Syllabus

GABOR B. RACZ, MD, DABIPP, 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 there until 1978. At Texas Tech University Health Sciences Center in Lubbock, Texas he is Grover Murray Professor, Professor and Chair Emeritus in Department of Anesthesiology and Co-Director of Pain Services. Dr. Racz is Director of the Annual Advanced Pain Conference and Practical Workshop in Budapest since the first conference in 1996. He is a Founder and Past President 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 Director of the annual TTUHSC Pain Symposium from 1983-2012. 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, and 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.

LECTURE:

SPINAL PAIN

Since the 2013 presentation of a similar topic at the last Budapest conference there have been new exciting additions to the technique that will make the procedure of percutaneous lysis of adhesions more effective and particularly helpful, especially in patients suffering from back pain and lower extremity radiculopathy. The new information recognized to be helpful includes a systematic review of percutaneous lysis of adhesions procedure in spinal stenosis by Stan Helm et al indicating that the procedure is effective in spinal stenosis but furthermore that there have not been any published hematomas as a consequence of the procedure.

Secondly, a series of articles, especially from Korea by Koh and Park, have carried out significant independent studies leading to better understanding of role of transforaminal injections in spinal stenosis and radiculopathy-type patients. These patients inevitably have back pain and radiculopathy. Reading of the articles leads you to the conclusion that small volume transforaminal injection works on radiculopathy but not on back pain. However, Koh's study of lateral recess stenosis with larger volume of injection points out that it not only worked on radiculopathy but also on back pain. This information substantially furthers our understanding of the role of volumes and medications used in these procedures.

A review of percutaneous lysis of adhesions published this year in Neurosurgical Science does a good job of identifying the key misunderstanding that true evidence does not only come from publications based on controlled studies but also clinical experience and reading of publications that specifically describe the procedure.

The fundamental issue is found when people mention "vascular runoff," where they actually refer to "venous runoff." Venous runoff occurs during first-time procedures when the lateral recess stenosis/scarring have not yet been opened up. Placing the catheter in the ventral-lateral epidural space leads to fluid foraminotomy that frees up not only the nerve root but opens up the large venous runoff in the lumbar venous plexus as well as the thoracic and cervical venous plexus that are not totally interconnected. Beautiful venous dissection will be shown to explain the concept. What almost 30 years of clinical experience tells us is that what may be seen on first time use is venous runoff at a distant point from the needle tip in a scarred down epidural space because of the distended high pressure vein. It is easier for the fluid to dissect into a vein than to open a neural foramen. In the presence of runoff, the procedure is not terminated through the needle; the catheter is advanced to the target nerve root in the ventral-lateral epidural space. The fluid pressure by contrast, saline, hyaluronidase, followed by local anesthetic and steroid, opens up the neural

foramen and converts the high pressure veins to low pressure veins in the lumbar epidural space.
Also, another point raised in the review by Koh et al is that hypertonic saline interferes with restoration of fibrocyte function. The relevance of lively fibrocytes is that scarring will occur more rapidly and the amazing therapeutic efficacy of hypertonic saline includes interference with fibrocyte regeneration following fluid resection of epidural scarring. In the clinical experience arena, we see inhibition of scar tissue regeneration for multiple years and the observation is in fact very useful to explain why percutaneous lysis of adhesions works so effectively and such a long duration.
Teske and colleagues from Germany have identified a unique 1.1 ml space between the DRGs of L5 nerve root and S1 DRG as the "G spot" (Gabor spot or German spot). This space is located almost in front of the most commonly disrupted lumbar disc, the L5 disc. Also a space that has been described for small injection goes a long way and multi-thousand small injections have been carried out with a small gauge interlaminar sharp needle as a consequence of this description. Independently, Tomikichi Matsumoto brought to our attention in a 6 month prospective evaluation study for pain reduction and functional restoration by placing through the posterior S1 neural foramen a VERSA-KATH epidural catheter medial to the S1 nerve root he injected contrast saline, Hylenex, local anesthesia, steroid, and hypertonic saline, he had good improvement in measured parameters. Matsumoto failed to recognize the relevance of the "G spot" identified by Teske et al. Putting together all of the above changed the recognition that a subgroup of patients where lysis of adhesions is difficult to get catheter to the sacral hiatus to the ventral-lateral L4 or L5 neural foramena. This is because once the inverted "G spot" fills up with scar tissue it ties the L5, S1 nerve roots together and blocks the catheter from reaching target area. The additional highly relevant aspect of this observation is that patients that suffer from severe back pain from L4-L5 disc involvement respond superbly well to the modification of all of the above described. The clinical experience leads to the need to reproduce the back pain in the patient to point to the location the back pain is coming from. There is inevitable radiculopathy that will need to be addressed later or can be done at the same time but at the risk of using considerably increased volume of fluids. This technique leads to new algorithm for the the trans S1, where the 18g RX-2 Coudè is placed under fluoroscopic guidance, rotated cephalad, aiming slightly medially with a slight bend on catheter tip. The target site is between the S1 and L5 DRGs to the "G spot" and described by Teske et al. Injection sequence as follows under fluoro guidance in AP view: 10 ml of OMNIPAQUE 240 (or other water soluble, non-ionic contrast), 10 ml 150 units of Hylenex (or other hyaluronidase) in saline, 10 ml of 0.2% ropivacaine (or 0.25% bupivacaine), 4mg dexamethasone (or equivalent steroid), 20-30 minutes later 8-10 ml 10% hypertonic saline. The above solution amazingly spread and commonly opens up bilaterally L4, L5, S1, and S2 nerve roots with lateral runoff assured from the injection of large volumes. Remarkably, pain relief occurs as soon as the procedure is terminated, where dural tug back pain disappears and radiculopathy is dramatically improved. The suggestion for including trans S1 percutaneous lysis with the three repeat injection of similar volumes helps the seriously scarred nerved roots and establishment of better blood supply and functional recovery including improved motor function.

