utilized in regional anesthesia, pain and musculoskeletal medicine for its obvious benefits: safety, accessibility, real time visualization and low costs.

Traditional landmark guided procedures that require a lot of time and experience for matching precision, can be replaced with time efficient and accurate ultrasound-guided procedures that can be successfully performed by a large number of physicians.

Additionally, structures that cannot be targeted by landmark guided procedures become available with ultrasound visualization.

With current ultrasound technology and improved ultrasound anatomy knowledge, we are able to identify smaller, less obvious targets. This opens up a wide variety of minimally invasive treatment options in the pain management world.

Ultrasound technology can be used to identify less obvious targets like:

- iliohypogastric nerve
- ilioinguinal nerve
- femoral branch or the genital branch of the genitofemoral nerve
- suprascapular nerve
- intercostal nerve
- long thoracic
- dorsal scapular nerves, etc

As these small nerves become easily accessible, they can be subject to:

- nerve blocks
- steroid injections

- hydrodissection
- neuroablative techniques like: cryoablation, radiofrequency ablation
- pulse radiofrequency ablation
- peripheral nerve stimulation

MICHAEL GOFELD, MD, FIPP

LECTURE

CERTIFICATION IN INTERVENTIONAL PAIN ULTRASONOGRAPHY: ESSENTIAL STEPS TO SUCCEED

Assessment of competencies and formal certification in ultrasound-guided procedures is necessary for medical, logistical and legal purposes. Recently initiated WIP Certified Interventional Pain Sonologist (CIPS) examination is similar to FIPP but has unique features and objectives.

MICHAEL GOFELD, MD, FIPP

LECTURE

REVIEW OF NORMAL AND ULTRASOUND ANATOMY OF NECK AND HEAD WITH EMPHASIS ON COMMON PROCEDURAL OBJECTIVES

Ultrasonography of cranial structures, cervical spine and paraspinal anatomy will be delineated. Ultrasound-guided procedures including blockade of the trigeminal branches, greater occipital nerve, medial branches, cervical nerve roots and cervical sympathetic trunk will be highlighted. Theoretical concept of denervation procedures will be discussed.

ANDREA TRECOT, MD, FIPP

BIOGRAPHICAL SKETCH

Andrea Trecot, MD, FIPP is the current Chair of the World Institute of Pain (WIP) Education Committee, past president of the American Society of Interventional Pain Physicians (ASIPP), a former professor at the University of Washington in Seattle, Washington, and previous director of the pain fellowship programs at the University of Washington and the University of Florida. She is in private practice in Alaska, USA.

LECTURE

REVIEW OF NORMAL AND ULTRASOUND ANATOMY OF LUMBAR SPINE AND PELVIS WITH EMPHASIS ON COMMON PROCEDURAL OBJECTIVES

OBJECTIVES

Upon completion of this presentation, attendees will be able to discuss

- The normal anatomy, and well as fluoroscopic and ultrasound imaging of the lumbar spine and pelvis

- Common lumbar and pelvic techniques
- Lumbar and caudal epidural techniques
- Lumbar medial branch blocks
- Lumbar nerve root injections
- Sacroiliac joint injections
- Piriformis muscle injection
- Pudendal nerve injection

MICHAEL GOFELD, MD, FIPP

LECTURE RADIOFREQUENCY FACET DENERVATION

Radiofrequency neurotomy of the zygapophyseal (facet) joints is a routine evidence-based procedure rendering long-term pain relief among appropriately selected patients. Historical perspective, anatomical basis, technical pearls and recent innovations will be highlighted.

RICHARD WEINER, MD

BIOGRAPHICAL SKETCH

Dr Richard L. Weiner, MD FACS FAANN is a board certified neurosurgeon with Dallas Neurosurgical and Spine Associates. He is also a Clinical Associate Professor of Neurosurgery at the University of Texas, Southwestern Medical School in Dallas, Texas. USA. He has been involved in developing and implementing surgical and neuromodulation treatments for a variety of chronic pain indications over the past 35 years and developed subcutaneous neurostimulation for headaches and other peripheral nerve conditions.

LECTURE UPDATE ON A NEW NEUROMODULATION SYSTEM

LUDGER GERDESMAYER, MD, PHD, FIPP

BIOGRAPHICAL SKETCH

Chairman of the Orthopaedic/Trauma Department of the University of Kiel, Germany

LECTURE CRITICAL REVIEW OF EPIDURAL ADHESIOLYSIS STUDIES

OBJECTIVE

The technique for lysis of epidural adhesions to treat lumbosacral radicular and/or low back pain was described more than 20 years ago. Today it's used worldwide in interventional pain practice, it is minimally invasive and is relatively easy to perform following specific interventional pain training courses. The fundamental premises on which the technique is based are that 1. adhesions are present in the epidural cavity of patients with low back pain and/or radicular pain, 2. the adhesions prevent epidurally injected medication from reaching intended targets, 3. the adhesions contribute to the pathogenesis of pain by eg immobilizing nerve roots, 4. pain relief can be obtained by removing barriers that prevent drugs from reaching the target site and prevent the free movement of nerve roots.

The previously described technique is performing an epidurogram initially to identify filling defects indicative of epidural scarring, followed by advancing a catheter into the scar, injecting hyaluronidase to facilitate adhesiolysis and normal saline to hydrostatically separate adhesions and injecting anti-inflammatory and analgesic drugs and hypertonic saline to treat pain, inflammation and edema. Since the technique was introduced, it has been modified in various ways, but the basic approach has remained unchanged.

Many studies have been done to evaluate the safety and efficacy of the procedure. The studies, as well as extensive clinical experience, attest to the efficacy as well as the safety of using epidural neurolysis to treat radicular and low back pain. Nevertheless, there is still demand for more evidence, especially from studies meeting high standards of evidence based medicine.

To show the efficacy of the lysis procedure a prospective randomized placebo controlled trial was performed. This talk will show the outcome of this RCT, the recent evidence and will give an overview of the available outcome studies which support the findings of the RCT.

Based on the findings of the latest RCT study as well as other studies it's believed the minimally invasive percutaneous adhesiolysis procedure should be the first choice treatment option for patients with chronic lumbosacral radicular pain.

ADNAN AL-KAISY, MB, CHB, FFRCA, FPMRCA, FIPP

BIOGRAPHICAL SKETCH

Dr Al-Kaisy is currently Clinical Lead and Consultant at the Pain Management and Neuromodulation Centre Guy's and St Thomas Hospital. He trained in Chronic Pain Medicine at The Walton Centre, Liverpool for Neurology and Neurosurgery. He has a fellowship in Chronic Pain Management at University of Toronto Hospital, Canada.

He has a number of publications and research in a variety of categories in pain management.

He is the chair of the London Spine Forum, vice chair of the World Institution of Pain UK and Ireland and chair of the Hands on Workshop and London Spine Pain Symposium at Guy's and St. Thomas' Hospital.

