

2021 Index by Content

January/February 2021, Volume 24, Number 1

HEALTH SERVICES RESEARCH

- ◆ Declining Utilization and Inflation-Adjusted Expenditures for Epidural Procedures in Chronic Spinal Pain in the Medicare Population 1
Laxmaiah Manchikanti, MD, Vidyasagar Pampati, MSc, Amol Sooin, MD, Mahendra R. Sanapati, MD, Alan D. Kaye, MD, PhD, and Joshua A. Hirsch, MD
- ◆ Declining Utilization Patterns of Percutaneous Adhesiolysis Procedures in the Fee-For-Service (FFS) Medicare Population 17
Laxmaiah Manchikanti, MD, Radomir Kosanovic, MD, Vidyasagar Pampati, MSc, and Alan D. Kaye, MD, PhD
- ◆ Patterns of Long-Term Prescription Opioid Use Among Older Adults in the United States: A Study of Medicare Administrative Claims Data 31
Sujith Ramachandran, PhD, Monika Salkar, MS, John P. Bentley, PhD, Ike Eriator, MD, and Yi Yang, MD, PhD

SYSTEMATIC REVIEWS

- ◆ Is Epidural Injection of Sodium Chloride Solution a True Placebo or an Active Control Agent? A Systematic Review and Meta-Analysis 41
Laxmaiah Manchikanti, MD, Nebojsa Nick Knezevic, MD, PhD, Jaya Sanapati, MD, Alan D. Kaye, MD, PhD, Mahendra Sanapati, MD, and Joshua A. Hirsch, MD
- ◆ Mind-Body Interventions for Depressive Symptoms in Chronic Pain: A Systematic Review of Meta-Analyses 61
Abhimanyu Sud, MD, Ka Sing Paris Lai, MD, Darren Kai-Young Cheng, MSc, Chadwick Chung, DC, Oscar Javier Pico-Espinosa, MD, and Danielle B. Rice, MSc
-  Relative Efficacy and Safety of Pharmacotherapeutic Interventions for Diabetic Peripheral Neuropathy: A Systematic Review and Bayesian Network Meta-Analysis E1
Mir Mahmood Asrar, MPharm, Sunita Kumari, MPharm, Boya Chandra Sekhar, MPharm, Anil Bhansali, MD, and Dipika Bansal, MD
- ◆ Efficacy and Safety of Opioid Analgesics for the Management of Chronic Low Back Pain: An Evidence from Bayesian Network Meta-Analysis 73
Chandrasekhar Boya, PhD, Dipika Bansal, MD, Shailaja Kanakagiri, MPharm, and Babita Ghai, MD

RANDOMIZED TRIALS

- ◆ Ultrasound-Guided Regional Anesthesia Using a Head-Mounted Video Display: A Randomized Clinical Study 83
Rene Przkora, MD, PhD Juan Mora, MD, Pavel Balduyev, MD, Matthew Meroney, MD, Terrie Vasilopoulos, PhD, and Daneshvari Solanki, MD
- ◆ The Efficacy and Safety of the Application of Pulsed Radiofrequency, Combined With Low-Temperature Continuous Radiofrequency, to the Gasserian Ganglion for the Treatment of Primary Trigeminal Neuralgia: Study Protocol for a Prospective, Open-Label, Parallel, Randomized Controlled Trial 89
Hao Ren, MD, Chunmei Zhao, MD, Xiaodi Wang, MD, Ying Shen, MD, Lan Meng, MD, and Fang Luo, MD
-  A Randomized Comparison Between Two Injections from Two Planes versus Two Injections with a Uniplanar Approach for Ultrasound-Guided Supraclavicular Block E15
Ji Yeon Lee, MD, PhD, Hee Yeon Park, MD, PhD, Yun Suk Choi, MD, PhD, Young Jin Chang, MD, PhD, Hyeon Ju Shin, MD, PhD, and Mi Geum Lee, MD, PhD
-  Effectiveness of Repetitive Transcranial Magnetic Stimulation in Patients With Failed Back Surgery Syndrome: A Double-Blind Randomized Placebo-Controlled Study E23
Canan Bursali, MD, Feyza Unlu Ozkan, MD, Meryem Yilmaz Kaysin, MD, Nimet Dortcan, MD, Ilknur Aktas, MD, and Duygu Geler Kulcu, MD
-  The Effect of ShotBlocker on Pain and Patient Satisfaction for Spinal Anesthesia: A Randomized Trial E31
Gökhan Inangil, MD and Kadir Hakan Cansız, MD

January/February 2021, Volume 24, Number 1

- e** **Morphine Versus Loperamide with Intrathecal Gel in the Treatment of Painful Dermal Ulcers: A Randomized, Crossover Study** E37
B. Jyothi, MD, Milon V. Mitragotri, MD, Mahesh D. Kurugodiyavar, MD, Safiya I. Shaikh, MD, and Vishwajeet V. Korikanthimath, MBBS

REVIEWS

- e** **Treatment and Management of Twelfth Rib Syndrome: A Best Practices Comprehensive Review** E45
Ivan Urits, MD, Nazir Noor, MD, Nathan Fackler, BS, Luc Fortier, BS, Amnon A. Berger, MD, PhD, Hisham Kassem, MD, Alan D. Kaye, MD, PhD, Marc A. Colon, MD, Sumitra Miriyala, PhD, and Omar Viswanath, MD

ORIGINAL MANUSCRIPTS

- e** **Evaluation of Contralateral Oblique and Lateral Views for Mid-Thoracic Epidural Access: A Prospective Observational Study** E51
Doo-Hwan Kim, MD, Syn-Hae Yoon, MD, Jonghyuk Lee, MD, Han Park, MD, Ji-Hoon Sim, MD, Seong-Soo Choi, MD, PhD
- e** **Visit Frequency and Outcomes for Patients Using Ongoing Chiropractic Care for Chronic Low-Back and Neck Pain: An Observational Longitudinal Study** E61
Patricia M. Herman, PhD, Sarah E. Edgington, MA, Melony E. Sorbero, PhD, Eric L. Hurwitz, PhD, Christine M. Goertz, PhD, and Ian D. Coulter, PhD
- e** **Long-Term Effectiveness and Tolerability of Pain Treatment with Tapentadol Prolonged Release** E75
Rafael Gálvez Mateos, MD, Daniel Samper Bernal, MD, Luis Miguel Torres Morera, MD, Cesar Margarit Ferri, MD, and Ana Esquivias Escobar, PharmD
- e** **Risk Factors of Hyperglycemia After Nerve Blockade with Dexamethasone in Non-Diabetes Mellitus Patients: A Cohort Study** E87
Kumiko Tanabe, MD, PhD, Takuma Ishihara, MSc, Yoshimi Nakamura, MD, Noritaka Yoshimura, MD, PhD, Shinobu Yamaguchi, MD, PhD, Reiko Suetsugu, MD, and Hiroki Iida, MD, PhD
- e** **Prescription Opioid Use and Laboratory Value Derangements: A Cross-Sectional Analysis of NHANES Data** E95
Micah Hartwell, PhD, Benjamin Greiner, MPH, Kelly Dunn, MD, Julie Croff, PhD, and Jason Beaman, DO
- e** **Risk Factors for Local Bone Destruction Progression in Palliative Percutaneous Vertebroplasty for Vertebral Metastases and the Significance of Bone Cement Filling Rates** E101
Zhen Liu, MS, Hongyuan Liang, MD, Wei Sun, MD, Zaiming Lu, MD, and Shinong Pan, MD
- e** **Sphenopalatine Ganglion Nerve Block for the Treatment of Migraine Headaches in the Pediatric Population** E111
Mohammad A. Mousa, BSE, David J. Aria, MD, Abeer A. Mousa, MD, Carrie M. Schaefer, MD, M'hamed H. Temkit, PhD, and Richard B. Towbin, MD
- e** **Comparison of Percutaneous Transforaminal Endoscopic Discectomy and Microendoscopic Discectomy for the Surgical Management of Symptomatic Lumbar Disc Herniation: A Multicenter Retrospective Cohort Study with a Minimum of 2 Years' Follow-Up** E117
Panfeng Yu, MD, PhD, Pengfei Zan, MD, PhD, Xifeng Zhang, MD, Hua Qiang, MD, Rebekah M. Samsonraj, PhD, Jianguang Tang, MD, PhD, and Peng Huang, MD, PhD

LETTERS TO THE EDITOR

- e** **Transincisional Ultrasound-Guided Quadratus Lumborum Block in Open Renal Surgeries** E127
Huili Li, MD, Rong Shi, MD, and Yun Wang, MD, PhD
- e** **In Response to Transincisional Ultrasound-Guided Quadratus Lumborum Block in Open Renal Surgeries** E129
Amin M. Alansary, MD, Atef Badawy, MD, and Marwa A. K. Elbeialy, MD

ERRATA

99

Epidural Guidelines Special Issue January 2021, Volume 24, Number S1

GUIDELINES

	Methodology for Evidence Synthesis and Development of Comprehensive Evidence-Based Guidelines for Interventional Techniques in Chronic Spinal Pain	S1
	Laxmaiah Manchikanti, MD, Sairam Atluri, MD, Mark V. Boswell, MD, PhD, Aaron K. Calodney, MD, Sudhir Diwan, MD, Sanjeeva Gupta, MD, Alan D. Kaye, MD, PhD, Nebojsa Nick Knezevic, MD, PhD, Kenneth D. Candido, MD, Alaa Abd-Elseyed, MD, Miguel A. Pappolla, MD, PhD, Gabor B. Racz, MD, Harsh Sachdeva, MD, Mahendra R. Sanapati, MD, Shalini Shah, MD, Vanila Singh, MD, Amol Soin, MD, and Joshua A. Hirsch, MD	
	Epidural Interventions in the Management of Chronic Spinal Pain: American Society of Interventional Pain Physicians (ASIPP) Comprehensive Evidence-Based Guidelines	S27
	Laxmaiah Manchikanti, MD, Nebojsa Nick Knezevic, MD, PhD, Annu Navani, MD, Paul J. Christo, MD, Gerard Limerick, MD, PhD, Aaron K. Calodney, MD, Jay Grider, DO, PhD, Michael E. Harned, MD, Lynn Cintron, MD, Christopher G. Gharibo, MD, Shalini Shah, MD, Devi E. Nampiaparampil, MD, Kenneth D. Candido, MD, Amol Soin, MD, Alan D. Kaye, MD, PhD, Radomir Kosanovic, MD, Trevor R. Magee, BS, Douglas P. Beall, MD, Sairam Atluri, MD, Myank Gupta, MD, Standiford Helm II, MD, Bradley W. Wargo, DO, Sudhir Diwan, MD, Steve M. Aydin, DO, Mark V. Boswell, MD, PhD, Bill W. Haney, MD, Sheri L. Albers, DO, Richard Latchaw, MD, Alaa Abd-Elseyed, MD, MPH, Ann Conn, MD, Hans Hansen, MD, Thomas T. Simopoulos, MD, John R. Swicegood, MD, David A. Bryce, MD, Vijay Singh, MD, Salahadin Abdi, MD, Sanjay Bakshi, MD, Ricardo M. Buenaventura, MD, Joseph A. Cabaret, MD, Jessica Jameson, MD, Sunny Jha, MD, Adam M. Kaye, PharmD, Ramarao Pasupuleti, MD, Kartic Rajput, MD, PhD, Mahendra Sanapati, MD, Nalini Sehgal, MD, Andrea M. Trescot, MD, Gabor B. Racz, MD, Sanjeeva Gupta, MD, Manohar Lal Sharma, MBBS, Vahid Grami, MD, Allan T. Parr, MD, Emilija Knezevic, Sukdeb Datta, MD, Kunj G. Patel, MD, Deborah H. Tracy, MD, Harold J. Cordner, MD, Lee T. Snook, MD, Ramsin M. Benyamin, MD, and Joshua A. Hirsch, MD	
	Transforaminal Epidural Steroid Injections: A Systematic Review and Meta-Analysis of Efficacy and Safety	S209
	Standiford Helm, MD, Preston C. Harmon, MD, Carl Noe, MD, Aaron Calodney, MD, Alaa Abd-Elseyed, MD, Nebojsa Nick Knezevic, MD, PhD, and Gabor Racz, MD	
	Corticosteroids: Review of the History, the Effectiveness, and Adverse Effects in the Treatment of Joint Pain	S233
	Shane Stone, MD, Gerard A. Malanga, MD, and Teresa Capella	

March/April 2021, Volume 24, Number 2**SYSTEMATIC REVIEWS**

-
- ◆ **Infections Following Interventional Spine Procedures: A Systematic Review** 101
Kristen Santiago, BA, Jennifer Cheng, PhD, Bridget Jivanelli, MLIS, and Gregory Lutz, MD
 -  **Peripheral Nerve Stimulation in Pain Management: A Systematic Review** E131
Jijun Xu, MD, PhD, Zhuo Sun, MD, Jiang Wu, MD, Maunak Rana, MD, Joshua Garza, MD, Alyssa C. Zhu, MD, Krishnan V. Chakravarthy, MD, PhD, Alaa Abd-Elsayed, MD, Ellen Rosenquist, MD, Hersimren Basi, MD, Paul Christo, MD, and Jianguo Cheng, MD, PhD
 -  **Effect of Preemptive Acetaminophen on Opioid Consumption: A Meta-Analysis** E153
Chengluan Xuan, MD, PhD, Wen Yan, MD, PhD, Dan Wang, MD, PhD, Ariel Mueller, MA, Haichun Ma, MD, PhD, and Jingping Wang, MD, PhD

RANDOMIZED TRIALS

-
- ◆ **Comparative Effectiveness of Parasagittal Interlaminar and Transforaminal Cervical Epidural Steroid Injection in Patients with Cervical Radicular Pain: A Randomized Clinical Trial** 117
Ji Hoon Sim, MD, Han Park, MD, Yujin Kim, MD, Jin-Woo Shin, MD, PhD, Jeong-Gil Leem, MD, PhD, Hyun-Seok Cho, MD, and Seong-Soo Choi, MD, PhD
 - ◆ **Efficacy of Genicular Nerve Radiofrequency Ablation Versus Intra-Articular Platelet Rich Plasma in Chronic Knee Osteoarthritis: A Single-Blind Randomized Clinical Trial** 127
Abdelraheem Elawamy, MD, Emad Zariief Kamel, MD, Safaa A. Mahran, MD, Hebatallah Abdellatif, MD, and Manal Hassanien, MD
 - ◆ **Effectiveness of Dry Needling with Percutaneous Electrical Nerve Stimulation of High Frequency Versus Low Frequency in Patients with Myofascial Neck Pain** 135
Jose Vicente Leon Hernandez, PhD, Cesar Calvo-Lobo, PhD, Aitor Martin-Pinado Zugasti, PhD, Josue Fernandez-Carnero, PhD, and Hector Beltran Alacreu, PhD
 - ◆ **Efficacy and Safety of Radiofrequency Thermocoagulation with Different Puncture Methods for Treatment of V1 Trigeminal Neuralgia: A Prospective Study** 145
Tingting Wang, MD, Saijun Xu, MD, Qiuli He, MD, Jiachun Tao, MD, Huadong Ni, PhD, Jianjun Zhu, MD, Ge Luo, MD, Jie Fu, MD, and Keyue Xie, MD
 -  **Changes of Opioid Consumption After Lumbar Fusion Using Ultrasound-Guided Lumbar Erector Spinae Plane Block: A Randomized Controlled Trial** E161
Lijun Zhu, MS, Mingcang Wang, BS, Xiaodan Wang, MS, Yu Wang, BS, Lingyang Chen, MS, and Jun Li, PhD

REVIEWS

-
- ◆ **Receptor and Molecular Targets for the Development of Novel Opioid and Non-Opioid Analgesic Therapies** 153
Rosalyn Chen, BA, O.J. Michael Coppes, MD, and Richard D. Urman, MD
 -  **Review of the Safety of Bipolar Radiofrequency Ablation in Patients with Chronic Pain with Implantable Cardiac Rhythm Management Devices** E169
Rewais Hanna, BS, and Alaa Abd-Elsayed, MD
 -  **Revisiting the Genicular Nerve Block: An Up-to-Date Guide Utilizing Ultrasound Guidance and Peripheral Nerve Stimulation – Anatomy Description and Technique Standardization** E177
Guilherme Ferreira-Dos-Santos, MD, Mark-Friedrich B. Hurdle, MD, Sahil Gupta, MBBS, John Tran, HBSc, Anne M.R. Agur, PhD, and Steven R. Clendenen, MD

ORIGINAL MANUSCRIPTS

-
- ◆ **Patients with Chronic Pain Prefer Maintenance of Pain Treatment Despite COVID-19 Pandemic Restrictions** 165
Barbara Kleinmann, MD, Birgit Abberger, PhD, Kristin Kieselbach, MD, and Tilman Wolter, MD
 - ◆ **Insulin Resistance is Associated with Central Pain in Patients with Fibromyalgia** 175
Miguel A. Pappolla, MD, PhD, Laxmaiah Manchikanti, MD, Kenneth D. Candido, MD, Nigel Grieg, PhD, Michael Seffinger, DO, Fauwad Ahmed, MD, Xiang Fang, MD, PhD, Clark Andersen, MS, and Andrea M. Trescot, MD
 - ◆ **Should a Coexisting or Suspected Diagnosis of Fibromyalgia Affect the Decision to Perform Diagnostic Blocks for Patients with Chronic Noncancer Pain — Results from an Observational Research Study** 185
Tomasz Bendinger, MD, PhD, and Joel Stephen Perfitt, MBChB