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RICHARD L. RAUCK, MD, FIPP

BIOGRAPHICAL SKETCH

Dr. Richard Rauck, a well-known and respected Pain Management Physician, began his career at Wake Forest University Baptist Medical Center, where he began the Pain Management Center in 1986. He graduated from Bowman Gray School of Medicine (now called Wake Forest University School of Medicine) in 1982 and traveled to Columbus, Georgia and Cincinnati, Ohio to do his internship, residency and fellowship training. He began his research career in the 1980's and continues today. After leaving Wake Forest in 2000, he went into private practice with Piedmont Anesthesia and Pain Consultants, and started his own research center called The Center for Clinical Research. In 2004 he began his own pain management clinic and continued with The Center for Clinical Research, which is now housed together in one building. He treats a variety of pain management problems as well as speaking locally, nationally and internationally. Dr. Rauck is the current President of the World Institute of Pain.

LECTURE:

DRUGS AND PUMPS FOR INTRATHECAL DRUG DELIVERY

LAXMAIAH MANCHIKANTI, MD, FIPP

BIOGRAPHICAL SKETCH

Chairman of the Board and Chief Executive Officer, ASIPP and SIPMSClinical Professor of Anesthesiology and Perioperative Medicine, University of Louisville, Louisville, Kentucky Medical Director, Pain Management Center of Paducah and Ambulatory Surgery Center, Paducah Kentucky; Pain Management Center of Marion and Pain Care Surgery, Marion, Illinois Laxmaiah Manchikanti, MD, is the Medical Director of the Pain Management Centers of Paducah, KY and Marion, IL, and the Ambulatory Surgery Center in Paducah, KY, and Pain Care Surgery in Marion, IL. He is also Clinical Professor of Anesthesiology and Perioperative Medicine at the University of Louisville in Louisville, KY.

He has been in practice in Paducah, KY since completion of a fellowship in anesthesiology and critical care medicine in 1980. He graduated from Gandhi Medical College, Osmania University, Hyderabad, India. He completed his internship and residency in anesthesiology at Gandhi Hospital, Youngstown Hospital Association, (North Eastern Ohio School of Medicine), Allegheny General Hospital, and his fellowship in anesthesiology and critical care medicine at the University of Pittsburgh School of Medicine.

Dr. Manchikanti is certified by the American Board of Anesthesiology along with subspecialty certification in Pain Medicine and the American Board of Interventional Pain Physicians (ABIPP), American Board of

Pain Medicine (ABPM), and is a Fellow in Interventional Pain Practice (FIPP). Dr. Manchikanti is a member of numerous professional societies and organizations. He is the founder, Chairman of the Board and Chief Executive Officer of the American Society of Interventional Pain Physicians (ASIPP), the Society of Interventional Pain Management Surgery Centers (SIPMS), and many State Societies of Interventional Pain Physicians. He is also the founder of the Pain Physician Journal, ABIPP, and the ASIPP Foundation.He serves as a member on the Kentucky Carrier Advisory Committee and the Kentucky All Schedule Prescription Electronic Reporting (KASPER) Task Force. He also served as a member on the Murray State University Board of Regents, Kentucky Board of Medical Licensure (KBML), Medicare Carrier Advisory Committee (CAC) of the National Government Services. Through his work with various organizations, Manchikanti has been instrumental in the preservation of Interventional Pain Management through specialty designation, mandatory Carrier Advisory Committee (CAC) representation, reimbursement, and the passage of NASPER. Manchikanti has testified before Congress on various occasions as an expert witness on controlled substance management and interventional pain management.
Dr. Manchikanti has published over 400 publications and serves on several editorial boards. Dr. Manchikanti is also the editor of ten books designed for interventionalists.