His interest is in the management of spine and neuropathic pain. He has extensive experience in Neuromodulation: Spinal Cord Stimulation for Failed Back Surgery Syndrome, Intractable Angina, Nerve Lesion, and Sacral Nerve Stimulation for Urinary Incontinence, Interstitial Cystitis and Bowel Incontinence. He is a clinical pioneer of High Frequency Stimulation. He is the P.I of a number of researches looking into efficacy of High Frequency Stimulation in the management of various pain conditions including headache. Most recently he pioneered a new technique to stimulate the Dorsal Root Ganglion in the management of neuropathic pain using a transgrade approach.

LECTURE MANAGEMENT OF AXIAL BACK PAIN WITH HIGH FREQUENCY SPINAL CORD STIMULATION

Spinal Cord Stimulation is evidenced based treatment in management of chronic pain Conditions (1). Neuromodulation, as a speciality, has made great strides and over the last several years it has evolved like never before. Our understanding in the pathophysiology of certain painful conditions as well as improvement in technology hardware has made this modality of treatment increase in popularity.

While SCS is very effective for radicular pain, one notable area that SCS has had less success in is axial back pain, which is a mix of nociceptive and neuropathic pain. In SCS, paraesthesia coverage has been essential for pain relief (2). However, coverage of low back pain without dorsal root stimulation and without undesirable stimulation is difficult to accomplish. This makes axial back pain an important unmet need. Other limitations include paraesthesia or tingling, which many patients find unpleasant,

as well as unpredictable at times. One promising approach for this unmet need is High frequency SCS. In a multi-centre European open label retrospective Study with 68 implanted patients, Nevro Neuromodulation technology showed significant relief for chronic back pain in difficult-to-treat patients, such as predominant back pain patients. The back pain relief was accomplished while also providing leg pain relief improving quality of life and also opioid use was markedly reduced. High Frequency SCS offers other benefits. Since paraesthesia is not necessary, patients would not experience tingling or uncomfortable stimulation. This allows patients to comfortably keep the stimulation on at night. While the surgical procedure involves the familiar approach of epidural lead placement used in conventional SCS, this procedure allows a more forgiving lead placement. Leads can be placed in anatomic midline rather than physiologic midline, making the procedure simpler. Paraesthesia mapping step is not required, making the time for High Frequency SCS surgery more predictable and potentially shorter.

1. National Institute for Health and Clinical Excellence (NICE, London, UK) (Hill R, Garrett Z, Saile E). Spinal cord stimulation for chronic pain of neuropathic or ischaemic origin. NICE technology appraisal guidance 159. October 2008. <http://www.nice.org.uk/TA159>.
2. Kumar et al, Spinal cord stimulation vs. conventional medical management: A prospective, randomized, controlled, multicenter study of patients with failed back surgery syndrome (PROCESS study). *Neuromodulation* 2005;8:213-8.

STANDIFORD HELM, MD, FIPP

BIOGRAPHICAL SKETCH

Dr. Helm is the Medical Director of the Helm Center for Pain Management, a comprehensive, multidisciplinary pain management practice located in Orange County, California. He is past president of the American Society of Interventional Pain Management. Dr. Helm is a Fellow of Interventional Pain Practice. He has written and lectured extensively on evidence assessment.

LECTURE

REMOVING BIAS FROM EVIDENCE BASED GUIDELINES

OBJECTIVES

Upon completion of this presentation attendees will be able to discuss

- Why guidelines are necessary
- The role between population health and individual health
- Sources of bias in guideline creation.
- How to assess bias in guidelines
- What steps should be taken when guidelines are being developed
- What domains need to be considered when creating guidelines
- Relationship between systematic reviews and guidelines
- How to apply guidelines in clinical practice

REFERENCES

1. Sackett, D. L., W. M. Rosenberg, et al. (1996). "Evidence based medicine: what it is and what it isn't." *Bmj* 312(7023): 71-72.
2. Sniderman, A. D. and C. D. Furberg (2009). "Why guideline-making requires reform." *Jama* 301: 429-431.
3. Source: Institute of Medicine, Committee on Quality of Health Care in America. *Crossing the Quality Chasm: A New Health System for the 21st Century*. Washington, DC: National Academy Press, 2001
4. Manchikanti, L., V. Singh, et al. (2009). "An introduction to an evidence-based approach to interven-

tional techniques in the management of chronic spinal pain." *Pain Physician* 12: E1-33.

5. Shaneyfelt, T. M., M. F. Mayo-Smith, et al. (1999). "Are guidelines following guidelines? The methodological quality of clinical practice guidelines in the peer-reviewed medical literature." *Jama* 281: 1900
6. Manchikanti, L., V. Singh, et al. (2008). "Review of Occupational Medicine Practice Guidelines for Interventional Pain Management and Potential Implications." *Pain Physician* 11: 271-289.
7. Manchikanti, L., V. Singh, et al. (2009). "An introduction to an evidence-based approach to interventional techniques in the management of chronic spinal pain." *Pain Physician* 12: E1-33.
8. Furlan AD, Pennick V, Bombardier C, van Tulder M; Editorial Board, Cochrane Back Review Group. 2009 updated method guidelines for systematic reviews in the Cochrane Back Review Group. *Spine (Phila Pa 1976)* 2009; 34:1929-1941 (107).
9. Atkins, D., D. Best, et al. (2004). "Grading quality of evidence and strength of recommendations." *Bmj* 328(7454): 1490-1494.
10. American Medical Association, Office of Quality Assurance. *Attributes to Guide the Development and Evaluation of Practice Parameters*. American Medical Association, Chicago, 1990.
11. AGREE Collaboration (Appraisal of Guidelines, Research, and Evaluation in Europe [AGREE] Collaborative Group). *Appraisal of Guidelines for Research & Evaluation (AGREE) Instrument Training Manual*. January 2003.
13. Helm S. California workers' compensation system: Are occupational medicine practice guidelines sufficient for the treatment of chronic spinal pain or do they require supplementation by guidelines for interventional techniques? *Pain Physician* 2004;7:229-238.
14. 1. Kallewaard JW, Vanelderen P, Richardson J, Van Zundert J, Heavner J, Greon GJ. Review: Epiduroscopy for Patients with Lumbosacral Radicular Pain. *Pain Practice* 2014;14:365-377.

JUAN CARLOS FLORES, MD, FIPP

BIOGRAPHICAL SKETCH

Prof Dr Juan Carlos Flores is Director of CAIDBA (EPP Award) Pain Center; Professor of Anatomy of La Plata School of Medicine Buenos Aires Province, Argentina; Fellow Interventional Pain Practice; Chairman Latin American Section World Institute of Pain; Chief of Pain Medicine of Clínica San Camilo; Director del Workshop Universitario CAIDBA sobre Técnicas Intervencionistas para Tratamiento del Dolor Refractario 2015/2016; Author Textbook: *Medicina del Dolor, Perspectiva Internacional*. JC Flores Elsevier.

