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The anatomy of lumbar dorsal ramus nerves and its significance in lower back pain

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This presentation will review the anatomy of the spinal dorsal ramus system and its implication of lower back pain, including clinical findings, pathogenesis and treatment. Each spinal dorsal ramus arises from the spinal nerve and then divides into a medial and lateral branch. The medial branch supplies the tissues from the midline to the zygapophysial joint line and innervates two to three adjacent zygapophysial joints and their related soft tissues. The lateral branch innervates the tissues lateral to the zygapophysial joint line. The clinical pain presentations follow these anatomic distributions, which can be used for localizing the involved dorsal ramus. The diagnosis can be confirmed by performing a single dorsal ramus block that results in relief of pain and muscle spasm. Etiologically, any factor that stimulates the spinal dorsal ramus can cause low back pain, which is distinct from zygapophysial joint syndrome. Clinically, L1 and L2 are the most common sites of dorsal rami involvement. Treatment includes spinal dorsal ramus injection therapy and percutaneous neurotomy. We will present our recent clinical study of lumbar vertebra compression fracture induced lower back pain and outcome of treatment. Summarily, irritation of the spinal dorsal ramus system is a potential source of low back pain. Based on the anatomy and clinical presentation, the involved spinal dorsal ramus can be localized and treated.

Biography

Linqiu Zhou has received his bachelor degree of medicine and master degree in orthopaedic spinal surgery in China during the periods of 1979 to 1984 and 1987 to 1990. He completed an orthopaedic residency and spine fellowship in China before moving to the United States. He worked for several years as a visiting scholar at MCP Hahnemann University, before completing his second residency in Physical Medicine and Rehabilitation at the University of Pennsylvania. After that, he received his pain fellowship training at Thomas Jefferson University. He is board certified by the American Board of Physical Medicine and Rehabilitation, and is also board certified in Pain Management. Dr. Zhou has extensive experience in the basic and clinical research and with the diagnosis and treatment of spinal and musculoskeletal disorders, and various pain syndromes. His research has included cryoanalgesia, spinal dorsal ramus anatomy and clinical implication, cervicogenic headache, pudendal neuralgia. Dr. Zhou teaches in several medical universities as a professor, and has published more than 40 articles and chapters. He is serving as an editorial member of several journals and expert Reviewers for Journals like Neuromodulation. He also invented several medical devices and received numerous awards and honours.

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