LECTURE:

THE STATE OF INTERVENTIONAL PAIN MANAGEMENT

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:

NEUROMODULATION FOR PAIN THERAPY

JAN PETER WARNKE, MD

BIOGRAPHICAL SKETCH

Prof. Dr. Jan-Peter Warnke is currently Chief of Neurosurgery for The Paracelsus Clinic Group in Germany. He is appointed Professor for "Medicine-Ethics-Finances" at the University Zwickau, Germany. He held a post as Professor for Neurosurgery at the Gutenberg University in Mainz, Germany. Professor Warnke was appointed Chief of Neurosurgery for the Paracelsus Clinic Group for Germany in 1993, at age 33. He has developed the Paracelsus Clinic after the Wall fell from a community hospital to a centre of excellence, not only from a medical standpoint but also financially. Under his leadership, relations to universities throughout Europe have increased offering students an incite to practical medicine with state of the art equipment As a result, Paracelsus has been vaulted to an internationally recognized standard for neurosurgery in Europe, and for rare diseases as Leptomengeopathy and its variations, as Perineural Spinal Cysts (Tarlov Cysts) in the World. Prior to joining Paracelsus Private Hospital Group, Jan-P. Warnke was a practicing Neurosurgeon and Assistant Professor in Neurosurgery at RWTH Aachen Germany, Rheinisch-Westfälische Technische Hochschule. His education is truly international including residencies in Germany, Hungary and Great Britain. His interest in Neurosurgery focuses on Endoscopic Methods in Neuro-Oncology and the Neuro-Endoscopy of the spinal Subarachnoidal space.

LECTURE:

TARLOV CYSTS AND VERTEBRAL BODY STABILIZATION

Objectives

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

• Lumbar-sacral subarachnoidal space is approached by an endoscopic technique:

Thecaloscopy

• Current techniques, practical use of the method for diagnostic and therapeutic reasons
• Most common pathologies of the leptomeningeals sheets (Arachnoid&Pia mater)
• Interventional options for treatment of Arachnoiditis
• Pathophysiology of Perineural Cysts, Cyst-related Pain-Syndroms and their relation to

Arachnoiditis.

• Interventional options for Perineural Cysts.
• Basic knowledge about the technique and clinical results of the MIN treatment of osteoporotic fractures of the lumbar spine using the KIVA – System.

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RICARDO RUIZ-LÓPEZ, MD, FIPP

BIOGRAPHICAL SKETCH

Ricardo Ruiz-Lopez, MD, Neurosurg., FIPP, is Director of Barcelona Spine and Pain Institute (Institut de Columna Vertebral/Clínica 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 Clínica 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 – NEW IDEAS UPDATE

ANDREA TRESCOT, MD, DABIPP, FIPP

BIOGRAPHICAL SKETCH

Andrea Trescot, MD is on the Board of Directors of the World Institute of Pain (WIP), 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 graduated from the Medical University of South Carolina, with internship and residency in anesthesia at Bethesda Naval Hospital and a fellowship in pediatric anesthesia at National Children's Hospital in Washington. She is a Diplomate of the American Board of Interventional Pain Physicians, a Diplomate of the American Board of interventional Pain Physicians, a Fellow of Interventional Pain Practice, a board member of ASIPP, and chair of the advisory board of the WIP. Dr. Trescot is board certified in anesthesia, pain management, interventional pain management and critical care. She was a pain clinic director in private practice for 15 years before she moved to academics. She has returned to private practice, where she splits her time between Alaska and Florida. Dr. Trescot has authored more than 75 peer-reviewed articles and textbook chapters, and she is co-author of PainWise – A Patient's Guide to Pain Management, and co-editor of the three-volume textbook Pain Medicine & Interventional Pain Management – A Comprehensive Review. She speaks nationally and internationally on topics of pain medicine and interventional pain management.