Director Centro de Atención Integral del Dolor Buenos Aires CAIDBA www.caidba.com EPP Award 2011-2015

Director del Workshop Universitario CAIDBA sobre Técnicas Intervencionistas para Tratamiento del Dolor Refractario 2015/2016. Workshop with Ultrasonography and Fluoroscopy under Hybrid Human Simulators

Profesor Asociado de Anatomía Cátedra Prof Galli Universidad Nacional de La Plata, Buenos Aires, Argentina

Director of Laboratories of Unit Anatomico-Clinic of Pain Cathedra of Anatomy Prof Galli UNLP (La Plata School of Medicine)

Director del Área de Investigaciones Básicas y Aplicadas en Medicina del Dolor de la UNLP (La Plata School of Medicine)

Chairman Latin American Section World Institute of Pain

Past Chairman WFSA & CLASA Training Center Pain Medicine

Jefe Sección Medicina del Dolor Clínica San Camilo

Miembro del Comité Editorial Pain Practice, *Rev Española del Dolor*, *Rev Uruguaya de Anestesiología y Reanim y Past - Rev Argentina de Anestesiología*

Past President Argentinian Federation of Anesthesia, Analgesia and Reanimation

Past President Pain Foundation (Fundación Dolor) Argentina

Past Director Carrera de Médicos Especialistas en Anestesiología de la Universidad de Buenos Aires

Past Director del Curso Universitario de Expertos en Medicina del Dolor y Cuidados Paliativos de la Fundación Dolor y la Universidad de Buenos Aires

LECTURE

RADIATION SAFETY OBSERVATIONS AND GUIDELINES

OBJECTIVES:

Upon completion of this presentation attendees will be able to discuss

- Ionizing radiation. Which are their biological effects?
- Which are the levels of exposure to X Rays of people that work in operating room?
- Kind of measures we can take to minimize our exposition during pain procedures?
- Consideration to take into account during workshops to protect trainees, technicians and instructors?
- Basic knowledge the pain expert who uses X Rays to do pain procedures must have
- Radiation safety management behavior or performance must be take account in the certification program?
- How much mili-sievert or another equivalent your body is exposed to every minute when are you using pulsed mode o continuous mode?

KEY POINTS

- Criteria, check list, and rules before using X-Rays for pain procedures
- Improving of knowledge of anatomy and radiology decrease radiation exposition.
- General principles to include in Guidelines for Radiation Safety
- During education and training process must we use specific recommendations, curricula and evaluation about Radiation Safety to teach to protect trainees and ourselves?
- WIP, IASP and related organizations could promote this type of guidelines about safety for patient and staff to have the on radiation safety practices
- Write and keep with every patient effective monitoring program and all essential elements to ensuring that staff personnel in X-ray imaging are adequately and acceptably protected

I have a personal dream that in the next cadaver workshop or the next workshop in the upcoming World Congress, we mark with a yellow or red color (SAFE AREA -1 meter in all directions from the patient-) with the restriction to put your feet in between 2 pulsed shots.

REFERENCES AND RECOMMENDED BIBLIOGRAPHY

- 1) Guías de Radioprotección en Medicina del Dolor. Flores JC Heavner JE. Capítulo 31. Pg 301-315 en Libro: Medicina del Dolor. Perspectiva Internacional. Flores Juan Carlos. Ed. Elsevier. 2014.
- 2) National council of radiation protection and measurements: recommendations on limits for exposure to ionizing radiation. NCRP Report N 91 Washington DC 1987
- 3) International commission on radiological protection (ICRP): Radiation protection. ICRP Publication N 26 Oxford, Pergamon Press, 1977
- 4) Radiographic Imaging for Regional Anesthesia and Pain Management. P Prithvi Raj, Leland Lou, Serdar Erdine, Peter S Staats, Steven Waldman. Churchill Livingstone. Chapter 1: Basic physics of Radiography; Chapter 2: Equipment used for Radiographic Imaging and Chapter 3: Radiation Safety. Churchill Livingstone. 2003.
- 5) Radiation safety for the Pain Specialist. Chapter 76. Howard S Smith and Scott M Fishman. 776-779. Principles and Practice of Pain Medicine. Carol A Warfield and Zahid H Bajwa. Mc Graw Hill
- 6) Atlas of Image-Guided Intervention in Regional Anesthesia and Pain Medicine. James P Rathmell. Wolters Kluwer Lippincott Williams & Wilkins. 2012. Chapter 2 Radiation Safety. Pg 8-15.
- 7) Health Phys. Toward improved ionizing radiation safety standards. Raabe OG. 2011;101:84-93.
- 8) Atlas of Ultrasound-Guided Procedures in Interventional Pain Management (Narouze, Atlas of Ultrasound-Guided Procedures in Interventional Pain Management) 2011th Edition by Samer N. Narouze
- 9) Comprehensive Atlas Of Ultrasound-Guided Pain Management Injection Techniques Edition by Steven Waldman
- 10) Atlas of Interventional Pain Management. Fourth Edition. Elsevier. 2015