March/April 2021, Volume 24, Number 2

	Simplicity Radiofrequency Ablation Demonstrates Greater Functional Improvement Than Analgesia: A Prospective Case Series	E185
	Caroline Brennick, DO, Brittany Bickelhaupt, MD, Brian Boies, MD, and Ameet Nagpal, MD	
	Laboratory-Generated Urine Toxicology Interpretations: A Mixed Methods Study	E191
	Isaac S. Chua, MD, Jaime R. Ransohoff, BA, Olga Ehrlich, PhD, RN, Ethan Katznelson, BA, Zain M. Virk, BS, Christiana A. Demetriou, PhD, Athena K. Petrides, PhD, Endel J. Orav, PhD, Gordon D. Schiff, MD, and Stacy E.F. Melanson, MD, PhD	
	CT-Guided Posterolateral Full-Endoscopic Ventral Decompression for Single-Level Cervical Spondylotic Myelopathy	E203
	Bing Ran, MD, Jun Yang, MD, Jun Wei, MD, XinRong Chen, MD, Qiong Zhong, MD, and Min Fu, MD	
	Preventing Post Dural Puncture Headache after Intrathecal Drug Delivery System Implantation Through Preventive Fibrin Glue Application: A Retrospective Study	E211
	Denis Dupoirion, MD, Sanjeet Narang, MD, Valerie Seegers, MD, Nathalie Lebrech, MD, François Boré, MD, Virginie Jaoul, MD, Marie Pechar, MD, Sabrina Jubier Hamon, MD, Thierry Delorme, MD, and Thomas Douillard, MD	
	Minding the Gap in Vertebroplasty: Vertebral Body Fracture Clefts and Cement Nonunion	E221
	Caroline Tomas, MD, Alexandria Jensen, MS, Farres Ahmed, MD, Corey K Ho, MD, and MK Jesse, MD	
	Factors Predicting Chronic Opioid Use after Orthopedic Surgical Procedures	E231
	Basavana Goudra, MD, Arjun Guthal, BS, and Preet Mohinder Singh, MD	
	Ultrasonic Osteotome Assisted Full-Endoscopic en Block Resection of Thoracic Ossified Ligamentum Flavum: Technical Note and 2 Years Follow-up	E239
	Zhen-zhou Li, MD, Zheng Cao, MD, PhD, Hong-liang Zhao, MD, Wei-lin Shang, MD, and Shu-xun Hou, MD	
	Trends in Urine Drug Monitoring Among Persons Receiving Long-Term Opioids and Persons with Opioid Use Disorder in the United States	E249
	Minji Sohn, PhD, Jeffery C. Talbert, PhD, Zhengyan Huang, PhD, Carrie Oser, PhD, and Patricia R. Freeman, PhD	

LETTERS TO THE EDITOR

	Comments on Role of Repeated Paravertebral Injection in the Prevention of Post Herpetic Neuralgia	E257
	Aakanksha Aggarwal, MD	
	In Response to Comments on Role of Repeated Paravertebral Injection in the Prevention of Post Herpetic Neuralgia	E258
	Mohamed Y. Makharita, MD, and Yasser M. Amr, MD	
	What is the Reason for Pain Relief? The True Effect of Saline or Washing Out Effect Caused by Saline?	E260
	Gözde Dağistan, MD, and Mert Akbaş, MD	

2020 TOP POSTERS	E261
-------------------------	-------------

May/June 2021, Volume 24, Number 3

SYSTEMATIC REVIEWS

- ◆ Painful Total Hip Arthroplasty: A Systematic Review and Proposal for an Algorithmic Management Approach 193
Daniela Yucuma, MD, Irene Riquelme, MD, and Martín Avellanal, MD, PhD
- ◆ Erector Spinae Plane Block Similar to Paravertebral Block for Perioperative Pain Control in Breast Surgery: A Meta-Analysis Study 203
Wei-Teng Weng, MD, Chi-Jane Wang, PhD, Chung-Yi Li, PhD, Huai-Wei Wen, MD, and Yen-Chin Liu, MD, PhD

RANDOMIZED TRIALS

- ◆ Efficacy of Pulsed Radiofrequency or Short-Term Spinal Cord Stimulation for Acute/Subacute Zoster-Related Pain: A Randomized, Double-Blinded, Controlled Trial 215
Cheng-fu Wan, MD, and Tao Song, MD
- ◆ The Efficiency of Manual Therapy and Sacroiliac and Lumbar Exercises in Patients with Sacroiliac Joint Dysfunction Syndrome 223
Aghalar Javadov, MD, Ayşegül Ketenci, MD, and Cihan Aksoy, MD
- ◆ A Comparison of Anesthetic Quality Between Interscalene Block and Superior Trunk Block for Arthroscopic Shoulder Surgery: A Randomized Controlled Trial 235
Mi Geum Lee, MD, PhD, Young Jae Shin, MD, Hae Sun You, MD, PhD, Choon Hak Lim, MD, PhD, Young Jin Chang, MD, PhD, and Hyeon Ju Shin, MD, PhD
-  The Effect of Acupuncture and Physiotherapy on Patients with Knee Osteoarthritis: A Randomized Controlled Study E269
Sevgi Gümüş Atalay, MD, Ayşen Durmuş, MD, and Ömer Gezginaslan, MD

REVIEWS

- ◆ Establishment of an Individualized Chronotherapy, Autonomic Nervous System, and Variability-Based Dynamic Platform for Overcoming the Loss of Response to Analgesics 243
Henny Azmanov, MD, Edgar L. Ross, MD, and Yaron Ilan, MD
- ◆ Segmental Zoster Paresis: A Literature Review 253
Ying Meng, MD, Lei Zhuang, MD, PhD, Wenchen Jiang, MD, Baosen Zheng, MD, and Buwei Yu, MD, PhD

SURVEY

- ◆ Use of Bone Marrow Concentrate to Treat Pain and Musculoskeletal Disorders: An Academic Delphi Investigation 263
Christopher J. Centeno, MD, Mairin A. Jerome, MD, Sarah M. Pastoriza, DO, Shane Shapiro, MD, Ken Mautner, MD, Gerard A. Malanga, MD, Michael J. DePalma, MD, R. Amadeus Mason, MD, Ian Stemper, MS, and Ehren Dodson, PhD

ORIGINAL MANUSCRIPTS

- ◆ Full-Endoscopic Decompression with the Application of an Endoscopic-Matched Ultrasonic Osteotome for Removal of Ossification of the Thoracic Ligamentum Flavum 275
Jun-Song Yang, MD, Han-Lin Gong, MD, Hao Chen, MD, Jian-Min Wei, MD, Chien-Min Chen, MD, Zi-Jun Gao, MD, Zi-Long Zhang, MD, Ding-Jun Hao, MD, Yuan-Ting Zhao, MD, and Lei Chu, MD
- ◆ Can Additional Facet Joint Block Improve the Clinical Outcome of Kyphoplasty for Acute Osteoporotic Vertebral Compression Fractures? 283
Qing-Da Li, MD, Jun-Song Yang, MD, Han-Lin Gong, MD, Jian-Min Wei, MD, Xiang-Fu Wang, MD, Peng Zou, MD, Bo Zhang, MD, Ding-Jun Hao, MD, Yuan-Ting Zhao, MD, and Lei Chu, MD
-  The Treatment of Bone Marrow Lesions Associated with Advanced Knee Osteoarthritis: Comparing Intraosseous and Intraarticular Injections with Bone Marrow Concentrate and Platelet Products E279
Christopher Centeno, MD, Cameron Cartier, DO, Ian Stemper, MS, Ehren Dodson, PhD, Michael Freeman, MD, PhD, Ugochi Aзуike, DO, Christopher Williams, MD, Matthew Hyzy, DO, Otono Silva, MD, and Neven Steinmetz, PhD
-  Pathomechanism of Lower-level Discogenic Groin Pain and Clinical Outcomes of Percutaneous Endoscopic Discectomy for the Treatment of Discogenic Groin Pain E289
Gang An, MD, Ying Guan, MD, Ran Wan, MM, Tianli Wei, MD, Xu Shi, MM, Jingsong Liu, MM, Tianwen Huang, MM, Kaixuan Liu, MD, and Yansong Wang, MD

May/June 2021, Volume 24, Number 3

	High Attention-Deficit/Hyperactivity Disorder Scale Scores Among Patients with Persistent Chronic Nonspecific Low Back Pain Satoshi Kasahara, MD, PhD, Shin-Ichi Niwa, MD, PhD, Ko Matsudaira, MD, PhD, Naoko Sato, MA, Hiroyuki Oka, MD, PhD, Tomoko Fujii, MD, PhD, Shin-ichi Konno, MD, PhD, Shin-ichi Kikuchi, MD, PhD, and Yoshitsugu Yamada, MD, PhD	E299
	Gastrointestinal Adverse Events in Hospitalized Patients Following Orthopedic Surgery: Tapentadol Immediate Release Versus Oxycodone Immediate Release Xinyi Wang, BPharm, Sujita W. Narayan, PhD, Jonathan Penm, PhD, Charlotte Johnstone, MBChB, and Asad E. Patanwala, PharmD	E309
	Subchondral Bone Changes Following Sacroiliac Joint Arthrodesis – A Morpho-mechanical Assessment of Surgical Treatment of the Painful Joint Amélie Poilliot, MSc, Daisuke Kurosawa, MD, Mireille Toranelli, Ming Zhang, MMed, PhD, Johann Zwirner, MD, Magdalena Müller-Gerbl, MD, and Niels Hammer, MD	E317
	Comparison of Thoracic Epidural Access with Lateral Decubitus and Shoulder Rotation Positions for Repeat Thoracic Epidural Blockade Byung-Gun Kim, MD, Jong-Kwon Jung, MD, Chunwoo Yang, MD, Woojoo Lee, PhD, Hyunmin Kim, MD, Ki-Hyun Park, MD, and Hyunzu Kim, MD, PhD	E327
	Risk Factors for Refracture following Primary Osteoporotic Vertebral Compression Fractures Chengyue Ji, MD, Yuluo Rong, MD, Jiaying Wang, MD, Shunzhi Yu, MD, Guoyong Yin, MD, Jin Fan, MD, Pengyu Tang, MD, Dongdong Jiang, MD, Wei Liu, MD, Fangyi Gong, MD, Xuhui Ge, MD, and Weihua Cai, MD	E335
	A Cadaver Study Confirming the Location of Dye after Trigeminal Ganglion Rhizotomy SouHyun Lee, MD, JiHee Hong, MD, PhD, and HyeRa Jung, MD, PhD	E341
	Percutaneous Vertebroplasty Versus Kyphoplasty for Thoracolumbar Osteoporotic Vertebral Compression Fractures in Patients with Distant Lumbosacral Pain Yongchao Li, MD, Xiaofei Feng, MD, Jie Pan, MD, Mingjie Yang, MD, PhD, Lijun Li, MD, PhD, Qihang Su, MD, and Jun Tan, MD, PhD	E349
	Lumbar Disc Herniation is a Nonnegligible Factor for the Degeneration of Sacroiliac Joints Zhixiang Huang, MD, Guochao Li, MD, Weiming Deng, MD, Meng Liu, MD, and Tianwang Li, MD, PhD	E357
	Feasibility of Ultrasound-Guided Peritoneal Perfusion with Ozone in the Treatment of Chronic Pelvic Pain: A Bicenter Retrospective Analysis Man-Yu Zhang, MD, Tong Li, MD, Xiao-Yan Qian, CRNA, Hui Liu, MD, Qian-Nan Zhao, MD, Cai-Cai Liu, MD, Yong Wang, MD, John P. Williams, MD, and Jian-Xiong An, MD, PhD	E367

LETTERS TO THE EDITOR

	Comments on the Efficacy and Safety of Opioid Analgesics for the Management of Chronic Low Back Pain Pieternella van der Kooij, BSc, Joris Martens, BSc, Loes De Kleijn, MD, and Erin Macri, PhD	E377
	In Response to Comments on the Efficacy and Safety of Opioid Analgesics for the Management of Chronic Low Back Pain Boya Chandrasekhr, MD, Dipika Bansal, MD, and Babita Ghai, MD	E379

July 2021, Volume 24, Number 4

SYSTEMATIC REVIEWS

- e** Comparison of Different Operative Approaches for Lumbar Disc Herniation: A Network Meta-Analysis and Systematic Review E381
Fei-Long Wei, MD, Cheng-Pei Zhou, MD, Kai-Long Zhu, MD, Ming-Rui Du, MD, Ya Liu, BN, Wei Heng, MD, Huan Wang, MD, Xiao-Dong Yan, MD, Li-Li Sun, BN, and Ji-Xian Qian, MD
- e** Low-Dose Naltrexone Use for Patients with Chronic Regional Pain Syndrome: A Systematic Literature Review E393
Amol Soin, MD, Yasmeen Soin, JD, Tammy Dann, DO, Ricardo Buenaventura, MD, Kris Ferguson, MD, Sairam Atluri, MD, Harsh Sachdeva, MD, Gururau Sudarshan, MD, Humam Akbik, MD, and Jordan Italiano, BS

REVIEWS

- e** Comparison of FDA-Approved Electrical Neuromodulation Techniques for Focal Neuropathic Pain: A Narrative Review of DRG, HF10, and Burst Neuromodulation E407
Edward Podgorski III, MD, Pedro Mascaro, MD, and Dennis Patin, MD

RANDOMIZED TRIALS

- e** Extracranial Non-Gasserian Ganglion Application of Radiofrequency Thermocoagulation on the Mandibular Branch of the Trigeminal through the Foramen Ovale for Trigeminal Neuralgia E425
Huidan Lin, MD, Gang Cao, Guanjun Jin, Zhaodong Yang, MD, Changshun Huang, MD, Jinghan Shao, Ming Yao, and Bing Huang, MD
- e** Quantitative Evaluation of the Trauma of CT Navigation PELD and OD in the Treatment of HLDH: A Randomized, Controlled Study E433
Bing Ran, MD, Jun Wei, MD, Jun Yang, MD, Qiong Zhong, MD, XinRong Chen, MD, XinYuan Wen, MD, Yong Liu, MD, and Jian Wang, MD
- e** Sphenopalatine Ganglion versus Greater Occipital Nerve Blocks in Treating Post-Dural Puncture Headache after Spinal Anesthesia for Cesarean Section: A Randomized Clinical Trial E443
Hamdy Abbas Youssef, MD, Hala Saad Abdel-Ghaffar, MD, Mohamed Fathy Mostafa, MD, Yara Hamdy Abbas, MD, Ahmed Omar Mahmoud, MD, and Ragaa Ahmed Herdan, MD
- e** Intra-Carpal Injection of Ozone versus Methylprednisolone in Carpal Tunnel Syndrome of Systemic Sclerosis Patients: A Randomized Single-Blind Clinical Trial E453
Abdelraheem Elawamy, MD, Manal Hassani, MD, Esraa A Talaat, MD, Anwar M. Ali, MD, Al Shimaa Ismael Roushdy, MD, and Emad Zariif Kamel, MD

ORIGINAL MANUSCRIPTS

- e** CT-guided Chemical Lumbar Sympathectomy in the Treatment of Cold Hypersensitivity in the Hands and Feet E459
Jiachun Tao, MD, Jianjun Zhu, MD, Tingting Wang, MD, Qiuli He, MD, Ge Luo, MD, Huadong Ni, MD, Keyue Xie, MD, Longsheng Xu, MD, Bing Huang, MD, and Ming Yao, PhD
- e** Comparison of the Outcomes of Percutaneous Endoscopic Interlaminar Lumbar Discectomy and Open Lumbar Microdiscectomy at the L5-S1 Level E467
Sung Kyu Song, MD1, Seong Son, MD, PhD1, Sun Woo Choi, BS2, and Hwi Kyung Kim, BS
- e** Percutaneous Vertebroplasty Using a Rotary Cutter for Treating Kümmell's Disease with Intravertebral Vacuum Cleft E477
Chen Zhong, MD, Gang Min, MD, Xun-wei Liu, MD, Zhen Yang, MD, Shuai Li, MD, and Min Li, MD
- e** Clinical Outcomes of Posterior Percutaneous Endoscopic Cervical Foraminotomy and Discectomy Assisted with SNRB in Treating Cervical Radiculopathy with Diagnostic Uncertainty E483
Changgui Shi, MD, PhD, Ning Xu, MD, Bin Sun, MD, Rui Chen, MD, Hailong He, MD, PhD, Guohua Xu, MD, PhD, Xiaojian Ye, MD, PhD, and Xin Gu, MD, PhD
- e** Evaluation of the Use of CT Attenuation for the Prediction of Subsequent Vertebral Fracture in Patients with Osteoporosis E493
Shu-bao Zhang, MD, Hao-Wei Xu, MD, Yu-yang Yi, MD, Tao Hu, PhD, Shan-Jin Wang, PhD, and De-sheng Wu, PhD
- e** Chronic Pregabalin Treatment and Oxycodone Requirement after Spinal Surgery Versus Short Course Perioperative Administration: A Prospective, Nonrandomized Study E501
Christophe Aveline, MD, Alain Le Roux, MD, Bastien Le Touvet, MD, Hubert Le Hetet, MD, and Hélène Beloeil, MD, PhD

July 2021, Volume 24, Number 4

-  **Investigation of the Combination of Pregabalin with Duloxetine or Amitriptyline on the Pharmacokinetics and Antiallodynic Effect During Neuropathic Pain in Rats** E511
Rafaela F. Rodrigues, MSc, Taila Kawano, PhD, Rodrigo V. Placido, MSc, Lellis H. Costa, MSc, Márcia H.M.C. Podestá, PhD, Rafaela S. Santos, MSc, Giovane Galdino, PhD, Carlos M. Barros, MD, and Vanessa B. Boralli, PhD
-  **Chronic Low Back Pain: The Therapeutic Benefits of Diagnostic Medial Branch Nerve Blocks** E521
Michelle Liu, MD, Naum Shaparin, MD, Singh Nair, MD, Ryung S. Kim, PhD, and Jacob R. Hascalovici, MD, PhD