LECTURE:

ULTRASOUND IMAGING FOR CRYONEUROABLATION

OBJECTIVES

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

- The role of cryoneuroablation for the treatment of peripheral nerve entrapments
- Some of the common peripheral nerve entrapments amenable to cryoneroablation
- The use of ultrasound in the identification and injection therapy of peripheral nerve entrapments
- The incorporation of ultrasound in the use of cryoneuroablation

Key points

- Peripheral nerve entrapments cause a wide variety of painful conditions, including headaches, abdominal and pelvic pain, pseudosciatica, phantom limb pain, and CRPS.
- Cryoneuroablation is uniquely useful for large, myelinated nerves because of its lack of neuroma formation
- Because the peripheral nerves do not often have bony landmarks, ultrasound may be helpful in localizing the nerve

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MATTHEW RUPERT, MD, FIPP

BIOGRAPHICAL SKETCH

Education:

Dr. Rupert has an extensive history in both engineering and medicine. He received two engineering degrees from the University of Cincinnati. He was the first student in the College of Engineering to complete a full pre-med curriculum along with his core engineering credits, paving the way for a current dual admissions program. As a NCAA D1 pole vaulter, he has always been interested in biomechanics. His engineering accomplishments revolved around medical device development at the university and with medical device manufacturers. Matt completed his Medical Doctorate at the University of Texas Southwestern Medical School in Dallas, Texas. He started a surgical residency at the Good Samaritan Hospital in Cincinnati and finished training in anesthesia at the University of Tennessee in Memphis.

Relevant Experience:

Dr. Rupert then completed an interventional pain management fellowship with Gabor Racz at Texas Tech University. He continued with advanced training with the WIP (FIPP #280) and ASIPP (DABIPP). 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.

LECTURE:

VERTEBRAL AUGMENTATION 2014

Objectives

Upon completion of this presentation attendees will be able to discuss

- Osteoporosis as a primary cause of compression fractures
- The anatomy of a vertebral compression fracture
- The indications and contraindications to vertebral augmentation
- Radiographic evaluation for diagnosis and surgical planning
- Various techniques for performance of augmentation
- Expected outcomes
- 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 by the surgeon is key to appropriate treatment.
- Live and multi-view imaging is key to appropriate delivery of care.
- Vertebral augmentation is a part in the spectrum of care for this disease process.

STANDIFORD HELM, MD, FIPP

BIOGRAPHICAL SKETCH

Dr. Helm is the Medical Director of the Helm Center for Pain Management. He is past president of the American Society of Interventional Pain Management. He has written extensively on evidence assessment.

LECTURE:

IMPARTIAL 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

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MICHAEL GOFELD, MD, FIPP

BIOGRAPHICAL SKETCH

Current appointment:
Staff Physician, Department of Anesthesia, St Michael's and Women's College Hospitals, Toronto, Canada
Advisor (Chronic Pain), University of Toronto
Professional Societies:
President: American Academy of Pain Medicine Ultrasonography
Past Vise-Chair of Ultrasound in Pain Medicine Special Interest Group at ASRA
World Institute of Pain Examiner, Past Chair of Canadian Chapter
Founder and Executive Member of Interventional Pain Special Interest Group: Canadian Pain Society
Academic Activities:
Section Editor: Current Headache and Pain Reports
Associate Editor: Regional Anesthesia and Pain Medicine, Pain Practice
Peer-Review Publications: 36 Book Chapters: 7
Received Grants: $753,000
Clinical Experience:
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 outcomes.

LECTURE:

RADIOFREQUENCY FACET DENERVATION

Objectives

Upon completion of this presentation attendees will be able to discuss

- Low Back Pain - Diagnostic paradigm
- The rationale for performing diagnostic blocks
- Radiofrequency denervation – evidence
- Expected outcomes
- Techniques
- Future directions

Key Points

- Chronic low back pain is a biopsychosocial problem.
- A subset of patients may benefit from interventional pain management.
- The diagnostic blocks should be performed to establish anatomical nociceptive source and to predict prognosis.
- Radiofrequency neurotomy is a minimally invasive established treatment that offers long-term pain relief.
- The method has solid evidence of effectiveness although historically this modality attracted criticism and skepticism.
- Standard radiofrequency procedure is a straightforward method based on the placement of cannulae parallel to the target nerve.
- Emerging technologies utilize different configurations of cannulae to allow perpendicular placement; in addition ultrasound guidance has become feasible and reliable.

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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:

OPIOID MANAGEMENT

The opioid management lecture will focus on the problems in the United States associated with the liberalization of opioid prescribing beginning in the 1990's. The role of opioids for acute, chronic and cancer pain will be discussed in an environment of new guidelines and regulatory action.

LUDGER GERDESMEYER, MD, PHD, FIPP

BIOGRAPHICAL SKETCH

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

LECTURE:

UPDATE ON 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.

GABOR B. RACZ, MD, DABIPP, FIPP

LECTURE:

FAILED NECK SURGERY SYNDROME

In order to safely proceed with one of the most complex pain procedures in the cervical area especially after failed neck surgery, the physician needs to be aware of avoiding significant problems.