- 11) Radiat Prot Dosimetry. 2007;127:12-8. The ICRP protection quantities, equivalent and effective dose: their basis and application. Harrison JD, Streffer C.
- 12) J Appl Clin Med Phys. 2000 Winter;1(1):32-7. Protecting patients by training physicians in fluoroscopic radiation management. Archer BR, Wagner LK.
- 13) J Vasc Interv Radiol. 1994;5:71-84. Potential biological effects following high X-ray dose interventional procedures. Wagner LK, Eifel PJ, Geise RA.
- 14) Curr Pain Headache Rep. 2004;8:49-55. Radiation risk management during fluoroscopy for interventional pain medicine physicians. Broadman LM, Navalgund YA, Hawkinberry DW 2nd.
- 15) J Radiol Prot. 2008;28:161-8. New ICRP recommendations. Wrixon AD.
- 16) Curr Opin Anaesthesiol. 2011;24:445-50. Radiation safety for anesthesiologists. Dagal A.
- 17) Rev Esp Anesthesiol Reanim. 2012;59:430-5. A survey on the use of fluoroscopy in the treatment of pain: do we perform it correctly? Hernández García JM, Vidal Marcos A, Gasco García C.
- 18) Korean J Pain. 2012;25:16-21. Radiation safety and education in the applicants of the final test for the expert of pain medicine. Park PE, Park JM, Kang JE, Cho JH, Cho SJ, Kim JH, Sim WS, Kim YC.
- 19) Korean J Pain. 2012;25: 16–21. Radiation Safety and Education in the Applicants of the Final Test for the Expert of Pain Medicine. Pyong Eun Park, MD, Jung Min Park, MD, Joo Eun Kang, MD, Jae Hun Cho, MD, Suk Ju Cho, MD,* Jae Hun Kim, MD, Woo Seog Sim, MD,† and Yong Chul Kim, MD‡
- 20) Korean J Pain. 2011; 24: 199–204. A Study to Compare the Radiation Absorbed Dose of the C-arm Fluoroscopic Modes Jae Hun Cho, MD, Jae Yun Kim, MD, Joo Eun Kang, MD, Pyong Eun Park, MD, Jae Hun Kim, MD, Jeong Ae Lim, MD, Hae Kyoung Kim, MD, and Nam Sik Woo, MD
- 21) Korean J Pain. 2012;25: 130. Radiation Safety for Pain Physicians Sang Wook Shin, MD
- 22) Korean J Pain. 2010; 23: 24–27. Radiation Exposure to Physicians During Interventional Pain Procedures Tae Wan Kim, MD,1,2 Jang Hwan Jung, MD,1,2 Hyun Joo Jeon, MD,1 Kyung Bong Yoon, MD,1,2 and Duck Mi Yoon, MD 1,2
- 23) Pain Physician. 2005;8:49-53. Fluoroscopy radiation safety for spine interventional pain procedures in university teaching hospitals. Zhou Y, Singh N, Abdi S, Wu J, Crawford J, Furgang FA.
- 24) BMC Anesthesiol. 2003; 3: 2. Risk of whole body radiation exposure and protective measures in fluoroscopically guided interventional techniques: a prospective evaluation Laxmaiah Manchikanti, 1 Kim A Cash,1 Tammy L Moss,1 Jose Rivera,1 and Vidyasagar Pampati1
- 25) Pain Physician. 2001;4:343-8. Radiation exposure to the physician performing fluoroscopically guided caudal epidural steroid injections. Botwin KP, Freeman ED, Gruber RD, Torres-Rames FM, Bouchtas CG, Sanelli JT, Hanna AF.
- 26) Handbook of C Arm Fluoroscopy- Guided Spinal Injections. Linda Hong Wang, Anne Marie McK-enzie- Brown, Allen H Hord. Taylor & Francis Ed. Radiation Safety Chapter 3-pg:29-40, 2006.

KRIS VISSERS, MD, PHD, FIPP

BIOGRAPHICAL SKETCH

K. Vissers is anesthesiologist, professor in Pain and Palliative Medicine and chairman of the Radboud Expertise Center of Pain and Palliative Medicine of the Radboud University Nijmegen Medical Centre in the Netherlands. He is also scientific chairman of the Department of Anesthesiology, Pain and Palliative Medicine of this University. He is currently President of the World Institute of Pain.

LECTURE

PERSPECTIVES IN THE MANAGEMENT OF CANCER PAIN

Upon completion of this session attendees should be able to discuss:

The incidence and prevalence of pain in patients with cancer at the different stages of the disease

The need for close monitoring of pain in cancer and its evolution

The complexity of the pain in cancer and the need for multidimensional management

The different steps in the management of cancer pain, including evidence based guidelines for interventional pain management

KEY POINTS

Pain is the most frequently reported symptom in patients with cancer. It is present at all stages of the disease.

Appropriate pain management can only be achieved when the pain frequency and intensity is documented and followed as a guide for treatment adaptation

Pain is in theory a physical experience, but it is well known that the psychological aspect, the potential for coping and accepting, as well as the spiritual component are important

The WHO pain ladder has the merit of having drawn the attention to a step wise treatment schedule.

The newer developments clearly indicate a place for the adjuvant – anti neuropathic drugs.

The interventional pain management techniques offer an important possibility to reduce pain while reducing the pain medication and its side effects in patients with complex diseases and difficult to treat pain. The use of those techniques should be considered earlier in the treatment plan.

Pain management in a patient with cancer should be done in a multidimensional and multi/interdisciplinary setting.

Special attention will be given to intractable pain syndromes.

HEMMO BOSSCHER, MD, FIPP

BIOGRAPHICAL SKETCH

Hemmo Bosscher, MD, FIPP, received his medical education from the Vrije Universiteit in Amsterdam (Medical School), University of Massachusetts in Worcester and University of Toronto (Anesthesiology). He did his fellowship training in pain management in Lubbock Texas (2000). Currently Dr. Bosscher practices within the Grace System in Lubbock but also has a clinical and research appointment at Texas Tech University in Lubbock. Dr. Bosscher has a special interest in the field of epiduroscopy. His main research interest is the study of the pathogenesis of low back and/or radiating leg pain.

JAMES E. HEAVNER, DVM, PHD, FIPP (HON)

BIOGRAPHICAL SKETCH

Dr. James E. Heavner is a Professor Emeritus of Anesthesiology, Cell Physiology and Molecular Biophysics and Clinical Professor of Anesthesiology at Texas Tech University Health Sciences Center. He is an honorary Fellow of Interventional Pain Practice. He is on the Editorial Advisory Board of Pain Practice and performs peer reviews for various scientific journals. His scientific career spans more than 40 years. His areas of research include pain mechanism and treatment and the pharmacology and toxicology of local anesthetics. He pioneered the development of epiduroscopy.

LECTURE

LUMBOSACRAL SPINAL CANAL ENDOSCOPY - THE NEXT STEP

KEY POINTS OF THE PRESENTATION:

- Epiduroscopy is a useful tool in the evaluation of patients with low back for clinical and research purposes
- In the evaluation of patients with low back and/or radiating leg pain, clinical evaluation, imaging studies and epiduroscopy do not correlate.
- A sensitized peridural membrane in the suprapedicular compartment of neuroforamen at L4 -5 may be an important cause of common low back and radiating pain

- PACIF is a procedure that aims to relieve pain by partially removing or desensitizing this membrane
- Basic research, not clinical research, may be instrumental in the solution of some difficult pain management problems.

ROBERT LEVY, MD

BIOGRAPHICAL SKETCH

Dr. Levy earned his bachelor's and master's degrees at Northwestern University, his doctorate at Stanford University and his medical degree from Stanford Medical School. He completed an internship in general surgery at Stanford University Medical Center, a residency in the Department of Neurosurgery at the University of California, San Francisco (UCSF) and was Chief Resident in neurological surgery at both San Francisco General Hospital and UCSF. He also completed postdoctoral fellowships at both Stanford University and UCSF. Dr. Levy most recently served as Professor and Chairman of Neurological Surgery at the University of Florida College of Medicine in Jacksonville and Co-Director of the UFHealth-Jacksonville Neuroscience Institute. A prolific researcher who was authored or co-authored three books and more than 250 peer-reviewed articles in such prestigious publications as The New England Journal of Medicine and Annals of Neurology, Dr. Levy was a tenured professor in three disciplines, Chief of the Section of Stereotactic and Functional Neurosurgery and Director of the Gamma Knife Radiosurgery Center at the Feinberg School of Medicine of Northwestern University.