August 2021, Volume 24, Number 5

HEALTH SERVICES RESEARCH

- ◆ **Spinal Cord Stimulation Trends of Utilization and Expenditures in Fee-For-Service (FFS) Medicare Population from 2009 to 2018** 293
Laxmaiah Manchikanti, MD, Vidyasagar Pampati, MSc, Bramha Prasad Vangala, MBBS, Amol Soin, MD, Mahendra R. Sanapati, MD, Srinivasa Thota, MD, and Joshua A. Hirsch, MD
- ◆ **Pain and Opioid Use in Cancer Survivors: A Practical Guide to Account for Perceived Injustice** 309
Jo Nijs, PhD, Eva Roose, MSc, Astrid Lahousse, MSc, Kenza Mostaqim, MSc, Iris Reynebeau, MSc, Marijke De Couck, PhD, David Beckwée, PhD, Eva Huysmans, MSc, Rinske Bults, MSc, Paul van Wilgen, PhD, and Laurence Leysen, PhD
- ◆ **The Effect of Social Isolation During the COVID-19 Pandemic on Patients with Chronic Low Back Pain Who Underwent a Spine Intervention** 319
Ayça Uran Şan, MD, Serdar Kesikburun, MD, Kutay Tezel, MD
- ◆ **Characteristics of Hospitalized Adults with Opioid Use Disorder in the United States: Nationwide Inpatient Sample** 327
Brook T. Alemu, PhD, Olaniyi Olayinka, MD, and Brian C. Martin, PhD
-  **Increase your Confidence in Opioid Prescribing: Marketing Messages in Continuing Medical Education Activities on ER/LA Opioids** E529
Benjamin Goodwin, MS, Hwa-Pyung (David) Lim, MS, Judy Butler, MS, Daniel Paglia, MS, Matthew T. Dempsey, MS, Bonnie O'Connor, PhD, and Adriane Fugh-Berman, MD

SYSTEMATIC REVIEWS

- ◆ **Nutrition/Dietary Supplements and Chronic Pain in Patients with Cancer and Survivors of Cancer: A Systematic Review and Research Agenda** 335
Sevilay Tümkaya Yılmaz, MSc, Ömer Elma, MSc, Tom Deliens, PhD, Iris Coppieters, PhD, Peter Clarys, PhD, Jo Nijs, PhD, and Anneleen Malfliet, PhD
- ◆ **Benefits of Transversus Abdominis Plane Block on Postoperative Analgesia after Bariatric Surgery: A Systematic Review and Meta-Analysis** 345
Chenchen Tian, MD, Yung Lee, MD, Yvgeniy Oparin, MD, Dennis Hong, MD, and Harsha Shanthanna, MD, PhD
-  **Epidural Injections for Lumbar Radiculopathy or Sciatica: A Comparative Systematic Review and Meta-Analysis of Cochrane Review** E539
Laxmaiah Manchikanti, MD, Emilija Knezevic, Nebojsa Nick Knezevic, MD, PhD, Mahendra R. Sanapati, MD, Srinivasa Thota, MD, Alaa Abd-Elseyed, MD, and Joshua A. Hirsch, MD
-  **Quadratus Lumborum Block is an Effective Postoperative Analgesic Technique in Pediatric Patients Undergoing Lower Abdominal Surgery: A Meta-Analysis** E555
Wen-li Zhao, MD, Shao-dong Li, MD, Bei Wu, MD, and Zhen-feng Zhou, MD

RANDOMIZED TRIALS

- ◆ **Long-term Efficacy of Percutaneous Epidural Neurolysis of Adhesions in Chronic Lumbar Radicular Pain: 10 Year Follow-up of a Randomized Controlled Trial** 359
Ludger Gerdesmeyer, MD, PhD, Carl Noe, MD, Alexander Prehn-Kristensen, MD, Norbert Harrasser, MD, Munjed Al Muderis, MD, Matthias Weuster, MD, and Tim Klueter, MD
-  **Anti-nociceptive Effects of Dexmedetomidine Infusion Plus Modified Intercostal Nerve Block During Single-port Thoracoscopic Lobectomy: A Double-blind, Randomized Controlled Trial** E565
Xin-qi Cheng, MD, Juan Cheng, PhD, Yan-nan Zhou, MM, You-mei Zuo, MD, Xue-sheng Liu, MD, Er-wei Gu, MD, and Guang-hong Xu, MD
-  **Using RNA-Seq to Explore the Hub Genes in the Trigeminal Root Entry Zone of Rats by Compression Injury** E573
Ran Tao, BDS, Feng Huang, PhD, Kun Lin, MD, Shao-Wei Lin, PhD, De Wei, MD, and Dao-Shu Luo, PhD

REVIEWS

- ◆ **Utilizing Multidisciplinary Medicine in Pain Management: A Narrative Review** 369
Gilbert S. Chandler III, MD, Alexis M. Rojas, MSW, Phillip R. Worts, PhD, and Heather A. Flynn, PhD
- ◆ **Celiac Plexus Block – An Old Technique With New Developments** 379
Saurabh Vig, MD, Swati Bhan, MD, and Sushma Bhatnagar, MD

August 2021, Volume 24, Number 5

-  **Pancreatic Cancer Related Pain: Review of Pathophysiology and Intrathecal Drug Delivery Systems for Pain Management** E583
Gabriel Carvajal, MD

ORIGINAL MANUSCRIPTS

-  **Evaluation of Increased Intracranial Pressure with the Optic Nerve Sheath Diameter by Ultrasound in Epiduroscopic Neural Laser Discectomy Procedures** E595
Serbülen Gökhan Beyaz, MD, Burak Kaya, MD, Ali Metin Ülgen, MD, Fatih Şahin, MD, Hawva Kocayigşayığıt, MD, and Zeynep Tuncer Issi, MD
-  **Altered Neurovascular Coupling in Patients With Chronic Myofascial Pain** E601
Ganjun Song, MD, Yonghan Zhang, MD, Bangyong Qin, MD, Junwei Zeng, PhD, Tijiang Zhang, MD, PhD, and Peng Xie, MD, PhD
-  **Cooled Radiofrequency Ablation of the Articular Sensory Branches of the Obturator and Femoral Nerves using Fluoroscopy and Ultrasound Guidance: A Large Retrospective Study** E611
Leonardo Kapural, MD, PhD, Jeremy Naber, DO, Kevin Neal, MD, and Michael Burchell, MD
-  **The Impact of Vitamin D Deficiency to Treatment Success of Transforaminal Epidural Steroid Injection** E619
Ekim Can Ozturk, MD, Savas Sencan, MD, Rehib Sacaklidir, MD, Osman Albayrak, MD, and Osman Hakan Gunduz, MD
-  **Retrospective Study of the Analgesic Effect of Sacroiliac Joint Radiofrequency Denervation** E625
Ligia FT. Kawamoto, MD, Rioko K. Sakata, PhD, José L. Campos, MD, Luis A. Borges, MS, and Leonardo HC. Ferraro, PhD
-  **Treatment of Thoracolumbar Type A3 Fractures Using a Percutaneous Intravertebral Expandable Titanium Implant: Long-term Follow-up Results of a Pilot Single Center Study** E631
David C. Noriega, PhD, Jesús Crespo-Sanjuán, PhD, Wayne J. Olan, PhD, Rubén Hernández-Ramajo, PhD, Douglas P. Bell, PhD, J. Javier Castrodeza Sanz, PhD, Gregorio de Jesús Labrador Hernández, MD, Israel Sánchez-Lite, PhD, and Francisco Ardura, PhD
-  **Conservative Treatment for Giant Lumbar Disc Herniation: Clinical Study in 409 Cases** E639
Zhijia Ma, PhD, Pengfei Yu, PhD, Hong Jiang, PhD, Xiaochun Li, PhD, Xiang Qian, PhD, Zhenhan Yu, PhD, Yu Zhu, PhD, and Jintao Liu, PhD
-  **Plasma Rich in Growth Factors (PRGF) in the Treatment of Cervical and Lumbar Back Pain: A Retrospective Observational Clinical Study** E649
Fernando Kirchner, MD, Isidro Milani, MD, Alex Martínez, MD, Nicolas Kirchner-Bossi, PhD, Roberto Prado, PhD, Sabino Padilla, PhD, and Eduardo Anitua, PhD
-  **Verification of Sphenopalatine Ganglion Block Success Using Transcranial Doppler in Management of Patients with Postdural Puncture Headache** E661
Naglaa Fathy Abdelhaleem Abdelhaleem, MD
-  **Transforaminal Epidural Steroid Injection for Zoster-Related Pain: The Golden Period for the Best Outcome** E669
Francis S. Nahm, MD, PhD, Eunjoo Choi, MD, Woong Ki Han, MD, Ho-Jin Lee, MD, Ho Young Gil, MD, Jae Hun Kim, MD, Pyung-Bok Lee, MD, PhD, and Hyunchul Ju, MD

LETTERS TO THE EDITOR

-  **Comments on Comparison of the Effectiveness of Ultrasound-Guided Versus Landmark-Guided Suprascapular Nerve Block in Chronic Shoulder Pain** E677
Aakanksha Aggarwal, MD
-  **In Response to Comments on Comparison of the Effectiveness of Ultrasound-Guided Versus Landmark-Guided Suprascapular Nerve Block in Chronic Shoulder Pain** E678
Gonca Sağlam, MD and Dilek Çetinkaya Alişar, MD
-  **Preemptive Acetaminophen: Quantification of Opioid-sparing Effects and Need for Further Research** E679
Filippo Sanfilippo, MD, PhD, Luigi La Via, MD, Stefano Tigano, MD, Antonio Zanghi, MD, Marinella Astuto, MD, and Alessandro Cappellani, MD

August 2021, Volume 24, Number 5

-  Comments on “Treatment and Management of Twelfth Rib Syndrome: A Best Practices Comprehensive Review” E682
Vidula Bansal, MD and Anil Agarwal, MD
-  Comments on “Comparative effectiveness of parasagittal interlaminar (IL) and transforaminal (TF) cervical epidural steroid injection (ESI) in patients with cervical radicular pain: A randomized clinical trial” E683
Mert Akbas, MD and Gozde Dagistan, MD

ERRATA 399

September/October 2021, Volume 24, Number 6

HEALTH SERVICES RESEARCH

- ◆ Utilization and Expenditures of Vertebral Augmentation Continue to Decline: An Analysis in Fee-For-Service (FFS) Recipients from 2009 to 2018 401
Laxmaiah Manchikanti, MD, Sri Harsha Vardhan Senapathi, MD, James M. Milburn, MD, Allan L. Brook, MD, Bramha Prasad Vangala, MBBS, Vidyasagar Pampati, MSc, Mahendra R. Sanapati, MD, and Joshua A. Hirsch, MD
- ◆ Chronic Opioid Therapy Utilization Following an Acute Pain Prescription Supply Restriction Law: An Interrupted Time Series Analysis 417
Yun Shen, MPH, Juan M. Hincapie-Castillo, PhD, Scott M. Vouri, PhD, Marvin A. Dewar, MD, Jill M. Sumfest, MD, and Amie J. Goodin, PhD

SYSTEMATIC REVIEWS

- ◆ A Comparative Systematic Review and Meta-Analysis of 3 Routes of Administration of Epidural Injections in Lumbar Disc Herniation 425
Laxmaiah Manchikanti, MD, Emilija Knezevic, Nebojsa Nick Knezevic, MD, PhD, Bramha Prasad Vangala, MBBS, Mahendra R. Sanapati, MD, Srinivasa Thota, MD, Salahadin Abdi, MD, PhD, Alaa Abd-Elsayed, MD, Alan D. Kaye, MD, PhD, and Joshua A. Hirsch, MD
- ◆ Comparison of Clinical Outcomes and Complications Between Percutaneous Endoscopic and Minimally Invasive Transforaminal Lumbar Interbody Fusion for Degenerative Lumbar Disease: A Systematic Review and Meta-Analysis 441
Lei Zhu, MM, Tongchuan Cai, MM, Yuzhou Shan, MM, Wenjie Zhang, MD, Liang Zhang, MD, and Xinmin Feng, MD
-  Is Osteoporotic Thoracolumbar Burst Fracture a Contraindication to Percutaneous Kyphoplasty? A Systematic Review E685
Yuxiang Chen, MD, Peng Yin, MD, Yong Hai, MD, Qingjun Su, MD, and Jincal Yang, MD
-  Perineural Versus Intravenous Dexamethasone for Brachial Plexus Block: A Systematic Review and Meta-analysis of Randomized Controlled Trials E693
Tao Bei, PhD, Junting Liu, PhD, Qiulin Huang, BS, Jiaheng Wu, BS, and Jinmin Zhao, PhD
-  Efficacy of Intrawound Treatments to Prevent Surgical Site Infection after Spine Surgery: A Systematic Review and Network Meta-analysis E709
Lu Lin, MD, Si Cheng, MD, Yang Wang, MD, Xiaolin Chen, MD, Guosheng Zhao, MD, Zhiqiang Wang, MD, Xiaojiong Jia, PhD, and Zhenyong Ke, MD

RANDOMIZED TRIALS

- ◆ Treatment Impact on Patient-Reported Outcomes in Peripheral Neuropathic Pain: Comparing Single Intervention With Topical High-Concentration Capsaicin to Daily Oral Pregabalin 453
Eric Viel, MD, PhD, Mariëlle Eerdeken, MD, and Prashanth Kandaswamy, MSc
- ◆ Viable Disc Tissue Allograft Supplementation; One- and Two-level Treatment of Degenerated Intervertebral Discs in Patients with Chronic Discogenic Low Back Pain: One Year Results of the VAST Randomized Controlled Trial 465
Douglas P. Beall, MD, Timothy Davis, MD, Michael J. DePalma, MD, Kasra Amirdelfan, MD, Edward S. Yoon, MD, Gregory L. Wilson, DO, Randolph Bishop, MD, William C. Tally, MD, Steven L. Gershon, MD, Morgan P. Lorio, MD, FACS, Hans Joerg Meisel, MD, PhD, Meredith Langhorst, MD, and Timothy Ganey, PhD
-  Investigation of Effectiveness of Two Different Kinesiotaping Techniques in Myofascial Pain Syndrome: An Open-Label Randomized Clinical Trial E721
Fatma Merih Akpınar, MD, Dilsad Sindel, MD, and Aysegul Ketenci, MD
-  A Randomized Controlled Trial of High Rate rTMS Versus rTMS and Amitriptyline in Chronic Migraine E733
Jayantee Kalita, MD, DM, Sumit Kumar, DM, Varun K Singh, DM, Usha K Misra, DM
-  The Antioxidant Effect of Selenium on Succinylcholine-related Myalgia After Adult Sinuscopies: Randomized Controlled Double-Blind Trial E743
Mohamed F. Mostafa, MD, Ekram A. Osman, MD, Mahmoud M. Abo Elkasem, MSc, Mohamed Ismail Seddik, MD, and Ragaa Herdan, MD
-  Efficacy of Single-shot Thoracic Paravertebral Block Combined with Intravenous Analgesia Versus Continuous Thoracic Epidural Analgesia for Chronic Pain After Thoracotomy E753
Xiu-Liang Li, MD, Jie Zhang, MM, Lei Wan, MD, and Jing Wang, MM

September/October 2021, Volume 24, Number 6

-  **A Double-Blind, Placebo-Controlled Study of Ultrasound-Guided Pulsed Radiofrequency Treatment of the Saphenous Nerve for Refractory Osteoarthritis-Associated Knee Pain** E761
Hironobu Uematsu, MD, PhD, Seiichi Osako, MD, Saya Hakata, MD, PhD, Daijiro Kabata, MPH, Ayumi Shintani, PhD, Daiki Kawazoe, BS, Kiyonori Mizuno, MD, PhD, Yuji Fujino, MD, PhD, and Yoichi Matsuda, MD, PhD

REVIEWS

-  **Transcranial Direct Current Stimulation for the Management of Neuropathic Pain: A Narrative Review** E771
Seoyon Yang, MD, PhD, and Min Cheol Chang, MD

ORIGINAL MANUSCRIPTS

- ◆ **24-month Real-World Study of Spinal Cord Stimulation in Failed Back Surgery Patients with Refractory Pain** 479
Concepción Pérez, MD, PhD, Elena Rojo, MD, Cesar Margarit, MD, PhD, Noelia Sanchez, RN, Tania Blanco, MD, Manuel Muñoz, MD, Carlos Crespo, PhD, and Dolores Ochoa, MD, PhD
- ◆ **Transition from Compounded to Monotherapy Intrathecal Pain Medication Reduces Drug Costs: Retrospective Analysis of Patient Billing Data** 489
Keith-Austin Scarfo, DO, Owen P. Leary, ScB, Darlene Gaudet, MS, Alexios G. Carayannopoulos, DO, and Gail Grande, RN
-  **The Added Value of Sensitivity to Nonnoxious Stimuli to Predict an Individual's Sensitivity to Pain** E783
Christian Dualé, MD, PhD, Vincent Leray, MSc, Fatiha Giron, BN, Sylvia Boulliau, BN, Nicolas Macian, MSc, Ruth Ruscheweyh, MD, Claude Dubray, MD, PhD, and Fabrice Giraudet, PhD
-  **Multifactor Analysis of Costal Pain in Osteoporotic Fracture of Thoracic Vertebra** E795
Jun Xin, MD, Xiaoyang Liu, PhD, Xingzhi Jing, PhD, Cheng Su, MD, Yi Mao, MD, Feifei Chen, PhD, Wenchao Wang, MD, and Xingang Cui, PhD
-  **Correlation Analysis Between Basic Diseases and Subsequent Vertebral Fractures After Percutaneous Kyphoplasty (PKP) for Osteoporotic Vertebral Compression Fractures** E803
Lei Ning, MD, Jungao Zhu, MD, Shen Tian, PhD, Ziang Hu, MD, Chao Liu, MD, Xiangde Zhao, MD, Xiang Li, MD, Shunwu Fan, MD, and Shuanglin Wan, MD
-  **Percutaneous Full-Endoscopic Anterior Transcorporeal Cervical Discectomy for the Treatment of Cervical Disc Herniation: Surgical Design and Results** E811
Xi Chen, MD, Jian-An Gao, MD, Qian Du, MD, Yang Qiao, MD, Wei-Jun Kong, MD, and Wen-Bo Liao, MD
-  **Caudal Epidural Steroid Injections in the Setting of Remaining on Antithrombotics: A Retrospective Study** E821
Jeremy I. Simon, MD, Jeffrey Gehret, DO, Eric S. Larsen, DO, Kyle S. Hummerston, DO, Philip J. Koehler III, DO, and Paul M. Kitej, MD
-  **Microbiological and Physicochemical Stability of Fentanyl, Oxycodone, Hydromorphone, Ketorolac, Ramosetron, and Ondansetron for Intravenous Patient-controlled Analgesia: An In Vitro Study** E829
Young Sung Kim, MD, PhD, Chung Hun Lee, MD, PhD, Ah Rahn Kim, PhD, Sang Sik Choi, MD, PhD, Mi Kyoung Lee, MD, PhD, Heezoo Kim, MD, PhD, and Seok Kyeong Oh, MD, PhD
-  **Does Paramedian Approach Preferentially Secure Optimal Drug Delivery Onto Ventral Epidural Space and Subsequent Superior Clinical Efficacy Over a Dorsal Midline Approach During Cervical Interlaminar Epidural Injection?** E839
Jung Hwan Lee, MD, PhD, Dong Chan Lee, MD, PhD, and Jun Ho Lee, MD, PhD
-  **Chronic Pain Increases the Risk of Dementia: A Nationwide Population-Based Cohort Study** E849
Pei-Hsin Kao, MD, Fong-Lin Jang, MD, Chung-Han Ho, PhD, Yi-Chen Chen, MS, Chien-Chin Hsu, MD, PhD, Hung-Jung Lin, MD, MBA, Jhi-Joung Wang, MD, PhD, and Chien-Cheng Huang, MD, PhD
-  **Cross-Cultural Adaption and Psychometric Evaluation of the German Craniofacial Pain and Disability Inventory (CF-PDI)** E857
Harry von Piekartz, PhD, Roy La Touche, PhD, Alba Paris-Alemany, PhD, Alexandra Löwen, BSc, Mohamed Ismail, BSc, Roger Köhl, MSc, Katharina Benz, BSc, and Nicolaus Ballenberger, PhD
-  **Minimally Invasive Interlaminar Decompression with a 10-mm Endoscope and Microscope in Cases of Adult Degenerative Scoliosis** E867
Rui Li, MD, Gang An, MD, Ying Guan, MD, Zhibin Peng, MD, and Yansong Wang, MD

