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Spinal segmental sensitization and myofascial pain syndrome: Evidences and experiences

Sensitization in corresponding spinal segments plays a major role in the formation of continuous pain in a given part of the body. The term called by Professor Andrew A. Fischer for this phenomenon is “spinal segmental sensitization” (SSS). Chronic pain is contributed by sensitization of spinal nociceptive neurons, regardless of the original provoking events. SSS is a hyperactive state of the spinal cord caused by irritative foci sending nociceptive impulses from a sensitized damaged tissue to dorsal horn neurons. The clinical manifestation of dorsal horn sensitization includes hyperalgesia of the dermatome, pressure pain sensitivity of the sclerotome and myofascial trigger points within the myotomes, which are supplied by the sensitized spinal segment. In Myofascial pain syndrome (MPS) first described by Professor Janet G Travell and Professor David G Simons, active myofascial trigger points present lower pressure pain threshold when compared to people with no pain or the presence of only latent trigger points. There are significant elevated levels of substance P, calcitonin gene-related peptide (CGRP), bradykinin, tumor necrosis factor- α (TNF- α) and interleukin-1 β (IL-1 β), serotonin, and norepinephrine in the vicinity of the active myofascial trigger point. Overall, pH was significant lower in the active trigger point. Treatment rationale and techniques may evolve from this information, and should be taken into account when dealing with chronic patients with amplified pain responses. The mechanism consists of the nociceptive stimuli generated in the sensitized areas bombarding the dorsal horn of the spinal cord. This causes central nervous system sensitization with resultant hyperalgesia of the dermatome and sclerotome and spreads from the sensory component of the spinal segment to the anterior horn cells, which control the myotome within the territory of the SSS. The importance of SSS is emphasized by the fact that it is consistently associated with musculoskeletal pain. The development or amplified activity of MTrPs is one of the clinical manifestations of SSS. The Segmental Neuromyotherapy (SNMT) approach to treatment consists of injection of local anaesthetic agents in the involved dermatome to block the posterior branch of the dorsal spinal nerve along the involved paraspinous muscles. In addition, local anaesthetic injection is applied peripherally near the foci of irritation in local soft tissue, directly into taut bands and trigger points, using a needling and infiltration technique. Stretching exercises, local heat application and additional transcutaneous electrical nerve stimulation (TENS) treatment complete the muscular relaxation after the injections.

Biography

Areerat Suputtitada, M.D. is Professor of Rehabilitation Medicine, full time working at Department of Rehabilitation Medicine, Chulalongkorn University and King Chulalongkorn Memorial Hospital in Bangkok, Thailand. She is the Director of Excellent Center for Gait and Motion at King Chulalongkorn Memorial Hospital and Chair of Neurorehabilitation Research Unit of Chulalongkorn University. She has been involved in education, residency training, research, and clinical treatment related to rehabilitation medicine for over 20 years. Her subspecialties are botulinum toxin and neurolysis, gait and motion, pain, neurorehabilitation. She is an internationally recognized speaker, clinician, and researcher. Her works have been published extensively in numerous medical journals and books, more than 70 articles nationally and internationally. She is the chair of Women and Health Task Force, Assembly of Individual Members Election Committee for Asia Oceania, and International Exchange Committee of International Society of Physical and Rehabilitation Medicine (ISPRM)

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