ROBERT LEVY, MD , ANDREA TRESOT, MD, FIPP

LECTURE

TREATMENT OF NEUROPATHIC PAIN MY TECHNIQUE

OBJECTIVES

Upon completion of this presentation, attendees will be able to discuss

- My personal approach to the patient with neuropathic pain
- Diagnosis – History, physical exam, diagnostic studies
- Treatment
- Non-interventional – Oral medication, topical medication
- Interventional – Peripheral nerve injections, cryoneuroablation, SCS

CARL NOE, MD, FIPP

BIOGRAPHICAL SKETCH

Carl Noe is professor of Anesthesiology and Pain Management and Medical Director of the Eugene McDermott Center for Pain Management at the University of Texas Southwestern Medical Center in Dallas.

LECTURE

SPINAL AND SYSTEMIC OPIOID MANAGEMENT

The role of opioids for managing acute, chronic and cancer pain will be discussed.

LORAND EROSS, MD, PHD, FIPP

BIOGRAPHICAL SKETCH

Dr. Lorand Eross is the head of the Functional Neurosurgical Department at the National Institute of Clinical Neuroscience in Budapest. He is the director of the Epilepsy Center and the Neuromodulation Program at the institute. He got his PhD degree at Semmelweis University in 2010 in epilepsy surgery. His main interest is epilepsy surgery, movement disorder surgery, neurosurgical treatment of pain, spasticity and neuromodulation. He has an active research group in the field of epilepsy, chronic pain. He developed new intraoperative localisation method for invasive recordings in epilepsy surgery. His activity includes research and development of in vitro and in vivo electrophysiological and optical investigation methods. He is lecturer at the Medical faculty of the Semmelweis and the Szeged Universities and at the Pazmany Peter Catholic University, Faculty of Information Technology in bionical sciences.

LECTURE

NEUROSURGICAL APPROACHES TO CHRONIC PAIN MANAGEMENT

OBJECTIVES

Upon completion of this presentation attendees will be able to discuss

- What sets neurosurgical approaches from other interventional pain therapies
- The difference between ablative and neuromodulative procedures
- Barriers to the use of ablative and neuromodulative approaches in clinical practice
- Expected outcomes
- Future direction of neurosurgical pain therapies

KEY POINTS

- Selective ablative procedures rarely used today in neurosurgical clinical practice for pain
- Microsurgical DREZotomy, percutaneous cervical cordotomy, thalamotomy for nociceptive pain, and more often percutaneous Gasserian ganglion thremocoagulation for trigeminal neuralgia left nowadays in the minimal invasive neurosurgical practice in pain surgery.
- Barriers to the use of these procedures in clinical practice include limited training opportunities, and the procedure is technically demanding.
- Invasive neuromodulation or neural network surgery includes primary motor cortex, DBS, SCS, periferial nerve and field stimulation for neuropathic pain.
- Accumulating evidence in SCS indicates neuromodulation is safe, clinically effective, and a cost effective procedure in failed beck surgery syndrome and CRPS.
- MCS is the most effective in thalamic pain. Multitarget DBS can help for central neuropathic pain after spinal cord injury. Periferial nerve stimulation effective in cervicogenic headache, migraine and Cluster headache, but we need more clinical evidences for these procedures.
- Neural network surgery offers a range of opportunities in basic and translational research seeking to improve management of neuropathic pain.

REFERENCES

1. Burchiel K, editor , Surgical management of pain NY, Thieme 2002
2. Lozano A., Gildenberg Ph, Tasker R editors, Textbook of Stereotactic and Functional Neurosurgery Springer 2009
3. Kanpolat Y.,Savas A., Bekar A., Berk C. Percutaneous controlled radiofrequency trigeminal rhizotomy for the treatment of idiopathic trigeminal neuralgia:25 year experience with 1600 patients Neurosurgery 2001;48:524-32
4. North RB, Kidd DH, Frarrokhi F, Piantadosi S. Spinal cord stimulation versus repeated lumbosacral

spine surgery for chronic pain: A randomized control trial. Neurosurgery 2005;56:98-106

5. Jeanmonod D, Moprel A. Central lateral Thalamotomy for Neuropathic Pain in Lozano A., et al editors, Textbook of Stereotactic and Functional Neurosurgery 2009, p:2082-2096

MILES DAY, MD, DABA, FIPP, DABIPP

BIOGRAPHICAL SKETCH

He is the Traweek-Racz Endowed Professor in Pain Research, Medical Director of the Pain Center at Grace Clinic, and Pain Medicine Fellowship Director at Texas Tech University Health Sciences Center, Lubbock, Texas.

Dr. Day received his medical degree from Texas A&M University College of Medicine. His post graduate training included a surgical internship, anesthesia residency and pain management fellowship at Texas Tech University Health Sciences Center, Lubbock, Texas. He is board certified in Anesthesiology and in Pain Medicine by the American Board of Anesthesiology. He also holds further pain management certification from the World Institute of Pain, and the American Society of Interventional Pain Physicians.

Dr. Day is actively involved in education, research and administration. He has published in several peer-reviewed journals including Pain Medicine and Pain Practice. He speaks regionally, nationally and internationally on various aspects on pain management. He specializes in the treatment of chronic pain in the head and neck region. He is an editorial reviewer for the journals Pain Medicine and Pain Practice.

LECTURE

ADVANCED TECHNIQUES IN THE TREATMENT OF FACIAL PAIN

Facial pain can be devastating to those who experience it. In light of this, it is important for today's pain practitioner to be familiar with up-to-date diagnostic criteria for facial pain. The pain practitioner should also be knowledgeable regarding diagnostic tools and available treatments. The International Headache Society (IHS) recently updated their diagnostic criteria for the various etiologies of facial pain (1).

Part 3 of the IHS's International Classification of Headache Disorders focuses on cranial neuralgias, and central and primary causes of facial pain. Pain in the head and neck is mediated by afferent fibers in the trigeminal nerve, nervus intermedius, glossopharyngeal and vagus nerves and the upper cervical roots via the occipital nerves. The sphenopalatine ganglion is also a potential source or relay for facial pain. Stimulation of these nerves by compression, distortion, exposure to cold or other forms of irritation or by a lesion in central pathways may give rise to stabbing or constant pain felt in the area innervated (1). A detailed history and physical exam is a must. Common diagnostic tools include MRI's and MRA's of the brain and cervical spine. Common diagnoses include trigeminal, glossopharyngeal, and occipital neuralgia. Pharmacological treatment is usually effective and commonly includes tricyclic antidepressants (TCA's) and antiepileptic drugs (AED's). If the pain becomes refractory to these medications, interventional therapy targeting the aforementioned nerves can be implemented with percutaneous procedures or in some cases surgery.