September/October 2021, Volume 24, Number 6

-  **Pain Variability of Tissues Under Endoscope in Percutaneous Endoscopic Lumbar Discectomy and Its Significance: A Retrospective Study** E877
Feifei Chen, MD, Jun Xin, MD, Cheng Su, MD, Xiaoyang Liu, MD, and Xingang Cui, MD
-  **Alleviating Paravertebral Muscle Spasm after Radiofrequency Ablation Treatment of Hypersensitive Basivertebral and Sinuvertebral Nerves for Chronic Discogenic Back Pain** E883
Ji Yeon Kim, MD, Hyeun Sung Kim, MD, PhD, Pang Hung Wu, MBBS, FRCS, and Il-Tae Jang MD, PhD

LETTERS TO THE EDITOR

-  **Comments on “Efficacy of Pulsed Radiofrequency or Short-Term Spinal Cord Stimulation for Acute/Subacute Zoster-Related Pain: A Randomized, Double-Blinded, Controlled Trial”** E893
Xixia Feng, MB and Ling Ye, MD
-  **Comments on “Can Additional Facet Joint Block Improve the Clinical Outcome of Kyphoplasty for Acute Osteoporotic Vertebral Compression Fractures?”** E895
Landmark-Guided Suprascapular Nerve Block in Chronic Shoulder Pain
Estephania Robles, MD, Estanislao Arana, MD, PhD, and Francisco Kovacs, PhD
-  **RE: “Can Additional Facet Joint Block Improve the Clinical Outcome of Kyphoplasty for Acute Osteoporotic Vertebral Compression Fractures?”** E897
Nikhil Jain, MD and Anil Agarwal, MD
-  **In Response to RE: “Can Additional Facet Joint Block Improve the Clinical Outcome of Kyphoplasty for Acute Osteoporotic Vertebral Compression Fractures?”** E898
Jun-Song Yang, MD, Peng Zou, MD, Xin Chai, MD, Qing-Da Li, MD, Yuan-Ting Zhao, MD, and Ding-Jun Hao, MD
-  **Comments on “Long-term Efficacy of Percutaneous Epidural Neurolysis of Adhesions in Chronic Lumbar Radicular Pain: 10-Year Follow-Up of a Randomized Controlled Trial”** E899
Min Cheol Chang, MD
-  **In Response to Comments on “Long-term Efficacy of Percutaneous Epidural Neurolysis of Adhesions in Chronic Lumbar Radicular Pain: 10-Year Follow-Up of a Randomized Controlled Trial”** E900
Ludger Gerdesmeyer, MD, PhD

2021 ABSTRACT POSTERS E901

November 2021, Volume 24, Number 7

-  **Comparative Effectiveness of Minimally Invasive Nonsurgical Treatments for Plantar Fasciitis: A Network Meta-analysis of 30 Randomized Controlled Trials** E955
Rui Gao, MD, Jianfeng Sun, MBBS, Li Zhang, MMed, Shu Chen, PhD, Wei Dong, MD, Hui Yu, MMed, Bin Han, MBBS, Mingsheng Tan, MMed, and Xian Li, MMed
-  **Use of Radiofrequency Ablation for the Management of Headache: A Systematic Review** E973
Vvairé Orhurhu, MD, Lisa Huang, MD, Rodrigo C Quispe, MD, Faizan Khan, MD, Jay Kerri, MD, Ivan Urits, MD, Jamaal Hasoon, MD, Omar Viswanath, MD, Alan D. Kaye, MD, PhD, Alaa Abd-Elsayed, MD
-  **Comparative Study Between Dexmedetomidine and Fentanyl as an Adjuvant to Intraarticular Bupivacaine for Postoperative Analgesia after Knee Arthroscopy** E989
Dina Abdelhameed Elsadek Salem, MD, Sara Mohamed Abdel Nabi, MD, Sherif A. Alagamy, MD, and Alshaimaa Abdel Fattah Kamel, MD
-  **Effects of Intravenous Dexmedetomidine Versus Lidocaine on Postoperative Pain, Analgesic Consumption and Functional Recovery After Abdominal Gynecological Surgery: A Randomized Placebo-controlled Double Blind Study** E997
Martina Rekatsina, MD, Polyxeni Theodosopoulou, MD, and Chryssoula Staikou MD, PhD
-  **The Effect of Normal Saline Injection Volumes on the Optic Nerve Sheath Diameter during Thoracic Epidural Analgesia** E1007
JiHee Hong, MD, PhD, Ji Seob Kim, MD, and Yong Ho Lee, MD
-  **Relationship between Vitamin D and Nonspecific Low Back Pain May Be Mediated by Inflammatory Markers** E1015
Hao-Wei Xu, MD, Shu-Bao Zhang, MD, Yu-Yang Yi, MD, Hao Chen, MD, Tao Hu, MD, PhD, Shan-Jin Wang, MD, PhD, and De-Sheng Wu, MD, PhD
-  **Reduction of SIRT1 Mediates Monosodium Iodoacetate-Induced Osteoarthritic Pain by Upregulating p53 Expression in Rats** E1025
Ling-Jun Xu, MD, Cui-Cui Liu, MD, Lu-Miao Chen, BA, Gui-Hao Wu, MD, and Xiao-Ping Wang, PhD
-  **Graph Measure Based Connectivity in Chronic Pain Patients: A Systematic Review** E1037
Dorine Lenoir, Msc, Barbara Cagnie, PhD, Helena Verhelst, PhD, and Robby De Pauw, PhD
-  **The Effect of Medial Branch Block on Postoperative Residual Pain Relieve After Percutaneous Kyphoplasty: A Randomized Controlled Trial With 12-Month Follow-up** E1059
Jia-jing Xu, MM, Xiao-ting Tang, MM, Jian Yang, MM, Yi-han Wang, MM, Ding-chao Zhu, MM, Yao-sen Wu, PhD, and Yan Lin, PhD
-  **Three Needles Approach-A New Technique of Genicular Nerves Radiofrequency Ablation for Pain Relief in Advanced Chronic Knee Osteoarthritis: A Randomized Trial** E1067
Omyma Shehata Mohamed, MD, Sara Mohamed Omar, MD, Alaa Fouli Gaber, MBBCH, Manal Mohamed Hassanien, MD, and Abd-Elraheem Mahmoud Mohamed, MD
-  **Risk Factors Affecting the Success Rate of Radiofrequency Thermocoagulation of Lumbar Sympathetic Nerve** E1075
Ge Luo, MD, Jianjun Zhu, MD, Ru Chen, MD, Keyue Xie, MD, Huadong Ni, PhD, Jie Fu, MD, Qiuli He, MD, Bing Huang, MD, and Ming Yao, MD, PhD
-  **Efficacy of Thoracolumbar Interfascial Plane Block for Postoperative Analgesia in Lumbar Spine Surgery: A Meta-analysis of Randomized Clinical Trials** E1085
Zhenxin Hu, MD, Jun Han, MD, Binbin Jiao, MD, Jian Jiang, MD, Yuefeng Sun, MD, Zhengshuai Lv, MD, Jianhe Wang, MD, Xilain Tian, MD, and Hong Wang, MD
-  **NLRP3-mediated Neuroinflammation Exacerbates Incisional Hyperalgesia and Prolongs Recovery After Surgery in Chronic Stressed Rats** E1099
Ying Meng, MD, Lei Zhuang, MD, PhD, Qingsheng Xue, MD, PhD, Jingwei Zhang, MD, and Buwei Yu, MD, PhD

November 2021, Volume 24, Number 7

-  **The Effect of Erector Spinae Plane Blockade on Prevention of Postherpetic Neuralgia in Elderly Patients: A Randomized Double-blind Placebo-controlled Trial** E1109
Zeng-Mao Lin, MD, Hai-Feng Wang, MD, Feng Zhang, MD, Jia-Hui Ma, MD, PhD, Ni Yan, RN, and Xiu-Fen Liu, MD
-  **Assessment of Clinical Outcome of Lumbar Transforaminal Foraminoplasty in Patients with Lumbar Spinal Stenosis** E1119
Sung Hyun Lee, MD, PhD, Sung-Ha Hwang MD, Young-Kwan Moon, MD, Hyun Min Bae, MD, and Dong Eon Moon, MD, PhD
-  **Comparison of Intravascular Injection Incidences and Technical Easiness Between Anteroposterior and Oblique Approaches During S1 Transforaminal Epidural Injection** E1129
Ji Hee Hong, MD, PhD, Ji Seob Kim, MD, and Yong Ho Lee, MD
-  **Catheter-based Techniques for Terminal Cancer Pain: A Review of Nonneuraxial Interventions with Clinical Implications for End-of-Life Pain Management** E1137
Edward Podgorski III, MD, Larry Driver, MD, Amitabh Gulati, MD, and Salahadin Abdi, MD, PhD
-  **Percutaneous Endoscopic Intercostal Neurectomy for Refractory Intercostal Neuralgia** E1147
Jingchao Wei, MD, Shangju Gao, PhD, Wenyi Li, MD, Long Zhang, MD, Can Cao, PhD, Jinshuai Zhai, MD, and Bo Gao, MD
-  **Opioids for the Prevention of Post-dural Puncture Headache in Obstetrics: A Systematic Review and Meta-analysis of Efficacy and Safety** E1155
Lan Wu, MD, Shouming Chen, MD, Xiaoqin Jiang, PhD, Yan Cheng, BD, and Wensheng Zhang, PhD

December 2021, Volume 24, Number 8

SYSTEMATIC REVIEWS

- | | | |
|---|--|-------|
| ◆ | Association of Cigarette Smoking with Risk of Chronic Musculoskeletal Pain: A Meta-Analysis | 495 |
| | Yan Dai, MD, Jiachen Huang, MD, Qinghui Hu, MD, Lili Huang, MD, Jie Wu, PhD, and Jun Hu, MD, PhD | |
|  | Religious Beliefs and Attitudes in Relation to Pain, Pain-Related Beliefs, Function, and Coping in Chronic Musculoskeletal Pain: A Systematic Review | E1163 |
| | Charbel Najem, DPT, Naziru Bashir Mukhtar, MSc, Farah Ayoubi, PhD, Jessica Van Oosterwijck, PhD, Barbara Cagnie, PhD, Kayleigh De Meulemeester, PhD, and Mira Meeus, PhD | |
|  | Pericranial Total Tenderness Score in Patients with Tension-type Headache and Migraine. A Systematic Review and Meta-analysis | E1177 |
| | René Castien, PhD, Marc Duineveld, MSc, Jolanda Maaskant, PhD, Willem De Hertogh PhD, and Gwendolyne Scholten-Peeters PhD | |

RANDOMIZED TRIALS

- | | | |
|--|--|-------|
| ◆ | Hemidiaphragmatic Paresis Following Interscalene Brachial Plexus Block With 2-Point Injection Technique | 507 |
| | Ki Seok Kim, MD, PhD, Jnug Hwan Ahn, MD, Ju Hyun Yoon, MD, Ho Tae Ji, MD, and Il Seok Kim, MD, PhD | |
| ◆ | Dexamethasone Effectively Reduces the Incidence of Post-neurotomy Neuropathic Pain: A Randomized Controlled Pilot Study | 517 |
| | Alexander Shustorovich, DO, Tariq AlFarra, DO1, Aaron T. Arel, DO, Jaspal R. Singh, MD, Ryan T. Roemmich, PhD, and Akhil Chhatre, MD | |
|  | Quadratus Lumborum Block Spares Postoperative Opioid Usage but Does Not appear to Prevent the Development of Chronic Pain After Gastrointestinal Surgery | E1191 |
| | Qing-Ren Liu, MD, Jue Xie, MD, Yu-Chen Dai, MD, Mu-Huo Ji, MD, Cheng-Mao Zhou, MD, Han-Wen Gu, MD, Hui-Jie Shang MD, Xing-Bing Sun, MD, and Jian-Jun Yang, MD, PhD | |
|  | The Use of Combination Paracetamol and Ibuprofen in Postoperative Pain after Total Knee Arthroplasty, a Randomized Controlled Trial | E1199 |
| | Andri Marulitua Lubis, MD, PhD, Samuel Maruanaya, MD, Aida Rosita Tantri, MD, PhD, Ludwig Andriberit Powantia Pontoh, MD, PhD, and Nadia Nastassia Primananda Putri Shah Ifran, MD | |

REVIEWS

- | | | |
|---|--|-----|
| ◆ | Pulsed Radiofrequency in Interventional Pain Management: Cellular and Molecular Mechanisms of Action – An Update and Review | 525 |
| | Jordan Sam, MHSc, Michael Catapano, MD, Sachin Sahni, MD, Frederick Ma, MD, Alaa Abd-Elseyed, MD, and Ognjen Visnjevac, MD | |
| ◆ | Ultrasound-Guided Nerve Blocks in the Head and Neck for Chronic Pain Management: The Anatomy, Sonoanatomy, and Procedure | 533 |
| | Jinpu Li, MD, and Alexandra Szabova, MD | |
| ◆ | Combination Intrathecal Drug Therapy Strategies for Pain Management | 549 |
| | Jay Karri, MD, Mani Singh, MD, Devas J. Modi, MD, Vvvaire Orhurhu, MD, Caleb Seale, MD, Michael Saulino, MD, Anuj Marathe, BBA, Darrell Vydra, MD, Jonathan M. Hagedorn, MD, Brian Bruel, MD, and Alaa Abd-Elseyed, MD | |

ORIGINAL MANUSCRIPTS

- | | | |
|---|--|-------|
| ◆ | Comparison of Efficacy of an Epidural Blood Patch in Patients with Spinal Leakage of Cerebrospinal Fluid | 571 |
| | Hyo Jin Lee, MD, Yong Ho Lee, MD, Ji Hoon Park, MD, PhD, and JiHee Hong, MD, PhD | |
| ◆ | Patterns of Use of Opioid Sparing Adjuncts for Perioperative Pain Management of Patients on Chronic Opioids | 577 |
| | Kanishka Rajput, MD, Colin-Beals Reid, MD, David Yanez, PhD, Devina Shiwlochan, MD, Sargis Ohanyan, MD, and Robert Chow, MD | |
| ◆ | Comparison of Efficacy and Safety of CT-Guided Radiofrequency Thermocoagulation Through Foramen Rotundum Versus Foramen Ovale for V2 Primary Trigeminal Neuralgia | 587 |
| | Yuan Yuan Ding, PhD, Peng Yao, PhD, Hongxi Li, MD, and Tao Hong, MD | |
|  | Cost-effectiveness of Radiofrequency Denervation for Zygapophyseal Joint Pain | E1205 |
| | Johan Hambraeus, MD, Anni-Maria Pulkki-Brännström, PhD, and Lars Lindholm, PhD | |