Objectives:

- Upon completion of this presentation the attendee will be able to discuss the potential consequences of venous bleeding as a complication of any needle placement in upper thoracic area leading to development of hematoma formation.
- Recognize the difference between ventral-cervical and dorsal-thoracic venous plexuses.
- Recognize the presence of large vein in the lateral epidural space and learn the technique of avoiding penetration by the catheter in the high pressure vein.
- Recognize the importance of opening up lateral runoff through the neural foramen to allow decompression of high pressure veins.

- Recognize importance of signs and symptoms including informing patient of the development of the delayed symptom as a potential consequence of thoracic midline venous bleed.
- Recognize need for early surgical intervention but preferably avoid the need by converting high pressure veins to low pressure veins.
- Recognize the technique of increasing lateral runoff by flexion rotation of head and neck where the superior pars slide over the inferior part to enlarge the neural foramen to allow lateral runoff of the injected fluids
- Recognize the need for mapping in order to find the pain generators
- Recognize danger of PVCS Perivenous Counter Spread

Key points:

In order to emphasize the above points, a 15 minute video presentation will show the relevance of flexion rotation and lateral runoff including venous runoff being terminated by flexion rotation and decompression and the dural mobility from three previously placed spinal cord stimulating electrodes for atypical facial pain. Interestingly, one of the most common reasons for failed neck surgery syndrome is that the surgeon operates based on diagnostic studies rather than pain generators. Many of these cases that we see have had fusion at all segments except the one that hurts, therefore, mapping for pain generators can be an important step in approaching this problem. Many of these patients also suffer from anterior scalene muscle spasm that the physicians need to be familiar with to do safely by avoiding pneumothorax secondary cord injury which can be achieved by the use of the Bella-D needle which has a sharp, but sealed end and side port for directed injection.

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MILES DAY, MD, FIPP

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:

BOTULINUN TOXIN, ITS PROPERTIES AND USE IN PAIN MEDICINE

Objectives

- Upon completion of this presentation attendees will be able to discuss
- The history of therapeutic use of Botulinum Toxin (BT)
- The pharmacological properties of BT
- The various types of BT and their differing properties
- Possible modes of action in pain relief
- The therapeutic indications for use in pain conditions
- Expected outcomes of treatments
- Limitations, complications and types of treatment
- Future direction in use of BT

Key Points

· C Botulinum identified in 1897, toxin purified in 1928 and first used medically in 1970's for strabismus and blepharospasm. Used cosmetically in 1980's.
· First use for pain in 1990's for torticollis and headache. Also licensed for other muscle spasms including cerebral palsey. Often used off label. Global market approaching $15 billion.
· Various different preparations available, with different potencies and properties. Doses not synonymous across groups. eg Botox, Dysport, Xeomin, Myobloc
· Few adverse events in correct application and dosage. Local pain at injection site, flu-like symptoms, and unwanted weakness. Potential lethal dose 3000 units of Botox means dose limited to 360u max in 12 weeks.
· Widely used for therapeutic indications including cervical dystonia (spasmodic torticollis) blepharospasm (excessive blinking), severe primary axillary hyperhidrosis, strabismus,
· achalasia, migraine and other headache disorders. Off label use for myofascial pain, piriformis syndrome, focal neuropathies (including diabetic and phn), anal fissure, vaginismus, movement disorders, dystonias, and spinal cord injury related pain.

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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 president of the NJ Society of Interventional Pain and on the executive board of ASIPP.

LECTURE:

SPINAL AND SYSTEMIC OPIOID THERAPY

Objectives

Upon completion of this presentation attendees will be able to discuss
- What are the indications of for the use of systemic opiates
- What are the risks of systemic opiates (Morbidity and Mortality)
- Understand the side effects of systemic and intrathecal opiates
- Understand the role of intrathecal therapy including adjuvants
- Understand current role of intrathecal opiates
- Future direction of intrathecal and systemic opiates as well as intrathecal adjuvants

Key Points
- Systemic opiates remain the mainstay for many patients with chronic pain
- Understand the risks of opiate therapy and how to minimize risks of abuse and diversion
- Intrathecal opiates remain a viable option and may be a preferable route at the high dose opiate
- One can use adjuvants in the intrathecal space and improve outcome of patients with chronic intractable pain
- While there are certainly risks of intrathecal opiates (granuloma and pocket fill) at high doses it may be preferable to use intrathecal analgesics over high dose systemic opiates

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ADNAN A. AL-KAISY, MB CHB, FIPP

BIOGRAPHICAL SKETCH

Consultant in Pain Medicine

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 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.