REFERENCES:

1. The International Classification of Headache Disorders 2nd Edition, May 2005. Headache Classification Subcommittee of the International Headache Society (IHS).

AARON CALODNEY, MD, FIPP

BIOGRAPHICAL SKETCH

Aaron Kenneth Calodney, MD is Past President of the Texas Pain Society. He currently sits on the Board of Directors of the American Society of Interventional Pain Physicians (ASIPP) and advisory Board for the World Institute of Pain (WIP). He served on the board of the International Spine Intervention Society for many years and was Director of Education. Dr. Calodney is board certified in Anesthesiology and carries subspecialty certification in Pain Management through the American Board of Anesthesiology.

Dr. Calodney earned his medical degree from the University of Missouri School of Medicine and completed a family medicine internship at St Joseph's Hospital in Syracuse, New York. His residency in anesthesiology and subsequent interventional pain management fellowship was completed at the University of Texas Health Science Center at Houston. He subsequently completed a fellowship in pediatric anesthesia at the Denver Children's Hospital.

With particular interest in Spine and special interests including Neuromodulation and Intrathecal Drug Delivery, Biological treatment of the painful degenerative disc, Peripheral nerve injury, and Radiofrequency ablation, Dr. Calodney has presented and published many articles and textbook chapters. He is actively involved in clinical research and has delivered over 250 invited lectures in the US and abroad.

Dr. Calodney is a member of the American Society of Anesthesiologists, American Society of Regional Anesthesia and Pain Medicine, and many other professional societies.

He is an author of the first Evidenced Based Treatment Guidelines in Interventional Pain and Evidenced Based Guidelines for the Use of Opioids published in the Pain Physician journal and on the National Guideline Clearinghouse. Dr. Calodney previously was appointed by the governor of Texas to serve on the Advisory Committee on the Regulation of Controlled Substances Act.

LECTURE

REGENERATIVE MEDICINE PAIN THERAPY

MAARTEN VAN KLEEF, MD, FIPP, P. PRITHVI RAJ, MD, DABIPP, DABPM, FIPP CRAIG HARTRICK, MD, FIPP, ROBERT LEVY, MD

CRAIG HARTRICK, MD, FIPP

BIOGRAPHICAL SKETCH

Craig T. Hartrick, MD, FIPP is Professor [emeritus], Biomedical Sciences (Pharmacology) and Professor [emeritus], Anesthesiology, Oakland University William Beaumont School of Medicine, and remains Clinical Professor, Health Sciences, Oakland University. Currently Dr. Hartrick is completing a decade of service as Editor-in-Chief of Pain Practice as he transitions to his new role as President-Elect of the World Institute of Pain.

P. PRITHVI RAJ, MD, DABIPP, DABPM, FIPP

BIOGRAPHICAL SKETCH

Dr. Raj is Professor Emeritus Departments of Anesthesiology and Pain Medicine, School of Medicine, TTUHSC, Lubbock, Texas. Founder and past president of WIP.

MAARTEN VAN KLEEF, MD, FIPP

BIOGRAPHICAL SKETCH

Prof. dr. M. van Kleef is Professor of Anaesthesiology and Pain Management and Chairman Department of Pain Management in MUMC. Prof. dr. M. van Kleef has been an anaesthesiologist since 1985. Since that date he is involved in interventional pain management. He proceeded many studies to the efficacy of interventional procedures. Since 2002 he's chairman and head of the department of Anaesthesiology and Pain Management. He is involved in training of residents and fellows, and is outgoing Chair of the Board of Examination of the World Institute of Pain (WIP). His clinical and basic pain research department publishes more than 150 W1-publications on pain. He has been chairman and co-chairman of several international congresses on pain.

LECTURE

EDITORS ROUNDTABLE DISCUSSION – DOES IMPACT FACTOR MATTER? IF SO, TO WHOM AND WHY?

Discussion points

- What is an Impact Factor?
- Who created Impact Factors and why?
- How are they used?
- How are they abused?
- Are they still relevant?

AUTHORS INDEX

Mert Akbas	13
Adnan A. Al-Kaisy	13, 29
Javier de Andres	14
Hemmo Bosscher	14, 34
Aaron Calodney	14, 38
Kenneth B. Chapman	14
Miles Day	12,14
Serdar Erdine	11
Lorand Eross	14, 36
Juan Carlos Flores	11, 31
Ira Fox	11, 21
Ludger Gerdesmeyer	13,28
Michael Gofeld	12, 13, 25, 27, 28
Craig Hartrick	14, 39
James E. Heavner	34
Standiford Helm	13, 30
Robert Levy	14, 35, 39
John Nelson	11
Carl Noe	14, 35
Charles de Oliveira	12,26
Chan Hong Park	11, 12, 23, 24
Edit Racz	11
Gabor B. Racz	11, 13, 19, 23
Prithvi Raj	14, 39
Ricardo Ruiz-López	11, 22
Matthew Rupert	11, 22
Peter Staats	11, 12, 21
Agnes Stogicza	12, 26
Andrea Trescot	12, 14, 27, 35
Maarten van Kleef	14, 39
Kris Vissers	11, 14, 33
Richard Weiner	13, 28

Industry Technical Presentations

TUESDAY, 25 AUGUST, 2015

Moderators:	Gabor B. Racz, MD, FIPP Ira B. Fox, MD, FIPP
07:30	Boston Scientific – Novel Stimulation Algorithms and the Future of SCS New Technology and Comparative Real World Clinical Data Emarit Ranu, Boston Scientific Senior Engineer
07:45	Epimed International Chad Diebold, European Sales Manager
08:00	Medtronic 2014 Zoltan Chadaide, MD, Neuromodulation Market Development Manager
08:15	Nevro Kerry Bradley, Director, Clinic Science & Research
08:30	Stimwave Technologies, Inc. Laura Perryman, MS, MBA, Chairman and CEO
08:45	St. Jude Medical Robert Levy, MD
09:00	Ziehm Imaging GmbH Axel Kouril, Marketing

Acknowledgements

The 20th Annual Advanced Interventional Pain Conference and Practical Workshop gratefully acknowledge the following companies for their support of this event:



Boston
Scientific



Epimed
Designed by Experts for Experts



Medtronic
Further, Together



NEVRO®



stim
wave



ST. JUDE MEDICAL™



ziehm imaging

Exhibitors and Sponsors Profiles

Boston Scientific

25155 Rye Canyon Loop Valencia, CA 91355 661.949.4000
www.controlyourpain.com

Investing in innovative products, clinical initiatives, and world-class service, Boston Scientific is committed to leading the way in spinal cord stimulation by providing better pain relief to a broad range of patients.

Epimed International Inc.