December 2021, Volume 24, Number 8

	The Correlation of Epidural Fibrosis with Epiduroscopic and Radiologic Imaging for Chronic Pain after Back Surgery Derya Guner, MD, Ibrahim Asik, MD, G. Enver Ozgencil, MD, Elif Peker, MD, and M. Ilhan Erden, MD	E1219
	Association between the Risk of Relapse and the Type of Surgical Procedure for Herpes Zoster-related Pain Ge Luo, MD, Zhiqiang Zhang, MD, Jianjun Zhu, MD, Keyue Xie, MD, Huadong Ni, PhD, Jiachun Tao, MD, and Ming Yao, MD, PhD	E1227
	Minimally Invasive Percutaneous Vertebroplasty for Thoracolumbar Instrumented Vertebral Fracture in Patients With Posterior Instrumentation Yu-Yi Huang, MD, Tsai-Sheng Fu, MD, Dong-Yi Lin, MD, Yun-Da Li, MD, Ying-Chih Wang, MD, Chak-Bor Wong, MD, and Chia-Wei Chang, MD	E1237
	Spinal Cord Stimulation for Neurogenic Claudication Associated with Lumbar Spinal Stenosis Ahmed J. Awad, MD, Braden Jex, DO, Gwynne Kirchen, MD, Stacy Peterson, MD, Sarah A. Endrizzi, MD, and Peter A. Pahapill, MD, PhD	E1247
	The Analysis of Percutaneous Balloon Compression on Efficacy and Negative Emotion in the Treatment of Recurrent Trigeminal Neuralgia After Surgical Procedures Xiaochong Fan, MD, Fuxing Xu, MD, Huan Ren, MD, Zhongyuan Lu, MD, Huilian Bu, MD, Letian Ma, MD, Cunlong Kong, MD, and Tao Wang, MD	E1255
	Long-term Follow-up of Pulsed Radiofrequency Treatment for Trigeminal Neuralgia: Kaplan-Meier Analysis in a Consecutive Series of 149 Patients Jia Zipu, MD, Ren Hao, MD, Zhao Chunmei, MD, Meng Lan, MD, Shen Ying, MD, and Luo Fang, MD, PhD	E1263
	Studies of Supraorbital Notch and Foramen Using 3-Dimensional Facial Bone CT Scans Ji Hee Hong, MD, PhD, Ji Seob Kim, MD, and Hye Kyung Shin, MD	E1273
	Predictive Clinical Decision Support System Using Machine Learning and Imaging Biomarkers in Patients With Neurostimulation Therapy: A Pilot Study Jose De Andres, MD, PhD, Amadeo Ten-Esteve, Ing, Anushik Harutyunyan, PsychD, Carolina S. Romero-Garcia, MD, PhD, Gustavo Fabregat-Cid, MD, PhD, Juan Marcos Asensio-Samper, MD, Angel Alberich-Bayarri, Ing, and Luis Marti-Bonmati, MD, PhD	E1279
	Clinical Outcomes of Percutaneous Endoscopic Lumbar Discectomy for the Treatment of Grade I and Grade II Degenerative Lumbar Spondylolisthesis: A Retrospective Study With a Minimum Five-Year Follow-up Qichao Wu, MD, Shuo Yuan, MD, Ning Fan, MD, Peng Du, MM, Jian Li, MM, Lihui Yang, MD, Wenyi Zhu, MD, and Lei Zang, MD	E1291
	Feasibility and Clinical Utility of Assessing Behavioral and Psychological Risk Factors in Pain Management Alexis M. Rojas, MS, Phillip R. Worts, PhD, and Gilbert S. Chandler III, MD	E1299

LETTERS TO THE EDITOR

	Comments on “Low-Dose Naltrexone Use for Patients with Chronic Regional Pain Syndrome: A Systematic Literature Review” Anjali Singh, MD, Sandeep Khuba, MD, Anil Agarwal, MD, Sujeet Gautam, MD, Sanjay Kumar, MD, and Chetna Shamschrey, MD	E1307
	Response to Comments on “Low-Dose Naltrexone Use for Patients with Chronic Regional Pain Syndrome: A Systematic Literature Review” Amol Soin, MD, Yasmeen Soin, JD, Tammy Dann, DO, Ricardo Buenaventura, MD, Kris Ferguson, MD, Sairam Atluri, MD, Harsh Sachdeva, MD, Gururau Sudarshan, MD, Humam Akbik, MD, and Jordan Italiano, BS	E1308
	Using L1 CT Attenuation to Predict Fracture Risk Joseph Lee, MD and Alaa Alghamry, MD	E1309

2021 INDICES

◆	Index by Contents	597
◆	Index by Author	617
◆	Index by Key Words	627

2021 INDEX BY AUTHOR

A

Abbas, MD, Yara Hamdy E443
 Abberger, PhD, Birgit 165
 Abdel-Ghaffar, MD, Hala Saad E443
 Abdelhaleem Abdelhaleem, MD, Naglaa Fathy E661
 Abdellatif, MD, Hebatallah 127
 Abd-Elsayed, MD, Alaa 425, 525, 549, E131, E169, E539, E973, S1, S27, S209
 Abdi, MD, PhD, Salahadin425, E1137, S27
 Agarwal, MD, Anil E1307
 Agur, PhD, Anne M.R. E177
 Ahmed, MD, Farres E221
 Ahmed, MD, Fauwad 175
 Ahn, MD, Jnug Hwan 507
 Akbik, MD, Humam E393, E1308
 Akpınar, MD, Fatma Merih E721
 Aksoy, MD, Cihan 223
 Aktas, MD, Ilknur E23
 Alacreu, PhD Hector Beltran 135
 Alagamy, MD, Sherif A. E989
 Albayrak, MD, Osman E619
 Alberich-Bayarri, Ing, Angel E1279
 Albers, DO, Sheri L. S27
 Alemu, PhD, Brook T. 327
 AlFarra, DO, Tariq 517
 Ali, MD, Anwar M. E453
 Alghamry, MD, Alaa E1309
 Amirdelfan, MD, Kasra 465
 An, MD, Gang E289, E867
 An, MD, PhD, Jian-Xiong E367
 Andersen, MS, Clark 175
 Anitua, PhD, Eduardo E649
 Ardura, PhD, Francisco E631
 Arel, DO, Aaron T. 517
 Aria, MD, David J. E111
 Asensio-Samper, MD, Juan Marcos E1279
 Asik, MD, Ibrahim E1219
 Asrar, MPharm, Mir Mahmood E1
 Atalay, MD, Sevgi Gümüş E269
 Atluri, MD, Sairam E393, E1308, S1, S27
 Aveline, MD, Christophe E501
 Avellanal, MD, PhD, Martín 193
 Awad, MD, Ahmed J. E1247
 Aydin, DO, Steve M. S27
 Ayoubi, PhD, Farah E1163
 Azmanov, MD, Henny 243
 Azuike, DO, Ugochi E279

B

Bae, MD, Hyun Min E1119
 Bakshi, MD, Sanjay S27
 Balduyeu, MD, Pavel 83
 Ballenberger, PhD, Nicolaus E857
 Bansal, MD, Dipika 73, E1
 Barros, MD, Carlos M. E511
 Basi, MD, Hersimren E131
 Beall, MD, Douglas P. 465, S27

Beaman, DO, Jason E95
 Beckwée, PhD, David 309
 Bei, PhD, Tao E693
 Bell, PhD, Douglas P. E631
 Beloeil, MD, PhD, Hélène E501
 Bendinger, MD, PhD, Tomasz 185
 Bentley, PhD, John P. 31
 Benyamin, MD, Ramsin M. S27
 Benz, BSc, Katharina E857
 Berger, MD, PhD, Amnon A. E45
 Bernal, MD, Daniel Samper E75
 Beyaz, MD, Serbüent Gökhan E595
 Bhan, MD, Swati 379
 Bhansali, MD, Anil E1
 Bhatnagar, MD, Sushma 379
 Bickelhaupt, MD, Brittany E185
 Bishop MD, Randolph 465
 Blanco, MD, Tania 479
 Boies, MD, Brian E185
 Boralli, PhD, Vanessa B. E511
 Boré, MD, François E211
 Borges, MS, Luis A. E625
 Boswell, MD, PhD, Mark V. S1, S27
 Boulliau, BN, Sylvia E783
 Boya, PhD, Chandrasekhar 73
 Brennick, DO, Caroline E185
 Brook, MD, Allan L. 401
 Bruel, MD, Brian 549
 Bryce, MD, David A. S27
 Bu, MD, Huilian E1255
 Buenaventura, MD, Ricardo M. E393, E1308, S27
 Bults, MSc, Rinske 309
 Burchell, MD, Michael E611
 Bursali, MD, Canan E23
 Bults, MSc, Rinske 309
 Butler, MS, Judy E529

C

Cabaret, MD, Joseph A. S27
 Cagnie, PhD, Barbara E1037, E1163
 Cai, MD, Weihua E335
 Cai, MM, Tongchuan 441
 Calodney, MD, Aaron K. S1, S27, S209
 Calvo-Lobo, PhD, Cesar 135
 Campos, MD, José L. E625
 Candido, MD, Kenneth D. 175, S1, S27
 Cansız, MD, Kadir Hakan E31
 Cao, PhD, Can E1147
 Cao, Gang E425
 Cao, MD, PhD, Zheng E239
 Capella, Teresa S233
 Carayannopoulos, DO, Alexios G. 489
 Cartier, DO, Cameron E279
 Carvajal, MD, Gabriel E583
 Castien, PhD, René E1177
 Catapano, MD, Michael 525
 Centeno, MD, Christopher J. 263, E279

Chakravarthy, MD, PhD, Krishnan V E131
 Chandler III, MD, Gilbert S. 369, E1299
 Chang, MD Chia-Wei E1237
 Chang, MD, Min Cheol..... E771
 Chang, MD, PhD, Young Jin..... 235, E15
 Chen, BA, Lu-Miao E1025
 Chen, BA, Rosalyn 153
 Chen, MD, Chien-Min..... 275
 Chen, MD, Feifei E877
 Chen, MD, Hao..... 275, E1015
 Chen, MD, Ru E1075
 Chen, MD, Rui E483
 Chen, MD, Shouming E1155
 Chen, MD, Xi E811
 Chen, MD, Xiaolin E709
 Chen, MD, XinRongE203, E433
 Chen, MD, Yuxiang E685
 Chen, MS, Lingyang E161
 Chen, MS, Yi-Chen E849
 Chen, PhD, Feifei E795
 Chen, PhD, Shu E955
 Cheng, BD, Yan E1155
 Cheng, MD, PhD, Jianguo E131
 Cheng, MD, Si E709
 Cheng, MD, Xin-qj E565
 Cheng, MSc, Darren Kai-Young..... 61
 Cheng, PhD, Jennifer 101
 Cheng, PhD, Juan E565
 Chhatre, MD Akhil 517
 Cho, MD, Hyun-Seok 117
 Choi, BS, Sun Woo E467
 Choi, MD, Eunjoo E669
 Choi, MD, PhD, Sang Sik E829
 Choi, MD, PhD, Seong-Soo 117, E51
 Choi, MD, PhD, Yun Suk E15
 Chow, MD Robert 577
 Christo, MD, Paul J.E131, S27
 Chu, MD, Lei 275, 283
 Chua, MD, Isaac S..... E191
 Chung, DC, Chadwick 61
 Chunmei, MD, Zhao E1263
 Cintron, MD, Lynn S27
 Clarys, PhD, Peter 335
 Clendenen, MD, Steven R. E177
 Colon, MD, Marc A. E45
 Conn, MD, Ann S27
 Coppieters, PhD, Iris..... 335
 Corder, MD, Harold J. S27
 Costa, MSc, Lellis H. E511
 Coulter, PhD, Ian D. E61
 Crespo, PhD, Carlos 479
 Crespo-Sanjuán, PhD, Jesús E631
 Croff, PhD, Julie E95
 Cui, PhD, Xingang E795, E877

D

Dai, MD, Yan 495
 Dai, MD, Yu-Chen E1191
 Dann, DO, Tammy E393, E1308
 Datta, MD, Sukdeb S27
 Davis, MD, Timothy 465

De Andres, MD, PhD, Jose E1279
 De Couck, PhD, Marijke 309
 De Hertogh PhD, Willem E1177
 De Meulemeester, PhD, Kayleigh E1163
 De Pauw, PhD, Robby E1037
 Deliens, PhD, Tom 335
 Delorme, MD, Thierry E211
 Demetriou, PhD, Christiana A. E191
 Dempsey, MS, Matthew T. E529
 Deng, MD, Weiming E357
 DePalma, MD, Michael J. 263, 465
 Dewar MD, Marvin A. 417
 Ding, PhD, Yuanyuan 587
 Diwan, MD, Sudhir S1, S27
 Dodson, PhD, Ehren 263, E279
 Dong, MD, Wei E955
 Dortcan, MD, Nimet E23
 Douillard, MD, Thomas E211
 Driver, MD, Larry E1137
 Du, MD, Ming-Rui E381
 Du, MM, Peng E1291
 Du, MD, Qian E811
 Dualé, MD, PhD, Christian E783
 Dubray, MD, PhD, Claude E783
 Duineveld, MSc, Marc E1177
 Dunn, MD, Kelly E95
 Dupoiron, MD, Denis E211
 Durmuş, MD, Ayşen E269

E

Edgington, MA, Sarah E. E61
 Eerdeken, MD, Mariëlle 453
 Ehrlich, PhD, RN, Olga E191
 Elawamy, MD, Abdelraheem 127, E453
 Elkasem, MSc, Mahmoud M. Abo E743
 Elma, MSc, Ömer..... 335
 Endrizzi, MD, Sarah A. E1247
 Erden, MD M. İlhan E1219
 Eriator, MD, Ike 31
 Escobar, PharmD, Ana Esquivias E75

F

Fabregat-Cid, MD, PhD, Gustavo E1279
 Fackler, BS, Nathan E45
 Fan, MD, Jin E335
 Fan, MD, Ning E1291
 Fan, MD, Shunwu E803
 Fan, MD, Xiaochong E1255
 Fang, MD, PhD, Xiang..... 175
 Fang, MD, PhD Luo E1263
 Feng, MD, Xiaofei E349
 Feng, MD, Xinmin 441
 Ferguson, MD, Kris E393, E1308
 Fernandez-Carnero, PhD, Josue..... 135
 Ferraro, PhD, Leonardo HC. E625
 Ferreira-Dos-Santos, MD, Guilherme E177
 Ferri, MD, Cesar Margarit E75
 Flynn, PhD, Heather A. 369
 Fortier, BS, Luc E45
 Freeman, MD, PhD, Michael E279
 Freeman, PhD, Patricia R. E249

Author Index

Fu, MD, Jie..... 145, E1075
 Fu, MD, Min E203
 Fu, MD, Tsai-Sheng E1237
 Fugh-Berman, MD, Adriane E529
 Fujii, MD, PhD, Tomoko E299
 Fujino, MD, PhD, Yuji E761

G

Gaber, MBBS, Alaa Fouli E1067
 Galdino, PhD, Giovane E511
 Ganey, PhD, Timothy 465
 Gao, MD, Bo..... E1147
 Gao, MD, Jian-An E811
 Gao, MD, Rui E955
 Gao, MD, Zi-Jun..... 275
 Gao, PhD, Shangju E1147
 Garza, MD, Joshua E131
 Gaudet, MS, Darlene 489
 Gautam, MD, Sujeet E1307
 Ge, MD, Xuhui E335
 Gehret, DO, Jeffrey E821
 Gerdesmeyer, MD, PhD, Ludger 359
 Gershon, MD, Steven L. 465
 Gezginaslan, MD, Ömer..... E269
 Ghai, MD, Babita 73
 Gharibo, MD, Christopher G. S27
 Gil, MD, Ho Young E669
 Giraudet, PhD, Fabrice E783
 Giron, BN, Fatiha E783
 Goertz, PhD, Christine M. E61
 Gong, MD, Fangyi E335
 Gong, MD, Han-Lin..... 275, 283
 Goodin, PhD, Amie J..... 417
 Goodwin, MS, Benjamin E529
 Goudra, MD, Basavana E231
 Grami, MD, Vahid S27
 Grande, RN, Gail..... 489
 Greiner, MPH, Benjamin E95
 Grider, DO, PhD, Jay S27
 Grieg, PhD, Nigel 175
 Gu, MD, Er-wei E565
 Gu, MD, Han-Wen E1191
 Gu, MD, PhD, Xin E483
 Guan, MD, Ying E289, E867
 Gulati, MD, Amitabh E1137
 Gunduz, MD, Osman Hakan E619
 Guner, MD, Derya E1205
 Gupta, MBBS, Sahil E177
 Gupta, MD, Myank S27
 Gupta, MD, Sanjeeva S1, S27
 Guthal, BS, Arjun E231

H

Hagedorn, MD, Jonathan M. 549
 Hai, MD, Yong E685
 Hakata, MD, PhD, Saya E761
 Hambraeus, MD, Johan E1205
 Hammer, MD, Niels E317
 Hamon, MD, Sabrina Jubier E211
 Han, MBBS, Bin..... E955
 Han, MD, Jun E1085

Han, MD, Woong Ki E669
 Haney, MD, Bill W. S27
 Hanna, BS, Rewais E169
 Hansen, MD, Hans S27
 Hao, MD, Ding-Jun 275, 283
 Hao, MD, Ren E1263
 Harmon, MD, Preston C. S209
 Harned, MD, Michael E. S27
 Harrasser, MD, Norbert 359
 Hartwell, PhD, Micah E95
 Harutyunyan, PsychD, Anushik E1279
 Hascalovici, MD, PhD, Jacob R..... E521
 Hasoon, MD, Jamaal E973
 Hassanien, MD, Manal Mohamed 127, E453, E1067
 He, MD, PhD, Hailong E483
 He, MD, Qiuli..... 145, E459, E1075
 Helm II, MD, Standiford S27, S209
 Heng, MD, Wei E381
 Herdan, MD, Ragaa Ahmed E443, E743
 Herman, PhD, Patricia M. E61
 Hernández, MD, Gregorio de Jesús Labrador E631
 Hernandez, PhD, Jose Vicente Leon 135
 Hernández-Ramajo, PhD, Rubén E631
 Hincapie-Castillo, PhD, Juan M. 417
 Hirsch, MD, Joshua A..... 1, 41, 293, 401, 425, E539, S1, S27
 Ho, MD, Corey K. E221
 Ho, PhD, Chung-Han E849
 Hong, MD, Dennis 345
 Hong, MD, PhD, JiHee 571, E341, E1007, E1129, E1273
 Hong, MD Tao 587
 Hou, MD, Shu-xun E239
 Hsu, MD, PhD, Chien-Chin E849
 Hu, MD, PhD Jun 495
 Hu, MD, PhD, Tao E1015
 Hu, MD, Qinghui 495
 Hu, MD, Zhenxin E1085
 Hu, MD, Ziang E803
 Hu, PhD, Tao E493
 Huang, BS, Qiulin E693
 Huang, MD, Bing..... E425, E459, E1075
 Huang, MD, Changshun E425
 Huang, MD, Jiachen 495
 Huang, MD, Lili E495
 Huang, MD, Lisa E973
 Huang, MD, PhD, Chien-Cheng E849
 Huang, MD, PhD, Peng E117
 Huang, MD, Yu-Yi E1237
 Huang, MD, Zhixiang E357
 Huang, MM, Tianwen E289
 Huang, PhD, Feng E573
 Huang, PhD, Zhengyan E249
 Hummerston, DO, Kyle S. E821
 Hurdle, MD, Mark-Friedrich B..... E177
 Hurwitz, PhD, Eric L. E61
 Huysmans, MSc, Eva 309
 Hwang MD, Sung-Ha E1119
 Hyzy, DO, Matthew E279

