

Pain Management Strategies & Therapeutic Options in the Rehabilitation Setting

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A variety of neurological and musculoskeletal conditions are treated in the rehabilitation setting, and people with disabilities are vulnerable to myriad causes of pain. Musculoskeletal structures (bone, ligaments, tendons) are often damaged in weight-bearing joints affected by osteoarthritis and in small joints of the hand and wrist in rheumatoid arthritis. Amputations often result in pain at the residual limb (due to neuromas and skin problems) as well as phantom pain in the part of the limb that has been removed. Disc disease of the spine can compromise small joints in the spinal column and also compress nerve roots. Patients with brain injuries are vulnerable to headaches. After a stroke, patients are at risk of the “hemiplegic shoulder” as well as painful contractures. These and other painful conditions lead to problems with function, sleep, and depression as well as a general decline in quality of life.

Treating pain in the rehabilitation setting often requires a combination of approaches: modalities such as ice, heat, electrical stimulation, and ultrasound; oral, topical, or intra-articular pharmacotherapy; neuromodulation with implanted neural stimulators; and referral for surgical procedures such as arthroscopies and arthroplasties. The authors who have contributed to this special issue of the *Rhode Island Medical Journal* provide a wide range of therapeutic options for pain management to help patients with disabilities. As we contend with the opioid epidemic, these options for optimal pain therapies need to be fully explored.

DR. JACOB MODEST and his co-authors note that the prevalence of post-amputation pain is rising, and almost all people with amputations experience residual limb and/or phantom pain. They discuss the mechanisms and review medication options (tricyclic antidepressants, gabapentin, opioids – with precautions, ketamine, local anesthetics); rehabilitation therapies including mirror visual feedback; cognitive behavioral therapy; and surgical approaches such as neuromodulation and surgery for neuromas.

ALEX HAN (Brown University medical student) and **DR. ALEXIOS G. CARAYANNOPOULOS** review spinal cord stimulators for chronic neuropathic pain disorders, including failed back surgery syndrome (FBSS), complex regional pain syndrome, neuropathy, and radiculopathy. A growing body of literature supports these minimally-invasive stimulators as a safe therapeutic option that can reduce pain and disability, especially in difficult cases of neuropathic pain that are complicated by medication side effects, drug tolerance, or the risks of re-operation.

DR. SHASHANK DWIVEDI and his co-authors (residents and attendings in Orthopedic Surgery at Rhode Island Hospital) have contributed articles on surgical approaches for osteoarthritis and rheumatoid arthritis. Both articles describe the mechanism of damage to joints and surrounding connective tissue structures, which sets the stage for a variety of surgical treatments. The wide-ranging article on osteoarthritis discusses therapeutic options including aerobic exercise, resistance training, weight loss, nonsteroidal anti-inflammatory drugs (NSAIDs, both oral and topical), and tramadol. In addition, Dr. Dwivedi and his co-authors did a literature search and found evidence that suggests a lack of efficacy for glucosamine, chondroitin sulfate, hyaluronic acid, acupuncture, and lateral wedge insoles. This information will help with educating patients about the scientific basis for various remedies that often turn up in internet searches. The article on rheumatoid arthritis focuses on surgical treatment and methodically explores options (tendon transfers, arthroplasty, arthrodesis) for joint damage at the wrist, metacarpophalangeal joints, and inter-phalangeal joints.

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