Crossroads Business Park 141 Sal Landrio Drive Johnstown, NY 12095 USA
www.epimedpain.com

Epimed International, inc will be featuring products designed for chronic and acute pain management techniques. We will display the Expanded Line of Rac[®] Spring Guide Epidural Catheters; RX™, R.K.ä, and SCA Epidural Introducer Needles; Coudé™ & Straight Blunt Nerve Block Needles; and Mini Trays. Also being shown are Radiofrequency Products, Radiation Safety Products, Tens Units, and Anatomical Models.

Medtronic International Trading Sàrl

Route du Molliou 31, Case Postale 84, CH-1131 Tolochenaz, Switzerland
www.medtronic.com

As a global leader in medical technology, services and solutions, Medtronic improves the lives and health of millions of people each year. We use our deep clinical, therapeutic, and economic expertise to address the complex challenges faced by healthcare systems today. Let's take healthcare Further, Together. Learn more at www.medtronic.com

Nevro

4040 Campbell Ave. #210, Menlo Park, CA 94025 USA
www.nevro.com

Headquartered in Menlo Park, California, Nevro is a global medical device company focused on providing innovative products that improve the quality of life of patients suffering from debilitating chronic pain. Nevro has developed and commercialized the Senza spinal cord stimulation (SCS) system, an evidence-based neuromodulation platform for the treatment of chronic pain.

Stimwave

901 E. Las Olas Blvd Suite 201 Fort Lauderdale, FL 33301
www.stimwave.com

Stimwave is introducing the FDA cleared Freedom SCS System™. This system utilizes the world's smallest, wireless, injectable neurostimulator and leverages patented advancements in nanotechnology. The Stimwave platform is revolutionizing the industry with sleek, easily wearable options giving patients and clinicians affordable choices for pain management.

St. Jude Medical

One Lillehei Plaza, St. Paul, MN 55117, USA
www.sjm.com

St. Jude Medical is dedicated to transforming the treatment of some of the world's most expensive epidemic diseases. The company does this by developing cost-effective medical technologies and services that save and improve lives. St. Jude Medical provides leading neurostimulation therapy innovations for neurological and chronic pain patients worldwide.

Ziehm Imaging GmbH

Donastrasse 31, 90451 Nuremberg, Germany
www.ziehm.com

Founded in 1972, Ziehm Imaging has stood for the development, manufacturing and worldwide marketing of mobile X-ray-based imaging solutions for more than 40 years. Employing more than 380 people worldwide, the company is the recognized innovation leader in the mobile C-arm industry and a market leader in Germany and other European countries. The Nuremberg-based manufacturer has received several awards for its groundbreaking technologies and achievements, including the Frost & Sullivan award (various years), the iF design award 2011, the Top100 award for innovative mid-size companies 2012, the Stevie Awards 2013 and 2014 and the IAIR Global Awards 2014 as "Best Company for Innovation & Leadership". For more information, please visit: www.ziehm.com.

Boston
Scientific

PRECISION NOVI™

Spinal Cord Stimulator System

The New Shape of Pain Relief



SMALLEST.

THINNEST.

CONTOURED DESIGN.

Precision Novi is the world's smallest, thinnest 16 contact primary cell SCS device with a unique contoured shape.

CAUTION: The law restricts these devices to sale by or on the order of a physician. Indications, contraindications, warnings and instructions for use can be found in the product labeling supplied with each device. Information for the use only in countries with applicable health authority product registrations

Boston Scientific Precision Novi™: Indications, contraindications and Instructions for use are included in the Instructions for Use contained in the product package.

Precision Novi™ is a registered trademark of Boston Scientific Corporation or its affiliates. Images courtesy of Boston Scientific Corporation. All cited trademarks are the property of their respective owners. All Statements have been validated as of February 2015. Reference: Precision Novi Directions for Use (2015).

Medtronic Prime Advanced Implant Manual (2006) • St. Jude Eon C Sell Sheet (2009)

NM-300006-AA_FEB2015 ©2015 Boston Scientific Corporation or its affiliates. All rights reserved.

Epimed Would Like To Congratulate The 20th Annual Budapest Conference



We'd like to congratulate the Budapest Conference along with the WIP for 20 years of service and contributions to pain management. Epimed is honored to continue it's support of the WIP and pain physicians around the world.

 Epimed

PERSONALISE PAIN MANAGEMENT ALL THE TIME. ANYTIME.

AdaptiveStim® HD



Responds automatically
by adjusting stimulation to your
patient's preferred setting—
at any density.

Learn more at
professional.medtronic.com

Medtronic

Note: Medtronic does not have clinical data on the efficacy of its devices when set at High Density Programming.

www.medtronic.eu

NEUROSTIMULATION SYSTEMS FOR PAIN THERAPY

Brief Summary: Product manuals must be reviewed prior to use for detailed disclosure.

Indication

Neurostimulation for Spinal Cord Stimulation (SCS)—Medtronic SCS neurostimulation system is indicated for SCS as an aid in the management of chronic, intractable pain of the trunk and/or limbs, peripheral vascular disease, or intractable angina pectoris.

Neurostimulation for Peripheral Nerve Stimulation (PNS) using percutaneous leads - A Medtronic PNS neurostimulation system is indicated for PNS as an aid in the management of chronic, intractable pain of the posterior trunk.

Neurostimulation for Peripheral Nerve Stimulation (PNS) using surgical leads - A Medtronic PNS neurostimulation system is indicated for PNS as an aid in the management of chronic, intractable pain of the trunk and/or limbs.

Contraindications Diathermy - Do not use shortwave diathermy, microwave or therapeutic ultrasound diathermy (all now referred to as diathermy) on patients implanted with a neurostimulation system. Energy from diathermy can be transferred through the implanted system and cause tissue damage at the locations of the implanted electrodes, resulting in severe injury or death.

Warnings Sources of strong electromagnetic interference (eg, defibrillation, diathermy, electrocautery, MRI, RF ablation, and therapeutic ultrasound) can interact with the neurostimulation system, resulting in serious patient injury or death. These and other sources of EMI can also result in system damage, operational changes to the

neurostimulator or unexpected changes in stimulation. Rupture or piercing of the neurostimulator can result in severe burns. An implanted cardiac device (eg, pacemaker, defibrillator) may damage a neurostimulator, and the electrical pulses from the neurostimulator may result in an inappropriate response of the cardiac device. Patients treated for intractable angina pectoris should be educated on the signs and symptoms of myocardial infarction and should seek medical attention immediately if signs and symptoms develop.

Precautions The safety and effectiveness of this therapy has not been established for pediatric use (patients under the age of 18), pregnancy, unborn fetus, or delivery. Patients should be detoxified from narcotics prior to lead placement. Clinicians and patients should follow programming guidelines and precautions provided in product manuals. Patients should avoid activities that may put undue stress on the implanted neurostimulation system components. Patients should not scuba dive below 10 meters of water or enter hyperbaric chambers above 2.0 atmosphere absolute (ATA). Electromagnetic interference, postural changes, and other activities may cause shocking or jolting. Patients using a rechargeable neurostimulator should check for skin irritation or redness near the neurostimulator during or after recharging.