I

Ifran, MD Nadia Nastassia Primananda Putri Shah E1199
 Iida, MD, PhD, Hiroki E87

Ilan, MD, Yaron	243
Inangil, MD, Gökhan	E31
Ishihara, MSc, Takuma	E87
Ismail, BSc, Mohamed	E857
Issi, MD, Zeynep Tuncer	E595
Italiano, BS, Jordan	E393, E1308

J

Jameson, MD, Jessica	S27
Jang MD, PhD, Il-Tae	E883
Jang, MD, Fong-Lin	E849
Jaoul, MD, Virginie	E211
Javadov, MD, Aghalar	223
Jensen, MS, Alexandria	E221
Jerome, MD, Mairin A.	263
Jesse, MD, MK	E221
Jex, DO, Braden	E1247
Jha, MD, Sunny	S27
Ji, MD, Chengyue	E335
Ji, MD, Ho Tae	507
Ji, MD, Mu-Huo	E1191
Jia, PhD, Xiaojiong	E709
Jiang, MD, Dongdong	E335
Jiang, MD, Jian	E1085
Jiang, MD, Wenchen	253
Jiang, PhD, Hong	E639
Jiang, PhD, Xiaogin	E1155
Jiao, MD, Binbin	E1085
Jin, Guanjun	E425
Jing, PhD, Xingzhi	E795
Jivanelli, MLIS, Bridget	101
Johnstone, MBChB, Charlotte	E309
Ju, MD, Hyunchul	E669
Jung, MD, Jong-Kwon	E327
Jung, MD, PhD, HyeRa	E341
Jyothi, MD, B.	E37

K

Kabata, MPH, Daijiro	E761
Kalita, MD, DM, Jayantee	E733
Kamel, MD, Alshaimaa Abdel Fattah	E989
Kamel, MD, Emad Zariief	127, E453
Kanakagiri, MPharm, Shailaja	73
Kandaswamy, MSc, Prashanth	453
Kao, MD, Pei-Hsin	E849
Kapural, MD, PhD, Leonardo	E611
Karri, MD, Jay	549
Kasahara, MD, PhD, Satoshi	E299
Kassem, MD, Hisham	E45
Katznelson, BA, Ethan	E191
Kawamoto, MD, Lígia FT.	E625
Kawano, PhD, Taika	E511
Kawazoe, BS, Daiki	E761
Kaya, MD, Burak	E595
Kaye, MD, PhD, Alan D.	1, 17, 41, 425, E45, E973, S1, S27
Kaye, PharmD, Adam M.	S27
Kaysin, MD, Meryem Yilmaz	E23
Ke, MD, Zhenyong	E709
Kerri, MD, Jay	E973
Kesikburun, MD, Serdar	319
Ketenci, MD, Ayşegül	223, E721

Khan, MD, Faizan	E973
Khuba, MD, Sandeep	E1307
Kieselbach, MD, Kristin	165
Kikuchi, MD, PhD, Shin-ichi	E299
Kim, BS, Hwi Kyung	E467
Kim, MD, Byung-Gun	E327
Kim, MD, Doo-Hwan	E51
Kim, MD, Hyunmin	E327
Kim, MD, Ji Seob	E1007, E1129, E2173
Kim, MD, Ji Yeon	E883
Kim, MD, PhD, Heezoo	E829
Kim, MD, PhD, Hunzu	E327
Kim, MD, PhD, Hyeun Sung	E883
Kim, MD, PhD Il Seok	507
Kim, MD, PhD, Jae Hun	E669
Kim, MD, PhD, Ki Seok	507
Kim, MD, PhD, Young Sung	E829
Kim, MD, Yujin	117
Kim, PhD, Ah Rahn	E829
Kim, PhD, Ryung S.	E521
Kirchen, MD, Gwynne	E1247
Kirchner, MD, Fernando	E649
Kirchner-Bossi, PhD, Nicolas	E649
Kitei, MD, Paul M.	E821
Kleinmann, MD, Barbara	165
Klueter, MD, Tim	359
Knezevic, Emilija	425, E539, S27
Knezevic, MD, PhD, Nebojsa Nick	41, 425, E539, S1, S27, S209
Kocayigit, MD, Havva	E595
Koehler III, DO, Philip J.	E821
Köhl, MSc, Roger	E857
Kong, MD, Cunlong	E1255
Kong, MD, Wei-Jun	E811
Konno, MD, PhD, Shin-ichi	E299
Korikanthimath, MBBS, Vishwajeet V.	E37
Kosanovic, MD, Radomir	17, S27
Kulcu, MD, Duygu Geler	E23
Kumar, MD, Sanjay	E1307
Kumar, DM, Sumit	E733
Kumari, MPharm, Sunita	E1
Kurosawa, MD, Daisuke	E317
Kurugodiyavar, MD, Mahesh D.	E37

L

La Touche, PhD, Roy	E857
Lahousse, MSc, Astrid	309
Lai, MD, Ka Sing Paris	61
Lan, MD, Meng	E1263
Langhorst, MD, Meredith	465
Larsen DO, Eric S.	E821
Latchaw, MD, Richard	S27
Le Hetet, MD, Hubert	E501
Le Roux, MD, Alain	E501
Le Touvet, MD, Bastien	E501
Leary, ScB, Owen P.	489
Lebrec, MD, Nathalie	E211
Lee, MD, Ho-Jin	E669
Lee, MD, Hyo Jin	571
Lee, MD, Jonghyuk	E51
Lee, MD, Joseph	E1309
Lee, MD, Yong Ho	571

Author Index

Lee, MD, PhD, Chung Hun	E829	Liu, MD, Qing-Ren	E1191
Lee, MD, PhD, Dong Chan	E839	Liu, MD, PhD, Yen-Chin	203
Lee, MD, PhD, Ji Yeon	E15	Liu, MD, Wei	E335
Lee, MD, PhD, Jun Ho	E839	Liu, MD, Xiaoyang	E877
Lee, MD, PhD, Jung Hwan	E839	Liu, MD, Xiu-Fen	E1109
Lee, MD, PhD, Mi Geum	235, E15	Liu, MD, Xue-sheng	E565
Lee, MD, PhD, Mi Kyoung	E829	Liu, MD, Xun-wei	E477
Lee, MD, PhD, Pyung-Bok	E669	Liu, MD, Yong	E433
Lee, MD, PhD, Sung Hyun	E1119	Liu, MM, Jingsong	E289
Lee, MD, SouHyun	E341	Liu, MS, Zhen	E101
Lee, MD, Yong Ho	E1007, E1129	Liu, PhD, Jintao	E639
Lee, MD, Yung	345	Liu, PhD, Junting	E693
Lee, PhD, Woojoo	E327	Liu, PhD, Xiaoyang	E795
Leem, MD, PhD, Jeong-Gil	117	Lorio, MD, FACS, Morgan P.	465
Lenoir, Msc, Dorine	E1037	Löwen, BSc, Alexandra	E857
Leray, MSc, Vincent	E783	Lu, MD, Zaiming	E101
Leysen, PhD, Laurence	309	Lu, MD, Zhongyuan	E1255
Li, MD, Guochao	E357	Lubis, MD, PhD, Andri Marulitua	E1199
Li, MD, Hongxi	587	Luo, MD, Fang	89
Li, MD, Jinpu	533	Luo, MD, Ge	145, E459, E1075, E1227
Li, MD, Min	E477	Luo, PhD, Dao-Shu	E573
Li, MD, PhD, Lijun	E349	Lutz, MD, Gregory	101
Li, MD, PhD, Tianwang	E357	Lv, MD, Zhengshuai	E1085
Li, MD, Qing-Da	283		
Li, MD, Rui	E867	M	
Li, MD, Shao-dong	E555	Ma, MD, Frederick	525
Li, MD, Shuai	E477	Ma, MD, PhD, Haichun	E153
Li, MD, Tong	E367	Ma, MD, Letian	E1255
Li, MD, Wenyi	E1147	Ma, MD, PhD, Jia-Hui	E1109
Li, MD, Xiang	E803	Ma, PhD, Zhijia	E639
Li, MD, Xiu-Liang	E753	Maaskant, PhD, Jolanda	E1177
Li, MD, Yongchao	E349	Macian, MSc, Nicolas	E783
Li, MD, Yun-Da	E1237	Magee, BS, Trevor R.	S27
Li, MD, Zhen-zhou	E239	Mahmoud, MD, Ahmed Omar	E443
Li, MMed, Xian	E955	Mahrnan, MD, Safaa A.	127
Li, PhD, Chung-Yi	203	Malanga, MD, Gerard A.	263, S233
Li, MM, Jian	E1291	Malfliet, PhD, Anneleen	335
Li, PhD, Jun	E161	Manchikanti, MD, Laxmaiah	1, 17, 41, 175, 293, 401, 425, E539, S1, S27
Li, PhD, Xiaochun	E639	Mao, MD, Yi	E795
Liang, MD, Hongyuan	E101	Marathe, BBA, Anuj	549
Liao, MD, Wen-Bo	E811	Margarit, MD, PhD, Cesar	479
Lim, MD, PhD, Choon Hak	235	Marti-Bonmati, MD, PhD Luis	E1279
Lim, MS, Hwa-Pyung (David)	E529	Martin, PhD, Brian C.	327
Limerick, MD, PhD, Gerard	S27	Martínez, MD, Àlex	E649
Lin, MD, Dong-Yi	E1237	Maruanaya, MD, Samuel	E1199
Lin, MD, Huidan	E425	Mascaro, MD, Pedro	E407
Lin, MD, Kun	E573	Mason, MD, R. Amadeus	263
Lin, MD, Lu	E709	Mateos, MD, Rafael Gálvez	E75
Lin, MD, MBA, Hung-Jung	E849	Matsuda, MD, PhD, Yoichi	E761
Lin, MD, Zeng-Mao	E1109	Matsudaira, MD, PhD, Ko	E299
Lin, PhD, Shao-Wei	E573	Mautner, MD, Ken	263
Lin, PhD, Yan	E1059	Meeus, PhD Mira	E1163
Lindholm, PhD, Lars	E1205	Meisel, MD, PhD, Hans Joerg	465
Liu, BN, Ya	E381	Melanson, MD, PhD, Stacy E.F.	E191
Liu, MD, Cai-Cai	E367	Meng, MD, Lan	89
Liu, MD, Chao	E803	Meng, MD, Ying	253, E1099
Liu, MD, Cui-Cui	E1025	Meroney, MD, Matthew	83
Liu, MD, Hui	E367	Michael Coppes, MD, O.J.	153
Liu, MD, Kaixuan	E289	Milani, MD, Isidro	E649
Liu, MD, Meng	E357	Milburn, MD, James M.	401
Liu, MD, Michelle	E521		

Min, MD, Gang	E477
Miriyala, PhD, Sumitra	E45
Misra, DM, Usha K.....	E733
Mitragotri, MD, Milon V.	E37
Mizuno, MD, PhD, Kiyonori	E761
Modi, MD, Devas J.	549
Mohamed, MD, Abd-Elraheem Mahmoud	E1067
Mohamed, MD, Omyma Shehata	E1067
Mohinder Singh, MD, Preet	E231
Moon, MD, PhD, Dong Eon	E1119
Moon, MD, Young-Kwan	E1119
Mora, MD, Juan.....	83
Moreira, MD, Luis Miguel Torres	E75
Mostafa, MD, Mohamed Fathy	E443, E743
Mostaqim, MSc, Kenza	309
Mousa, BSE, Mohammad A.	E111
Mousa, MD, Abeer A.	E111
Muderis, MD, Munjed Al.....	359
Mueller, MA, Ariel	E153
Mukhtar, MSc, Naziru Bashir	E1163
Müller-Gerbl, MD, Magdalena	E317
Muñoz, MD, Manuel.....	479

N

Naber, DO, Jeremy	E611
Nabi, MD, Sara Mohamed Abdel	E989
Nagpal, MD, Ameet	E185
Nahm, MD, PhD, Francis Sahngun	E669
Nair, MD, Singh	E521
Najem, DPT, Charbel	E1163
Nakamura, MD, Yoshimi	E87
Nampiaparampil, MD, Devi E.	S27
Narang, MD, Sanjeet	E211
Narayan, PhD, Sujita W.	E309
Navani, MD, Annu	S27
Neal, MD, Kevin	E611
Ni, PhD, Huadong.....	145, E459, E1075, E1227
Nijs, PhD, Jo.....	309, 335
Ning, MD, Lei	E803
Niwa, MD, PhD, Shin-Ichi	E299
Noe, MD, Carl.....	359, S209
Noor, MD, Nazir	E45
Noriega, PhD, David C.	E631

O

O'Connor, PhD, Bonnie	E529
Ochoa, MD, PhD, Dolores	479
Oh, MD, PhD, Seok Kyeong	E829
Ohanyan, MD, Sargis	577
Oka, MD, PhD, Hiroyuki	E299
Olan, PhD, Wayne J.	E631
Olayinka, MD, Olaniyi	327
Omar, MD, Sara Mohamed	E1067
Oparin, MD, Yvgeniy.....	345
Orav, PhD, Endel J.	E191
Orhurhu, MD, Vwaire	549, E973
Osako, MD, Seiichi	E761
Oser, PhD, Carrie	E249
Osman, MD, Ekram A.	E743
Ozkan, MD, Feyza Unlu	E23

Ozgenicil, MD, G. Enver	E1219
Ozturk, MD, Ekim Can	E619

P

Padilla, PhD, Sabino	E649
Paglia, MS, Daniel	E529
Pahapill, MD, PhD, Peter A.	E1247
Pampati, MSc, Vidyasagar	1, 17, 293, 401
Pan, MD, Jie	E349
Pan, MD, Shinong	E101
Pappolla, MD, PhD, Miguel A.	175, S1
Paris-Aleman, PhD, Alba	E857
Park, MD, Han	117, E51
Park, MD, Ki-Hyun	E327
Park, MD, PhD, Hee Yeon	E15
Park, MD, PhD, Ji Hoon.....	571
Parr, MD, Allan T.	S27
Pastoriza, DO, Sarah M.	263
Pasupuleti, MD, Ramarao	S27
Patanwala, PharmD, Asad E.	E309
Patel, MD, Kunj G.	S27
Patin, MD, Dennis	E407
Pechard, MD, Marie	E211
Peker, MD, Elif	E1219
Peng, MD, Zhibin	E867
Penm, PhD, Jonathan	E309
Pérez, MD, PhD, Concepción	479
Perfitt, MBChB, Joel Stephen	185
Peterson, MD, Stacy	E1247
Petrides, PhD, Athena K.	E191
Pico-Espinosa, MD, Oscar Javier	61
Placido, MSc, Rodrigo V.	E511
Podestá, PhD, Márcia H.M.C.	E511
Podgorski III, MD, Edward	E407, E1137
Poilliot, MSc, Amélie	E317
Pontoh, MD, PhD, Ludwig Andribert Powantia	E1199
Prado, PhD, Roberto	E649
Prehn-Kristensen, MD, Alexander.....	359
Przkora, MD, PhD, Rene.....	83
Pulkki-Brännström, PhD, Anni-Maria	E1205

Q

Qian, CRNA, Xiao-Yan	E367
Qian, MD, Ji-Xian	E381
Qian, PhD, Xiang	E639
Qiang, MD, Hua	E117
Qiao, MD, Yang	E811
Qin, MD, Bangyong	E601
Qispe, MD, Rodrigo C	E973

R

Racz, MD, Gabor B.	S1, S27, S209
Rajput, MD, Kanishka	577
Rajput, MD, PhD, Kartic	S27
Ramachandran, PhD, Sujith.....	31
Ran, MD, Bing	E203, E433
Rana, MD, Maunak	E131
Ransohoff, BA, Jaime R.	E191
Reid, MD, Colin-Beals	577

Author Index

Rekatsina, MD, Martina E997
 Ren, MD, Hao 89
 Ren, MD, Huan E1255
 Reynebeau, MSc, Iris 309
 Rice, MSc, Danielle B. 61
 Riquelme, MD, Irene 193
 Rodrigues, MSc, Rafaela F. E511
 Roemmich, PhD, Ryan T. 517
 Rojas, MSW, Alexis M. 369, E1299
 Rojo, MD, Elena 479
 Romero-Garcia, MD, PhD, Carolina S. E1279
 Rong, MD, Yuluo E335
 Roose, MSc, Eva 309
 Rosenquist, MD, Ellen E131
 Ross, MD, Edgar L. 243
 Roushdy, MD, Al Shima Ismael E453
 Ruscheweyh, MD, Ruth E783