Dr Al-Kaisy was voted the Hospital Doctor of the Year for the category of pain management in 2001.

LECTURE:

PROGRESS REPORT – HIGH FREQUENCY SPINAL CORD STIMULATION IN THE MANAGEMENT OF AXIAL BACK PAIN

Objectives

Upon completion of this presentation attendees will be able to discuss

- The role of conventional Spinal Cord Stimulation (SCS) in management of Failed Back Surgery Syndrome (FBSS).
- Limitations of conventional SCS in the management of Axial Back Pain (ABP)
- Strategies used to improve the efficacy of conventional SCS
- What is High Frequency Stimulations?
- How does High Frequency Stimulation work? How safe is it?
- What are the advantages of high frequency stimulation for patients, operators and the providers?
- The future direction of high frequency SCS
- Key Points
- Spinal Cord Stimulation is evidence based treatment used in the management of chronic pain conditions.
- While SCS is very effective for radicular pain, one notable area that SCS has had less success in is ABP, which is a mix of nociceptive and neuropathic pain.
- In conventional SCS, paraesthesia coverage has been essential for pain relief. However, coverage of low back pain without dorsal root stimulation and without undesirable stimulation is difficult to accomplish.
- One promising approach for this unmet need is High frequency SCS using up to 10 KHZ.
- In a multi-centre prospective European open label study with 84 implanted patients, High

Frequency SCS technology showed significant relief for chronic back pain in difficult-to-treat patients, such as predominant back pain patients.
- 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.
- Future direction of HR SCS includes use different algorithm in programming, different application and advances in equipment technology.

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CHARLES DE OLIVEIRA, MD, FIPP

BIOGRAPHICAL SKETCH

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

LECTURE:

GUIDELINES FOR RADIATION SAFETY

Objectives

Upon completion of this presentation attendees will be able to discuss
- How patients and physicians are exposed to radation
- The effects of long term radation exposure
- Basic science of medical radiation
- Factors that directly affect exposure
- Factors that indirectly affect exposure
- Strategies to reduce exposure – the rationale using of fluoro machine
- Strategies to reduce exposure – the rationale using of protective devices
- How to follow up radiation exposure – regular use of dosimeter
- Radiation safety and pregnancy

Key Points
- Fluoro is defined as a rad exam utilizing fluorescence for the observation of the transient image
- Approximately 5% of the US population has a fluoro procedure each year
- The average number of fluoro exams per person is 1.3
- Medical exposure accounts for about 20% of the total radiation people receive
- The best way to reduce radiation safety is to reduce fluoro time, use of collimation and filtration, keep distance from the fluoro machine, keep hands out of the beam and using pulsed fluoroscopy
- Some devices are required for radiation safety, such as lead aprons, gloves and eyeglasses
- The follow up with appropriate use of personal radiation detection devices is the cornerstone for physician safety

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KRIS VISSERS, MD, FIPP

BIOGRAPHICAL SKETCH

K. Vissers is anesthesiologist, professor in Pain and Palliative Medicine and chairman of the Radboud Expertise Center for Pain and Palliative Medicine of the Radboud University Nijmegen Medical Centre in the Netherlands. He is chairman of the national society for palliative care, board member of the Dutch Pain Society and president-elect of the World Institute of Pain.

LECTURE:

RECENT ADVANCES AND FUTURE PERSPECTIVES IN THE MANAGEMENT OF CANCER PAIN

Objectives

At the end of this presentation you will be able to discuss:

- The different types of pain in patients with cancer and the underlying mechanisms
- The different factors interfering with pain in patients with cancer
- The need for a multi-dimensional approach of cancer pain
- The mechanism based treatment selection
- The algorithm for the management of pain in patients with cancer

Key points

- The chronic care model has merrits but does not fulfill all the needs of a patients with cancer who suffers pain.
- Three main areas are involved in pain: cognitive, sensorial and emotional and each area needs to be considered when selecting the patient's treatment1
- The first step in adequate pain management is a complete assessment, including pain characteristics, pain intensity and impact an the quality of life and daily activities.2
- The somatic diagnostics are used to determine the cause of pain (nociception). The somatic treatment is targetting the underlying mechanism. 3, 4
- Somatic treatment should be part of the multidimenstional management
- Treatment should be guided by the outcome measurement
- Treatment plan and outcome documentation is required

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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. He is active in numerous national and international professional organizations and is the Registrar for the Fellow of Interventional Pain Practice examination.