Adverse Events Adverse events may include: undesirable change in stimulation described by some patients as uncomfortable, jolting or shocking; hematoma, epidural hemorrhage, paralysis, seroma, CSF leakage, infection, erosion, allergic response, hardware malfunction or migration, pain at implant site, loss of pain relief, chest wall stimulation, and surgical risks.

UC20150392EE ©2015 Medtronic, Inc. All rights reserved. Printed in Europe. Not for distribution in France.



When
HAPPINESS
leaves her speechless, the results say it all.

94%
more patients achieved a back pain score of ≤ 2.5
with HF10™ therapy vs. traditional SCS at 12 months.

Source: Kapural, Leonardo et al. "Novel 10-kHz High-frequency Therapy (HF10 Therapy) Is Superior to Traditional Low-frequency Spinal Cord Stimulation for the Treatment of Chronic Back and Leg Pain." *Anesthesiology* 123, no. 4 (2015).

2015106 Rev. A

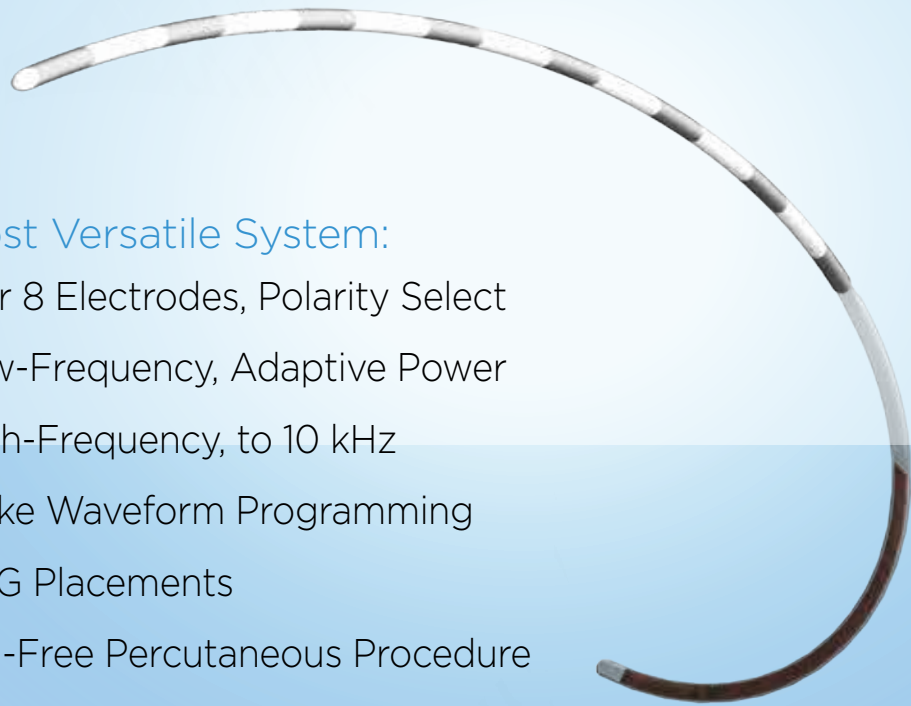
NEURO
HF10™ THERAPY



wireless pain relief®

freedom

Spinal Cord Stimulators™



The Most Versatile System:

- 4 or 8 Electrodes, Polarity Select
- Low-Frequency, Adaptive Power
- High-Frequency, to 10 kHz
- Spike Waveform Programming
- DRG Placements
- IPG-Free Percutaneous Procedure
- 1.5T & 3T MRI Full Body Conditional

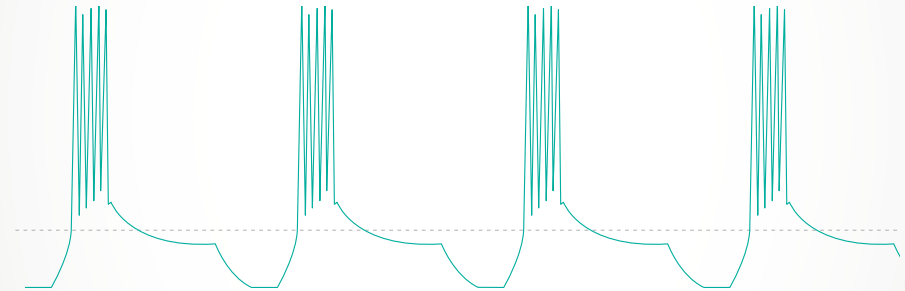
Full Body MRI-Use under specific conditions for both 1.5T & 3T MRI scans. Refer to approved labeling for conditions. Indications for Use. The Freedom Spinal Cord Stimulator (SCS) System is intended as the sole mitigating agent, or as an adjunct to other modes of therapy used in a multidisciplinary approach for chronic, intractable pain of the trunk and/or lower limbs, including unilateral or bilateral pain. The Freedom System is contraindicated for patients who: are unable to operate the Freedom System, are poor surgical risks, are pregnant, have an occupational exposure to high non-ionizing radiation, are implanted with cardiac system, or diathermy. Refer to the Instructions for Use provided with the Freedom SCS System or Stimwave.com for potential adverse effects, warnings, and precautions prior to using this product. Rx Only.

Wireless Pain Relief® is a registered trademark of Stimwave. ©2015 Stimwave Technologies Incorporated.



INNOVATION. NOT IMITATION.

Innovation means nothing without results. So while others may try to replicate the St. Jude Medical Burst waveform, ours is being supported by a growing body of evidence* and rigorous product development. At St. Jude Medical, we don't just advertise our innovation—we prove it.



ACCEPT. NO SUBSTITUTES.

[*Learn more at SJM.com/Burst](http://SJM.com/Burst)



Unless otherwise noted, ™ indicates that the name is a trademark of, or licensed to, St. Jude Medical or one of its subsidiaries. ST. JUDE MEDICAL and the nine-squares symbol are trademarks and service marks of St. Jude Medical, Inc. and its related companies. © 2015 St. Jude Medical, Inc. All Rights Reserved.

SJM-CPG-0515-0012(1) | Item approved for global use.

Big things come in small packages.

With its all-in-one design, Ziehm Solo is one of the most compact and versatile C-arms for crowded treatment scenarios. Equipped with state-of-the-art imaging technology, this C-arm delivers great performance for orthopedics, traumatology, pain management and other applications.





congressLine

CongressLine Ltd.

H-1065 Budapest, Révay köz 2.

Contact person: Sandra Vamos

Phone: +361 429 0146

Fax: +361 429 0147

Email: vamos@congressline.hu

www.congressline.hu/pain2015

www.worldinstituteofpain.org