S

Sacaklidir, MD, Rekib E619
 Sachdeva, MD, Harsh E393, E1308, S1
 Şahin, MD, Fatih E595
 Sahni, MD, Sachin 525
 Sakata, PhD, Rioko K. E625
 Sakata, PhD, Rioko K. E625
 Salem, MD, Dina Abdelhameed Elsadek E989
 Salkar, MS, Monika 31
 Sam, MHSc, Jordan 525
 Samsonraj, PhD, Rebekah M. E117
 Şan, MD, Ayça Uran 319
 Şan, MD, Ayça Uran 319
 Sanapati, MD, Jaya 41
 Sanapati, MD, Mahendra R. 1, 41, 293, 401, 425, E539, S1, S27
 Sanchez, RN, Noelia 479
 Sánchez-Lite, PhD, Israel E631
 Santiago, BA, Kristen 101
 Santos, MSc, Rafaela S. E511
 Sanz, PhD, J. Javier Castrodeza E631
 Sato, MA, Naoko E299
 Saulino, MD, Michael 549
 Scarfo, DO, Keith-Austin 489
 Schaefer, MD, Carrie M. E111
 Schiff, MD, Gordon D. E191
 Scholten-Peeters PhD Gwendolyne E1177
 Seale, MD, Caleb 549
 Seddik, MD, Mohamed Ismail E743
 Seegers, MD, Valerie E211
 Seffinger, DO, Michael 175
 Sehgal, MD, Nalini S27
 Sekhar, MPharm, Boya Chandra E1
 Senapathi, MD, Sri Harsha Vardhan 401
 Sencan, MD, Savas E619
 Shah, MD, Shalini S1, S27
 Shaikh, MD, Safiya I. E37
 Shamshey, MD Chetna E1307
 Shan, MM, Yuzhou 441
 Shang MD, Hui-Jie E1191
 Shang, MD, Wei-lin E239
 Shanthanna, MD, PhD, Harsha 345
 Shao, Jinghan E425
 Shaparin, MD, Naum E521
 Shapiro, MD, Shane 263
 Sharma, MBBS, Manohar Lal S27
 Shen, MD, Ying 89
 Shen, MPH, Yun 417
 Shi, MD, PhD, Changgui E483
 Shi, MM, Xu E289
 Shin, MD Hye Kyung E1273
 Shin, MD, PhD, Hyeon Ju 235, E15
 Shin, MD, PhD, Jin-Woo 117
 Shin, MD, Young Jae 235
 Shintani, PhD, Ayumi E761
 Shiwlochan, MD, Devina 577
 Shustorovich, DO, Alexander 517
 Silva, MD, Otono E279
 Sim, MD, Ji Hoon 117, E51
 Simon, MD, Jeremy I. E821
 Simopoulos, MD, Thomas T. S27
 Sindel, MD, Dilsad E721
 Singh, MD, Anjali E1307
 Singh, MD, Jaspal R. 517
 Singh, MD, Mani 549
 Singh, DM, Varun K E733
 Singh, MD, Vanila S1
 Singh, MD, Vijay S27
 Snook, MD, Lee T. S27
 Sohn, PhD, Minji E249
 Soin, JD, Yasmeen E393, E1308
 Soin, MD, Amol 1, 293, E393, E1308, S1, S27
 Solanki, MD, Daneshvari 83
 Son, MD, PhD, Seong E467
 Song, MD, Ganjun E601
 Song, MD, Sung Kyu E467
 Song, MD, Tao 215
 Sorbero, PhD, Melony E. E61
 Staikou MD, PhD, Chryssoula E997
 Steinmetz, PhD, Neven E279
 Stemper, MS, Ian 263, E279
 Stone, MD, Shane S233
 Su, MD, Cheng E795, E877
 Su, MD, Qihang E349
 Su, MD, Qingjun E685
 Sud, MD, Abhimanyu 61
 Sudarshan, MD, Gururau E393, E1308
 Suetsugu, MD, Reiko E87
 Sumfest, MD, Jill M. 417
 Sun, BN, Li-Li E381
 Sun, MBBS, Jianfeng E955
 Sun, MD, Bin E483
 Sun, MD, Wei E101
 Sun, MD, Xing-Bing E1191
 Sun, MD, Yuefeng E1085
 Sun, MD, Zhuo E131
 Swicegood, MD, John R. S27
 Szabova, MD Alexandra 533

T

Talaat, MD, Esraa A. E453
 Talbert, PhD, Jeffery C. E249
 Tally, MD, William C. 465

Tan, MD, PhD, Jun	E349
Tan, MMed, Mingsheng	E955
Tanabe, MD, PhD, Kumiko	E87
Tang, MD, Pengyu	E335
Tang, MD, PhD, Jiaguang	E117
Tang, MM, Xiao-ting	E1059
Tantri, MD, PhD, Aida Rosita	E1199
Tao, BDS, Ran	E573
Tao, MD, Jiachun	145, E459, E1227
Temkit, PhD, M'hamed H.	E111
Ten-Esteve, Ing, Amadeo	E1279
Tezel, MD, Kutay.....	319
Theodosopoulou, MD, Polyxeni	E997
Thota, MD, Srinivasa	293, 425, E539
Tian, MD, Chenchen	345
Tian, MD, Xilaing	E1085
Tian, PhD, Shen	E803
Tomas, MD, Caroline.....	E221
Toranelli, Mireille	E317
Towbin, MD, Richard B.	E111
Tracy, MD, Deborah H.	S27
Tran, HBS, John	E177
Trescot, MD, Andrea M.	175, S27

U

Uematsu, MD, PhD, Hironobu	E761
Ülgen, MD, Ali Metin	E595
Urits, MD, Ivan.....	E45, E973
Urman, MD, Richard D.....	153

V

Van Oosterwijck, PhD, Jessica	E1163
van Wilgen, PhD, Paul.....	309
Vangala, MBBS, Bramha Prasad.....	293, 401, 425
Vasilopoulos, PhD, Terrie	83
Verhelst, PhD, Helena	E1037
Viel, MD, PhD, Eric.....	453
Vig, MD, Saurabh	379
Virk, BS, Zain M.	E191
Visnjevac, MD, Ognjen	525
Viswanath, MD, Omar	E45
Viswanath, MD, Omar	E973
von Piekartz, PhD, Harry	E857
Vouri, PhD, Scott M.	417
Vydra, MD, Darrell	549

W

Wan, MD, Cheng-fu	215
Wan, MD, Lei	E753
Wan, MD, Shuanglin.....	E803
Wan, MM, Ran	E289
Wang, BPharm, Xinyi	E309
Wang, BS, Mingcang	E161
Wang, BS, Yu	E161
Wang, MD, Hai-Feng	E1109
Wang, MD, Hong	E1085
Wang, MD, Huan	E381
Wang, MD, Jian	E433
Wang, MD, Jianhe	E1085
Wang, MD, Jiaying	E335
Wang, MD, PhD, Dan	E153

Wang, MD, PhD, Jhi-Joung	E849
Wang, MD, PhD, Jingping	E153
Wang, MD, PhD, Shan-Jin	E1015
Wang, MD Tao	E1255
Wang, MD, Tingting	145, E459
Wang, MD, Wenchao	E795
Wang, MD, Xiang-Fu	283
Wang, MD, Xiaodi	89
Wang, MD, Yang	E709
Wang, MD, Yansong	E289, E867
Wang, MD, Ying-Chih	E1237
Wang, MD, Yong	E367
Wang, MD, Zhiqiang	E709
Wang, MM, Jing	E753
Wang, MM, Yi-han	E1059
Wang, MS, Xiaodan	E161
Wang, PhD, Chi-Jane	203
Wang, PhD, Shan-Jin	E493
Wang, PhD, Xiao-Ping.....	E1025
Wargo, DO, Bradley W.	S27
Wei, MD, De	E573
Wei, MD, Fei-Long	E381
Wei, MD, Jian-Min	275, 283
Wei, MD, Jingchao	E1147
Wei, MD, Jun	E203, E433
Wei, MD, Tianli	E289
Wen, MD, Huai-Wei.....	203
Wen, MD, XinYuan	E433
Weng, MD, Wei-Teng	203
Weuster, MD, Matthias	359
Williams, MD, Christopher	E279
Williams, MD, John P.	E367
Wilson, DO, Gregory L.	465
Wolter, MD Tilman.....	165
Wong, MD, Chak-Bor	E1237
Worts, PhD, Phillip R.	369, E1299
Wu, BS, Jiaheng	E693
Wu, MBBS, FRCS, Pang Hung	E883
Wu, MD, Bei	E555
Wu, MD, Gui-Hao	E1025
Wu, MD, Jiang	E131
Wu, PhD, Jie	495
Wu, MD, Lan	E1155
Wu, MD, PhD, De-Sheng	E1015
Wu, MD, Qichao	E1291
Wu, PhD, De-sheng	E493
Wu, PhD, Yao-sen	E1059

X

Xie, MD, Jue	E1191
Xie, MD, Keyue.....	145, E459, E1075, E1227
Xie, MD, PhD, Peng	E601
Xin, MD, Jun	E795, E877
Xu, MD, Fuxing	E1255
Xu, MD, Guang-hong.....	E565
Xu, MD, Hao-Wei	E493, E1015
Xu, MD, Ling-Jun	E1025
Xu, MD, Longsheng	E459
Xu, MD, Ning	E483
Xu, MD, PhD, Guohua	E483
Xu, MD, PhD, Jijun.....	E131

Author Index

Xu, MD, Saijun..... 145
Xu, MM, Jia-jing E1059
Xuan, MD, PhD, Chengluan..... E153
Xue, MD, PhD, Qingsheng E1099

Y

Yamada, MD, PhD, Yoshitsugu E299
Yamaguchi, MD, PhD, Shinobu E87
Yan, MD, PhD, Wen E153
Yan, MD, Xiao-Dong E381
Yan, RN, Ni E1109
Yanez, PhD, David 577
Yang, MD, Chunwoo E327
Yang, MD, Jincai E685
Yang, MD, Jun E203, E433
Yang, MD, Jun-Song 275, 283
Yang, MD, PhD Jian-Jun E1191
Yang, MD, Lihui E1291
Yang, MD, PhD, Mingjie E349
Yang, MD, PhD, Seoyon E771
Yang, MD, PhD, Yi 31
Yang, MD, Zhaodong E425
Yang, MD, Zhen E477
Yang, MM, Jian E1059
Yao, MD, PhD, Ming E1075, E1227
Yao, Ming E425
Yao, PhD, Ming E459
Yao, PhD, Peng 587
Ye, MD, PhD, Xiaojian E483
Yi, MD, Yu-yang E493, E1015
Yılmaz, MSc, Sevilay Tümkaya 335
Yin, MD, Guoyong E335
Yin, MD, Peng E685
Ying, MD, Shen E1263
Yoon, MD, Edward S. 465
Yoon, MD, Ju Hyun 507
Yoon, MD, Syn-Hae E51
Yoshimura, MD, PhD, Noritaka E87
You, MD, PhD, Hae Sun 235
Young Gil, MD, Ho E669
Youssef, MD, Hamdy Abbas E443
Yu, MD, PhD, Buwei 253, E1099
Yu, MD, PhD, Panfeng E117
Yu, MD, Shunzhi E335
Yu, MMed, Hui E955
Yu, PhD, Pengfei E639
Yu, PhD, Zhenhan E639
Yuan, MD, Shuo E1291
Yucuma, MD, Daniela 193

Z

Zan, MD, PhD, Pengfei E117

Zang, MD Lei E1291
Zeng, PhD, Junwei E601
Zhai, MD, Jinshuai E1147
Zhang, MD, Bo 283
Zhang, MD, Feng E1109
Zhang, MD, Jingwei E1099
Zhang, MD, Liang 441
Zhang, MD, Long E1147
Zhang, MD, Man-Yu E367
Zhang, MD, PhD, Tijiang E601
Zhang, MD, Shu-bao E493, E1015
Zhang, MD, Wenjie 441
Zhang, MD, Xifeng E117
Zhang, MD, Yonghan E601
Zhang, MD, Zhiqiang E1227
Zhang, MD, Zi-Long 275
Zhang, MM, Jie E753
Zhang, MMed, Li E955
Zhang, MMed, PhD, Ming E317
Zhang, PhD, Wensheng E1155
Zhao, MD, Chunmei 89
Zhao, MD, Guosheng E709
Zhao, MD, Hong-liang E239
Zhao, MD, Qian-Nan E367
Zhao, MD, Wen-li E555
Zhao, MD, Xiangde E803
Zhao, MD, Yuan-Ting 275, 283
Zhao, PhD, Jinmin E693
Zheng, MD, Baosen 253
Zhong, MD, Chen E477
Zhong, MD, Qiong E203, E433
Zhou, MD, Cheng-Mao E1191
Zhou, MD, Cheng-Pei E381
Zhou, MD, Zhen-feng E555
Zhou, MM, Yan-nan E565
Zhu, MD, Alyssa C. E131
Zhu, MD, Jianjun 145, E459, E1075, E1227
Zhu, MD, Jungao E803
Zhu, MD, Kai-Long E381
Zhu, MM, Ding-chao E1059
Zhu, MM, Lei 441
Zhu, MS, Lijun E161
Zhu, MD, Wenyi E1291
Zhu, PhD, Yu E639
Zhuang, MD, PhD, Lei 253, E1099
Zipu, MD, Jia E1263
Zou, MD, Peng 283
Zugasti, PhD, Aitor Martin-Pinado 135
Zuo, MD, You-mei E565
Zwirner, MD, Johann E317

2021 Index by Key Words

36-Item Short Form Health Survey..... 215

A

abdominal pain..... E45
 abuse E231
 acetaminophen..... E153
 acupuncture E269
 acute pain..... E131, E309, E753, E1191
 addiction E529
 adenocarcinoma E583
 adhesiolysis..... 359
 adjacent fracture E685
 adult degenerative scoliosis E867
 adult sinuscopy E743
 adverse effects S233
 AHRQ 327
 allograft supplementation..... 465
 amitriptyline E511, E733
 amygdala E1099
 analgesia 345, E161, E625, E693
 analgesics E95
 anger 309
 animal model E573
 anterior transcorporeal approach E811
 anteroposterior E1129
 antialldynic effect E511
 anticoagulant E821
 antiplatelet E821
 antithrombotic E821
 anxiety 165, E1255
 AO type A3 fractures E631
 arterial spin labeling E601
 arthritis S233
 arthroplasty 193
 arthroscopic shoulder surgery 507
 attention-deficit/hyperactivity disorder E299
 axial low back pain S209

B

back pain 359, E23, E45, E477, E649
 back surgery E1219
 baclofen 489
 bariatric surgery 345
 Barrow Neurological Institute Pain Intensity Score..... 89
 basivertebral nerve E883
 Bayesian analysis..... 73, E1, E955
 behavioral health navigator..... 369
 biologics 101
 biomarkers..... 525
 biopsychosocial E1299
 BMAC 263
 BMC 263
 bone cement E101, E477
 bone marrow aspirate..... 263
 bone marrow concentrate..... 263, E279
 bone marrow edema E279

bone marrow lesion E279
 bone mineral density E317, E803
 bone mineralization E317
 botulinum toxin A..... E955
 bowel function E997
 brachial plexus block..... 235, E15, E693
 brain imaging E1037
 breast surgery..... 203
 brisement manipulation 507
 bull's eye sign E639
 bupivacaine 489, 549
 burst E407
 burst fracture E631, E685

C

cancer 31, 309, E1137
 cancer pain E211, E583
 capsaicin..... 453
 carpal Tunnel Syndrome E453
 catheter E1137
 cauda equina syndrome E357
 caudal E821
 caudal epidural injections..... 1, 425, E539, S27
 Cav2.2 153
 cement augmentation E221
 cement leakage E685
 cement nonunion E221
 central post-stroke pain E771
 central sensitization 185
 cerebral blood flow E601
 cerebral oxygen saturation epidural..... E1007
 cervical disc herniation E811
 cervical discectomy E811
 cervical disease E839
 cervical ganglion block 533
 cervical interlaminar epidural..... 1, S27
 cervical plexus block 533
 cervical radicular pain..... 117
 cervical radiculopathy E483
 cervical spondylotic myelopathy E203
 cesarean Section E443
 chemical lumbar sympathectomy E459
 chest pain E45
 Chinese modified Oswestry Disability Index..... E349
 chiropractic visits E61
 chronic..... E111
 chronic back pain E23
 chronic hip pain E611
 chronic knee osteoarthritis 127, E1067
 chronic low back pain..... 41, 73, 425, E61, E185, E521, E539
 chronic migraine E733
 chronic musculoskeletal pain..... 495
 chronic neck pain E61
 chronic noncancer pain..... 31, 185
 chronic nonspecific low back pain E299
 chronic opioid therapy 417
 Chronic opioid use 577

chronic pain 61, 117, 127, 165, 169, 185, 193, 293, 335, 369, 441, 525, 549, E45, E51, E75, E131, E191, E299, E393, E529, E753, E849, E1037, E1163, E1191, E1205, E1279, E1299

chronic pain management 479

chronic pain prevention E753

chronic pelvic pain E367

chronic restraint stress E1099

chronic spinal pain 1, S27

chronic widespread pain 175

CIED 169

Cigarette 495

clinical decision support E191

clinical outcome E1291

clinical practice guidelines S1

clonidine 489, 549

coeliac plexus block 379

coeliac plexus neurolysis 379

cognitive impairment E849

cohort study 31

cold hypersensitivity in hands and feet E459

combined therapy E511

comorbidities E1291

comparative effectiveness research (CER) S1

comparative study 453

compensatory mechanisms 243

complex regional pain syndrome E393, E771

compliance monitoring E191

complication E467

compression fracture E221

compression injury E573

computed tomography E317, E357, E493

computed tomography-guided E203, E459

conflict of interest S1

confluence of interest S1

connectivity E1037

Conners' Adult ADHD Rating Scales (CAARS) E299

conservative treatment E639

continuing medical education E529

continuous E1137

continuous radiofrequency 89

contralateral oblique view E51

contrast spreading length E327

conventional medical management 479

coping E1163

corticosteroids 517, S233

cortisone S233

cost analysis 489

cost-effectiveness E1205

costal pain E795

cost-to-charge ratio 327

counselling 309

COVID-19 pandemic 165, 319

craniofacial pain E857

cross-cultural E857

CSF leakage 571

CT navigation E433

cytokines 525

D

deficiency E1015

degeneration E357

degenerative disc disease 465, E649

degenerative joint disease E611

degenerative lumbar disease 441

delphi method 263

dementia E849

denervation E625

depression 61, 165, E1099, E1255

dermal puncture E31

dexamethasone 517, E693

dexmedetomidine E565, E997, E989

diabetic painful neuropathy E1

diagnostic E483

diagnostic blocks 185

diagnostic criteria E1177

diagnostic error E191

diameter E1273

diaphragm 507

diet 335

disability 135, E857

disc disease 359

disc herniation 359, S209

discectomy E467

discharge diagnosis 327

discogenic back pain 465, E883

discogenic groin pain E289

discography 101

distant pain E349

distribution of bone cement E101

dorsal root ganglion E407

drug resistance 243

drug utilization 417

dry needling 135

duloxetine E511

E

education 309

EEG E1037

efficacy E75, E381

ELEVATE study 453

end-of-life E1137

endoscope E867

endoscopic E433

enhanced recovery after surgery 345

epidural 359, E669, E595

epidural analgesia E51

epidural blood E1155

epidural blood patch 571, E443

epidural fibrosis E1219

epidural hematoma E821

epidural injection 17, 41, 425, E539, E821, E839

epidural procedures 1, S27

epidural steroid injection 101, 117, S209

epiduroscopy E1219

epiduroscopic laser neural decompression E595

erector spinae plane block 203, E161, E1109

evidence based medicine E1

evidence synthesis S1

evidence-based medicine (EBM) S1

expenditures 401

extension study E75

extension of posterior instrumentation E1237

Key Word Index

eye color E783

F

FAAH 153
facet joint E521
facet joint block 283
facet joint procedure 101
facetogenic pain 517
facial bone CT E1273
failed back surgery syndrome 479, E23, E1219, E1279
failed back syndrome 359
fasciculation E743
fentanyl 489, E829, E989
fibrin glue post dural puncture headache E211
fibromyalgia 175, 185
fibromyalgia diagnostic criteria 185
fluid volume E595
fluoroscopy 117, E51, E327
fluoroscopy-guided percutaneous vertebroplasty E1237
focal neuropathic pain E407
foramen ovale 587, E425
foramen passage time E1129
foramen rotundum 587
full endoscopic surgery E467
full-endoscopic E203
full-endoscopic decompression E239
functional connectivity strength E601
functional improvement E185

