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EDITORIAL

Interventions in Pain Management

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Since the inception of pain management, the clinical practice of pain medicine has gone through many changes over the course of nearly seven decades. John J Bonica, the father and pioneer of pain management published first comprehensive edition of the Bonica's Management of Pain sixty five years ago. It started by anaesthesiologists as a concept of basic understanding of the mechanisms of pain and to treat pain, which has now evolved into a cutting-edge medical specialty with dedicated full-fledged fellowship training of physicians from many medical specialties. The blindly performed nerve blocks are now performed under various guidance techniques. The advent of fluoroscopy has made spinal injections precise, safer and effective. We can now offer pain management to any part of the world with hi-tech ultrasonography-guided procedures to provide relief of wide variety of pain conditions including neuropathic pain, pain due to cancer, and acute pain situations for adults as well as children with substantially updated scientific advancements and contemporary therapies that have emerged over the past decade. Now, the practice of pain medicine addresses not only comprehensive evaluation of the pain patients, pain conditions, and methods for symptomatic control involving multimodality and multidisciplinary pain treatment, but also cost-effectiveness and equal access without economic, political, legal, ethical, or sociological biases.

The pain medicine specialty has come a long way. We are not injection experts anymore. We are not service providers anymore. We are now highly trained experts for the non-surgical minimally invasive interventional spine management. Our specialty is uniquely placed to help our patients whose symptomatology is based on subjective perception, and without much of objective support, we abolish or reduce pain and suffering of our patients. The imaging and diagnostic studies (EMG, NCV) do not have a straight correlation to symptomatology. Much of the treatment is decided on the clinical diagnosis and the gold standard diagnostic injections.

In mid-eighties and early nineties, opioids analgesics played a very big role in helping patients in pain[1]. Yes indeed, it is a highly potent analgesic useful for a short period for intractable cancer and non-cancer pain. But poor clinical judgment and knowledge, and addictive potential of opioids led us to a disastrous opioids crisis in next 3 decades in the USA. Opioid crisis compelled us to explore non-opioids, non-medicinal and non-surgical interventional options to treat chronic pain.

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And we now have integrated minimally invasive interventions early on in the algorithm. From decades of experience, we have learnt that majority of our non-cancer pain patients are victims of progressive degenerative joint disease (DJD) or degenerative disc disease (DDD). Except for the bona fide cases of intervertebral discs herniation secondary to increased intradiscal pressure compounded with weak or torn annulus fibrosus, all other spinal conditions are secondary to progressive degeneration of discs, endplates, and zygapophyseal (facet) joints. The degenerative process takes a few decades to be symptomatic from its beginning as a painless condition. The surgical options for the degenerative spine are usually not very helpful, on the contrary, they contribute to more degeneration by causing adjacent-level disease.

The Cochrane review of a meta-analysis[2] reported that there is no scientific evidence on the effectiveness of any form of surgical decompression or fusion for degenerative lumbar spondylosis compared with natural history, placebo, or conservative management. Despite, there was a 26.0% increase in annual lumbar fusion procedure volume during the study period from 2012-2017, with a compound annual growth rate (CAGR) of 4.7%. Failed back surgery syndrome (FBSS) is a most common byproduct of spinal surgeries, where despite adequate decompression and fusion surgeries, the expected outcome was not obtained, and patient continued to feel pain[3]. Chan and Peng[4] reported the incidence of patients that will develop FBSS following lumbar spinal surgery to be in the range of 10% to 40%. They also reported that despite advances in technology and surgical techniques, the rates of FBSS have not declined since several decades ago.

The Kumar study[5] reported the cost effectiveness of intrathecal drug therapy in an FBSS population cumulative costs over a 5-year period were $ 29,410 (Canadian Dollars) for the intrathecal group, and was $29,123 (CAD) per patient for spinal cord stimulation (SCS) therapy. These costs only take into account direct costs and did not include costs related to lost productivity (indirect costs), which would make the final cost considerably higher. Nevertheless, SCS is cost-effective compared to re-operation for FBSS[6]. Pain management physicians are the expert in treating the FBSS and other neuropathic pain syndromes with neuromodulation pain therapies.

The field of neuromodulation has tremendously grown with cutting research in technology. Now we can pick and choose the neuromodulation depending on the pain syndromes. We have plenty of options to choose from many neuromodulation therapies including but not limited to spinal cord stimulation (SCS), deep brain stimulation (DBS), to vagus nerve stimulation (VNS), peripheral nerve stimulation (PNS), and dorsal root ganglion (DRG) stimulation for focal neuropathic pain syndromes. Current pulse generators are available in different sizes and shapes, with multiple programming capabilities to provide patient-specific pain therapies.

However, most recent literature provide level I evidence for the minimally invasive surgical procedures like percutaneous image-guided lumbar decompression (PILD) and interspinous spacers[7]. We, as non-surgical spine experts, must do our diligence to avoid unnecessary surgery. This will only be possible by educating our surgical colleagues, and also educating our patients to consider minimally invasive options before considering extensive surgical options.

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