LECTURE:

LUMBOSACRAL SPINAL CANAL ENDOSCOPY

Objectives

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

- The status of epiduroscopy as a tool to aid in the diagnosis and treatment of common low back pain (LBPc) and expected response to therapy
- Contributions of epiduroscopy to the advancement of interventional pain medicine
- How epiduroscopy has refined our understanding of common low back pain and how to treat it
- Important considerations regarding clinical use of epiduroscopy

Key Points

- Epiduroscopy has been performed routinely for well over a decade at some centers worldwide
- Use of the procedure has persisted without substantial promotion by any major medical device manufacturer.
- Evidence continues to accumulate that when performed by adequately trained physicians, patients benefit from epiduroscopy and the procedure has a favorable cost/benefit ratio
- Epiduroscopy has expanded understanding of the anatomy of the spinal epidural cavity, changes that occur in the cavity in patients with low back pain and boundaries for safely performing interventional procedures to treat common low back pain.
- Important considerations regarding the clinical use of epiduroscopy include:
  a. Adequate training
  b. Familiarity with equipment
  c. Patient selection
  d. Expected outcomes – diagnosis, treatment, prognosis

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LORAND EROSS, MD, PHD, FIPP
MILES DAY, MD, FIPP

LECTURE:

CURRENT STATUS OF MANAGING PAIN ASSOCIATED WITH MY TECHNIQUE: EPIDURAL ADHESIOLYSIS

Lumbar spinal stenosis (LSS) is defined as the reduction of the surface area of the lumbar spinal canal. The etiology is mostly spinal degenerative conditions and most individuals are asymptomatic, but the incidence and prevalence of symptomatic LSS are unknown (1,2). Symptomatic LSS may be the result of neurovascular mechanisms, nerve excitation by local inflammation, or direct compression in the central canal or lateral recess (1).

Treatment ranges from conservative measures, including medication and physical therapy, to minimally invasive pain management procedures to surgery. Epidural steroid injections via the different approaches can be beneficial, but typically result in short term relief. For patients who want to avoid surgery or who have had surgery without significant relief, epidural adhesiolysis can be of benefit. The evidence is fair that adhesiolysis is effective in the treatment of chronic low back pain and leg pain due to spinal stenosis and post lumbar surgery syndrome (3).

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RICHARD WEINER, MD

BIOGRAPHICAL SKETCH

Dr Richard L. Weiner, MD FACS FANN 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:

EXPERIENCE WITH A NEW NEUROMODULATION SYSTEM

LORAND EROSS, MD, PHD, FIPP

BIOGRAPHICAL SKETCH

Dr. Lorand Eross is the director of Functional Neurosurgical Program and head of the Functional Neurosurgery Department at the National Institute of Neuroscience in Budapest. He is a board-certified neurologist and neurosurgeon. He got his PhD degree at Semmelweis University in 2010. His main interests are epilepsy surgery, movement disorder surgery, pain treatment, spasticity, and intraoperative neuromonitoring and neuromodulation. He teaches at Semmelweis University School of Medicine and at Pazmany Peter University Faculty of Information Technology. His research activity is in-vitro and in-vivo electrophysiological investigational methods in epilepsy.

LECTURE:

NEUROSURGICAL APPROACHES TO CHRONIC PAIN MANAGEMENT

MILES DAY, MD, FIPP

LECTURE:

FACIAL PAIN AND CERVICOGENIC HEADACHE

Facial pain and cervicogenic headache can be devastating to those who experience them. In light of this, it is important for today's pain practitioner to be familiar with up-to-date diagnostic criteria for facial pain and cervicogenic headache. 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 as well as the diagnostic criteria for cervicogenic headache (CEH) (1). While the IHS criteria do not provide defining criteria for the features of CEH pain or its associated symptoms, the criteria established for CEH by the Cervicogenic Headache International Study Group does (2).

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 fibres in the trigeminal nerve, nervus intermedius, glossopharyngeal and vagus nerves and the upper cervical roots via the occipital nerves. 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 diagnosis's 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 can be implemented with percutaneous procedures or in some cases surgery.

Cervicogenic headaches are classified as secondary headaches by the IHS. The prevalence of CEH in the general population is estimated to be 0.4% to 2.5% and it is 4 times more prevalent in women than men (3). CEH is characterized by unilateral head pain of fluctuating intensity that is increased by movement of the head and radiates from frontal to occipital (3). Occasional attack-related phenomena include nausea, phono- and photophobia, dizziness, ipsilateral "blurred vision", difficulties in swallowing, and ipsilateral edema (mostly in the periocular area)(2). The etiology is a disorder or lesion of the cervical spine or soft tissues of the neck. As with facial pain, a thorough history and physical exam is important. Diagnostic tools such as radiography, CT and MRI can assist in making the diagnosis. Treatments range from pharmacologic (NSAID's, TCA's, AED's, muscle relaxants) to nonpharmacologic (physical therapy), and at some point may also include minimally invasive injections or surgery targeting the likely source of the pain.