G

ganglia 525
gastrointestinal adverse drug events E309
gastrointestinal surgery E1191
gene therapy 153
genicular block 185
genicular nerve E177
geriatric patients E1291
german version E857
giant E639
glucocorticoids E87
graph theory E1037
greater occipital nerve block 533
growth factors E649
gynecological surgery E997

H

HCUP 327
headache E733, E857, E973, E1155
head-mounted video display 83
health policy evaluation 417
healthcare utilization E61
hemidiaphragmatic paralysis 235
hemidiaphragmatic paresis 507
hemoglobin A1c 175
herpes zoster 253, E669, E1109, E1227
heterogeneity E1155
hierarchical linear modeling E61
high frequency E407
high-intensity zone E883
highly migrated lumbar disc herniation E433
high-voltage PRF combined with low-temperature continuous

radiofrequency 89
hip denervation E611
hip replacement 193
hospice E211
hospital anxiety and depression E1109
hospital resource utilization 327
hounsfield units E317, E493
hub gene E573
hydromorphone 489, E829
hygiene measures 165
hyperacusis E783
hyperalgesia 525
hyperglycemia E87
hypervigilance E783
hypovitaminosis D E1015

I

iatrogenic injury E1155
ibuprofen E1199
ICH3 E1177
IL-6 153
imaging biomarker E1279
immune function S233
immunomodulation 525
implantable drug pump 489
incision E1099
infection incidence 101
infections S233
infectious complications 101
inflammatory markers E1015
inflation-adjusted 401
injection 263, E279, E669
injection therapy E45
instrumented vertebral fracture E1237
insulin resistance 175
insurance coverage E61
integrated behavioral health E1299
intercostal neurectomy E1147
interlaminar 117, E839
interlaminar epidural injections 425, E539
interleukin E1015
interscalene block 235
interscalene brachial plexus block 507
interventional pain management 185, S1, E1205
interventional spine procedure 101
interventional techniques S27
intervertebral disc 465
intervertebral disc degeneration E649
intervertebral foramen E795
intraarticular E279
intraarticular bupivacaine E989
intracranial hypotension 571
intracranial pressure E595
intradiscal injection 465
intradiscal therapies 101
intraosseous E279
intrathecal pain management 489
intrathecal therapy 549, E211
intravascular incidences E1129
intravenous E693
intra wound treatments E709

J

joint S233

K

Kaplan-Meier analysisE1263
ketorolac E829
kinesiotape E721
knee arthroscopy E989
knee osteoarthritis E269, E279, E761
kyphoplasty401, E221, E349, E631

L

lab values E95
lateral decubitus position E327
lateral femoral nerve E611
lateral obturator nerve E611
lateral view E51
lidocaine E997
ligament flavum E1119
linear mix model E357
liquid chromatography-tandem mass spectrometry E191
local anesthetic 41, 425, 507, E539
local bone destruction progression E101
logistic regression E1075
long-term 31, E75
long-term follow-up E1263
loperamide E37
low back pain 319, 465, 489, E75, E357, E625, E1219
low-dose naltrexone E393
lumbar central stenosis E1119
lumbar disc herniation 17, 425, E117, E357, E381, E467, E619, E639, E877
lumbar exercises 223
lumbar foraminal stenosis E1119
lumbar fusion E161
lumbar instability E1291
lumbar interlaminar epidural 1, S27
lumbar puncture E31
lumbar radiculopathy 425, E539
lumbar spinal stenosis E1119
lumbar spine E467
lumbar spine surgery E1085
lumbar stability E867
lumbar transforaminal epidural S27
lumbar transforaminal epidural procedures 1
lumbosacral pain E349
lysis of adhesions 359

M

machine learning E1279
manual therapy 223
marketing messages E529
McNab criteria E839
mechanical sensitivity E1177
medial branch 283
medial branch block 185, 533, E1059
medial branch nerve block E521
mediation E1015
Medicare 31
Medicare expenditures 1

medication use 309
meditation 61
meta-analysis... 203, 441, 495, E693, E1085, E1155, E1177, S1
methodological quality assessment S1
methylprednisolone E453
microendoscopic discectomy E117
microscopic decompression E867
microscopic surgery E467
microsurgery 275
midline E839
mid-thoracic E51
migraine E111, E733, E1177
mind-body 61
minimal invasion E111, E867, E1147
minimally invasive E1237, E1299
minimally invasive procedures 275
minimally invasive surgery E239, E381, E811
minimally invasive transforaminal lumbar interbody fusion .. 441
misuse E231
morphine 489, 549, E37
morphine consumption E1199
motivational interviewing 309
motor nerve 253
mPGES-1 153
MRI E1037
multidisciplinary 369, E1299
multifidus muscle E883
multi-lesion E185
multimodal analgesia 345, 577, E829, E1199
multiple injection E15
multiple sclerosis E771
muscle inhibition technique E721
muscle paresis 253
muscle strength 253
musculoskeletal 263
musculoskeletal pain E1163
myofascial pain E601
myofascial pain syndrome E721
myofascial trigger point pain E721

N

narcotic scores 577
NARX score 577
Nav1.7 153
neck muscles 135
neck pain 135, E857
needle E31
needle phobia E31
nerve block 83, E45, E111, E669
nerve blockade E87
nerve stimulation E177
network meta-analysis 73, E1, E709, E381, E955
neural compression E1119
neuralgia 525, E669
neuraxial block E31
neurodevelopmental disorders E299
neurogenic claudication E1247
neuroimaging E1279
neuroinflammation E1099
neuromodulation E131, E407, E1247
neuropathic pain 453, 587, E501, E511, E771, E1109

Key Word Index

neuropathy E45
neuroscience education 309
neurotransmitter 525
neurovascular coupling E601
NGF 153
NHANES E95
nicotine 495
NIS 327
NLRP3 E1099
nociceptive stress E565
nociceptors 525
nondiabetes mellitus patients E87
noninvasive intracranial pressure E661
noninvasive stimulation E733
nonmidline pain E349, E795
nonpharmacological treatment E733
nonspecific low back pain E1015
numbness 89, E357
Numeric Rating Scale 215, E299, E839
nutrition 335

O

oblique E1129
observational study 479
occipital nerve block E443
ODI score E117
older adults 31
ondansetron E829
opioid analgesics E309
opioid antagonist E393
opioid consumption E997
opioid dose E161
opioid use E95
opioid use disorder 327
opioid-induced adverse drug events E309
opioid-related side effects E153
opioids 31, 73, 243, 309, 369, E191, E231, E529, E1155
opioid-sparing E565
opioid sparing adjuncts 577
opioid-sparing analgesia 345
optic nerve sheath diameter E595, E1007
orthobiologic 263
orthopedic 263
orthopedic procedures E309
orthostatic headache 571
ossification of thoracic ligamentum flavum 275
ossified ligamentum flavum E239
osteabsorptiometry E317
osteoarthritis E75, E1025
osteonecrosis E477
osteoporosis 401, E335, E493, E685, E803, E1237
osteoporosis fracture E795
osteoporotic compression fracture 401
osteoporotic vertebral compression fracture ... 283, E349, E1059
outcome E467
oxycodone E309, E829
ozone E367, E453

P

p53 E1025
paddle leads with laminectomy 293

pain 283, 345, 453, E31, E583, E761, E877, E1137, S233
pain beliefs E1163
pain clinic E299
pain cognitions E1163
pain duration E299
pain emotion E1163
pain management. 117, 193, 369, E51, E95, E583, E669, E761
pain measurement 453
pain score E1199
painful ulcer E37
painkillers 243
palliative care E191, E211
palliative treatment E101
pancreatic cancer 379
pancreatic carcinoma E583
pancreatic neoplasms E583
paracetamol E1199
paramedian E839
paramedian approach E327
parasagittal 117
paravertebral block 203
patch E1155
patient outcome assessment 453
patient satisfaction score 89
patient-controlled analgesia E829, E1085
pediatric E111
pediatric surgery E555
PENS 135
perceived injustice 309
percutaneous adhesiolysis 17, S27
percutaneous balloon compression E1255
percutaneous cement augmentation E1237
percutaneous endoscopic E1147
percutaneous endoscopic cervical foraminotomy and discectomy...
E483
percutaneous endoscopic lumbar discectomy E877, E1291
percutaneous endoscopic spinal surgery 275
percutaneous endoscopic transforaminal lumbar interbody fusion
441
percutaneous full-endoscope E811
percutaneous intravertebral expandable titanium implant . E631
percutaneous kyphoplasty 283, E685, E803, E1059
percutaneous transforaminal endoscopic discectomy E117, E289
percutaneous vertebral augmentation E493
percutaneous vertebroplasty E101
pericranial muscles E1177
perineural E693
perioperative analgesia 203
perioperative pain management E153
peripheral nerve block E177
peripheral nerve stimulation E131
peritoneal perfusion E367
persistent pain E1025
personalized medicine E783
petroclival junction E341
phantom pain E771
pharmaceutical industry E529
pharmacokinetic E511
photophobia E783
phrenic nerve 507
physical activity 319

physical function E61
 physiopathology E583
 physiotherapy 135, E269
 pin-prick pain E31
 placebo E761
 placebo effect..... 41
 plantar fasciitis E955
 plasma rich in growth factors E649
 platelet-rich plasma.....127, E279, E649
 polyanalgesia 549
 post lumbar surgery syndrome S209
 postdural puncture E1155
 postdural puncture headacheE443, E661
 posterior elements..... 283
 posterior sacroiliac complex E185
 posterolateral E203
 postherpetic neuralgia253, E1109, E1227
 post-neuromy neuropathic pain 517
 postoperative 345, E161
 postoperative analgesiaE989, E1085
 postoperative myalgia E743
 postoperative opioid consumption E153
 postoperative pain . 577, E231, E309, E501, E555, E783, E997, E1099
 post-surgery syndrome..... 17
 prediction E783
 preemptive analgesia E153
 pregabalin453, E501, E511
 preoperative opioid use 577
 prescribing behavior E529
 prescription opioids.....417
 prevalence E583
 PRF 89
 primary care E191
 primary trigeminal neuralgia 587
 prophylaxisE733, E1155
 psychological 369
 psychometric validation E857
 pterygopalatine ganglion block 533
 public health 495
 pulse generator implant.....293
 pulsed radiofrequency.....127, 215, E1227, E1263
 pulsed radiofrequency treatment 525, E761

Q

quadratus lumborum blockE555, E1191
 quality of life..... 89
 QALY gainedE1205
 questionnaire E857

R

radiation exposure E1129
 radicular pain..... 117, E1119,
 radiculopathy..... 359
 radiofrequencyE625, E1067
 radiofrequency ablation 517, E169, E883, E973
 radiofrequency denervationE185, E611, E1205
 radiofrequency thermal annuloplasty E289
 radiofrequency thermal rhizotomy E341
 radiofrequency thermocoagulation 145, 587
 ramosetron E829

randomized clinical study..... 83
 randomized clinical trial E269
 randomized controlled study E161
 randomized controlled trial203, E693, E761
 randomized controlled trials E955
 ratE573, E1099
 rate E595
 rats E511
 RCT 359
 receptors 525
 recovery E997
 recurrence E467
 recurrent trigeminal neuralgiaE1255
 reflex sympathetic dystrophy E393
 refractory intercostal neuralgia..... E1147
 regenerative medicine 263, E649
 regional E31
 regional anesthesia 83, 577
 regional block..... 83, 345
 regression analysis E669
 rehabilitation 309
 reliability E857
 religiosityE1163
 remifentanyl E565
 REMS E529
 repetitive transcranial magnetic stimulation E23
 residual back pain E1059
 resiliency..... 369, E1299
 resorption E639
 resting-state functional magnetic resonance imaging E601
 review 193
 risk 495
 rs-fMRI E1279
 risk factor E335, E1075
 RNA-seq E573
 ROC curve E669
 ropivacaine E161

S

sacroiliac E317
 sacroiliac joint.....223, E357, E625
 sacroiliac joint arthrodesis E317
 sacroiliac joint dysfunction E317
 sacroiliac joint dysfunction syndrome 223
 sacroiliac joint exercises.....223
 sacroiliac joint fusion E317
 sacroiliac pain E185
 safety E75, E381, E821
 saphenous nerve E761
 sciatica425, E357, E539
 secondary fracture E335
 segmental zoster paresis 253
 selective nerve root block 533, E483
 selenium E743
 senses E783
 sensory over-responsivity..... E783
 short-term spinal cord stimulation..... 215
 ShotBlocker E31
 shoulder rotation E327
 side effects E555
 simplicity probe..... E185

Key Word Index

sinuvertebral nerve E883
sirtuin 1 E1025
sleep disorders E1255
sleep quality E1109
slipped rib E45
smoking 495
social isolation 319
sodium chloride solution 41
somatic symptom disorder E299
space correction technique E721
sphenopalatine E111
sphenopalatine ganglion block E443, E661
spinal 525
spinal anesthesia E31
spinal cord injury E771
spinal cord stimulation 293, 479, E407, E1247, E1279
spinal cord stimulation trial 293
spinal dorsal ganglion 253
spinal dorsal horn E1025
spinal pain 293, E61, S209
spinal stenosis 17, E1247, S209
spinal surgery E501
spine E221, E709, E1291
spine intervention 319
spondylolisthesis E1291
stability E829
steroids 41, 425, E539, E821
stress 165
strip lesion E185
structural imaging E1279
study protocol 89
subchondral bone plate E317
substance use disorder E191
succinylcholine E743
superior trunk block 235
supraclavicular block E15
supraorbital foramen 145, E1273
supraorbital notch E1273
supraspinal mechanisms E1279
surgery E709
surgical approaches E381
surgical outcome E211
surgical site infection E709
survivor 309
survivors of cancer 335
sympathetic nerve E795, E1075
systematic review 73, 441, S1

T

tapentadol E309
tapentadol prolonged release E75
technical report E177
temporomandibular disorders E857
tenderness E1177
TENS 135
tension-type headache E1177
terminal E1137
therapeutics E669
thermocoagulation E1075, E1227
thoracic epidural analgesia E753
thoracic epidural blockade E327

thoracic interlaminar epidural 1, S27
thoracic myelopathy 275, E239
thoracic paravertebral block E753
thoracic vertebrae E795
thoracolumbar interfascial plane block E1085
thoracotomy E753
three needles E1067
tissue engineering E649
TKA E1199
tobacco 495
transcranial direct current stimulation E771
transcranial doppler E661
transcranial magnetic stimulation E733
transcriptome E573
transforaminal 117
transforaminal epidural injection 425, E539, E1129
transforaminal epidural steroid injection E619
transforaminal foraminoplasty E1119
transforaminal injection S209
transverse ligament E1119
transversus abdominis plane block 345
trapezius E721
trauma E433
traumatic thoracolumbar fractures E631
treatment outcome E669
treatment success E619
trends 31
triangular plexus E341
trigeminal ganglion E425
trigeminal nerve block 533
trigeminal neuralgia 89, 145, E341, E425, E573, E771, E1263
trigeminal root entry zone E573
trigger points 135
TRPV1 153

U

ultrasonic osteotome 275, E239
ultrasonography E595
ultrasound 83, 235, E15, E177
ultrasonography 507
ultrasound-guided E761, E1191
umbrella review 61
uncertainty E483
urine drug testing E191
utilization 401
utilization trends of expenditures 293

V

VAS score E117, E1085
vascular access 83
ventral epidural spread E839
ventral interlaminar line E51
vertebral E335
vertebral augmentation 401, E349
vertebral compression fractures E803
vertebral fracture E493
vertebral fracture cleft E221
vertebral metastases E101
vertebroplasty 401, E221, E349, E477
vertical interpedicular distance E327
viable disc tissue allograft 465

visual analog scaleE161, E877, E955
vitamin D..... E1015
vitamin D deficiency E619
volume E1007

W

weakness E357

Y

yoga 61

Z

ziconotide 549
zoster infection 253
zoster-related pain 215
zygapophyseal joint pain..... E1205