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Novel of extracorporeal shockwave therapy and high-power laser therapy in musculoskeletal pain conditions

Rehabilitation management of musculoskeletal pain conditions are challenges. Most patients developed chronic pain conditions since inadequate management during acute pain phase. Currently, extracorporeal shock wave therapy (ESWT) and Class IV lasers or high-power laser therapy are novel therapy for these conditions. Interestingly both therapies with different actions and mechanisms have same benefits on musculoskeletal pain conditions and considered as regenerative medicine therapies. The evidences of safety, efficacy and good patient compliance made both therapies to be increasing popular in the worldwide. ESWT has become one of the best investigated treatment modalities for various conditions of the musculoskeletal system such as myofascial pain syndrome, tendinopathies and osteoarthritis, etc. An optimum treatment protocol for ESWT appears to be three treatment sessions at one-week intervals, with 2000 impulses per session and the highest energy flux density that can be applied. The proposed mechanisms for the benefit of ESWT on musculoskeletal tissue include direct effects on tissue calcification, alteration of cell activity through cavitation, acoustic micro streaming, hyper vascularity and blood flow increment, alteration of cell membrane permeability and effects on nociceptors through hyper stimulation, blocking the gate control mechanism. Class IV lasers or high-power laser therapy offers better therapeutic outcome compared to Class III lasers as follows: (1) Larger dosages of therapeutic energy, (2) Deeper penetration into the body, (3) Larger treatment surface area, this is important when treating large regions, such as the lumbar spine, quadriceps or hips, (4) Greater power density, (5) Continuous power supply and (6) Superior fiber optic cables: Fiber optic cables transmit laser energy from the laser to the treatment probe (wand) at the end of the cable. The beneficial effects of ESWT and high-power laser therapy on musculoskeletal tissues are anti-Inflammation, analgesic, accelerated tissue repair and cell growth, improve vascular activity, release trigger points and desensitization and reduce fibrous tissue formation. In conclusion, ESWT has been proven for more than 20 years as effective and safe noninvasive treatment option for tendon and other pathologies of the musculoskeletal system in a multitude of high-quality RCTs. High power laser therapy is by far the most exciting new clinical treatment to advance physical medicine in the 21st century anti-inflammatory and analgesic effects. It offers better therapeutic outcome compared to Class III lasers which has been using for a long period of time with little impressive outcome. High power laser therapy is newer therapy and increasing evidences.

Biography

Areerat Suputtitada is a Professor of Physical and Rehabilitation Medicine. She is the Chairperson of Neurorehabilitation Research Unit at Chulalongkorn University and Chairperson of Excellent Center for Gait and Motion at King Chulalongkorn Memorial Hospital in Thailand. She was invited as international speaker for more than 60 times around the world. She has received 18 international and national awards and published more than 60 international and national articles in the areas of her expertise including neurological rehabilitation, spasticity and dystonia, gait and motion and pain. She is an expert clinician in ESWT for various indications in the field of physical and rehabilitation medicine. She has been elected and appointed to important positions at ISPRM such as the Chair of Women and Health Task Force and the International Exchange Committee.

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