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SANG CHUL LEE, MD, PHD, FIPP

BIOGRAPHICAL SKETCH

Prof. Sang Chul Lee is Professor of the Department of Anesthesiology and Pain Medicine, Seoul National University College of Medicine. And he is currently serving as the President of Korean Spinal Pain Society and Korean Society of Complementary and Alternative Medicine. He is also the President of Asian Australasian Federation of Pain Societies. He is serving or served as the Editorial Board of Acta Anaesthesiologica Taiwanica (Ma Tsui Hsueh Tsa Chi), the official journal of Taiwan Society of Anesthesiologists, Editorial Board of Journal of Clinical Rehabilitative Tissue Engineering Research (China), and Editorial Board of Chinese Journal of Anesthesiology, the official journal of Chinese Society of Anesthesiologists. He is Honarary Member of Taiwan Pain Society and Member of National Academy of Medicine of Korea. He was the President of Korean Spinal Pain Society, the President of Korean Society of Anesthesiologists, the President of Korean IASP Chapter and the President of World Society of Pain Clinicians. He published approximately 250 articles.

LECTURE:

USE OF ULTRASOUND IN INTERVENTIONAL PAIN THERAPY

Objectives

Upon completion of this presentation attendees will be able to discuss

- Why we should use ultrasound as a guidance method in pain treatment
- What the basic principle of ultrasound imaging is
- For what ultrasound guided is used in the field of pain treatment
- Relationships between the inserted needle and inner structures
- Proper postures during ultrasound guided intervention
- How Sonoanatomy compare with real anatomy
- Examples of ultrasound application for pain treatment

Key Points

- Ultrasonography has potential usefulness in pain management including diagnosis and interventional treatment.
- The rational for performing ultrasound guided treatment is that it provides information that aids in establishing a diagnosis and prognosis, locating areas of pathology, and providing therapy via a real-time visualization.
- Ultrasonography is the only modality that allows direct visualization of relationships between the inserted needle and inner structures such as vessels or nerves in the way of target areas to avoid an iatrogenic injury of them.
- Barriers to the use of ultrasound in clinical practice include necessity of training for operation.
- Expected outcomes include ruling in or out area or areas of pathology, facilitating treatment, better forecasting of prognosis and future treatment options.

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CRAIG HARTRICK, MD, DABPM, FIPP

BIOGRAPHICAL SKETCH

Craig Hartrick, MD, FIPP, is Professor of Biomedical Sciences and Anesthesiology at Oakland University William Beaumont School of Medicine in Rochester, Michigan, USA. He was the founding Discipline Director of Pharmacology at the School of Medicine, founding Director of institution-wide Pain Services, as well as founding director of Anesthesiology Research at the Research Institute of Beaumont Health System. After completing undergraduate studies in Chemical Engineering at Michigan State University, he received his medical degree from Wayne State University. Following anesthesiology residency at Providence Hospital, Dr. Hartrick completed a Fellowship in Pain and Regional Anesthesia at the University of Cincinnati. Dr. Hartrick is currently completing his second 5-year term as Editor-in-Chief of Pain Practice. He has authored over 200 publications including peer-reviewed articles, published abstracts of original research, book chapters and monographs on anesthesiology and pain management, and was the 2006 recipient of the President's Medal from the World Institute of Pain.

ROBERT LEVY, MD

BIOGRAPHICAL SKETCH

Dr. Robert Levy is the Institute Director of the Marcus Neuroscience Institute and Chairman of the Department of Neurosurgery, Boca Raton Regional Hospital, Boca Raton, Florida, U.S.A.

LECTURE:

EDITORS ROUNDTABLE DISCUSSION – WHY ARTICLES DO NOT GET ACCEPTED

Objectives:

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

- Quality assessment and its impact on pain literature
- Ethical considerations for successful publication

Synopsis:

Assessment of manuscript quality and the potential impact as a clinical publication requires an evaluation of the quality of the investigation, quality of the investigator, and the validity of the trial. These determinations require peer review and editorial judgment. Transparency is essential in making these assessments. Ethical concerns regarding authorship, fabrication of data, redundant publication and plagiarism remain significant problems and have been at the heart of recent controversies in the pain literature. Although plagiarism checking software has been available for some time, widespread use has not been uniformly applied to submitted manuscripts until recently. The anesthesiology and pain literature has seen several dramatic ethical breaches resulting in the retraction of hundreds of papers. Heightened surveillance and tougher editorial policies are currently being enforced at most journals.