

## EDITORIAL

# Evolution of Pain Clinic

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## INTRODUCTION

Pain is as old as mankind.<sup>1</sup> The word “pain” comes from the Latin word “poena,” which means “punishment.” The word “patient” is derived from the Latin word “patior,” meaning “to endure suffering or pain.”<sup>2</sup> According to Christianity, pain was the punishment given by God to Eve (the first female human being) after falling from grace, and that too in the form of child birth. Human beings enter into this world through a painful process, and people considered it as sin to take any remedies for pain relief during child birth until 1847, when Queen Victoria was administered chloroform by James Simpson<sup>3</sup> for the delivery of her eighth child, Prince Leopold.

The current concept of pain clinic is based on the thought of the founding father of interdisciplinary pain care, John J. Bonica (1917–1994). He was the one to propose a multidisciplinary method of pain management. He was the one who first established a multidisciplinary pain clinic in Seattle in 1947 to treat World War II veterans. He was the key person in organizing the first International Symposium on Pain in Issaquah, Washington, May 21 to 26, 1973, which led to the formation of the International Association for the Study of Pain (IASP).<sup>2</sup> After the success of the symposium, pain medicine got a momentum for rapid growth and is in a way as an individual specialty at present. Prithvi Raj, Laxmaiah Manchikanti, and Waldman had contributed a lot in the development of this specialty. For a better understanding of the evolution of pain clinic, this article is divided into three main topics: the pre-Bonica era (before 1947), the present era (1947 to present), and the future era.

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## THE PRE-BONICA ERA

The pre-Bonica era had started with the origin of human beings. As anatomical knowledge was lacking during this period, the concept of pain management was based on belief, and treatment was based on cognitive therapy. Although the growth of pain management was slow till the early 20th century, important milestones in pain management, such as the proposal of various theories to describe the pain mechanism, basic anatomical knowledge of the pain mechanism, discovery of various pharmacological drugs, such as morphine and nonsteroidal anti-inflammatory drugs (NSAIDs), and introduction of the pain clinic concept were achieved in this period.

### Earlier Theories of Pain and Attempts in Pain Management

In earlier times, people believed that pain was due to some sin or evil spirit. Medicine men and shamans flourished because they were the persons assigned to treat the pain syndromes associated with internal diseases.<sup>4</sup> Egyptians and early Native Americans believed that pain was experienced in the heart, whereas the Chinese identified multiple points in the body where pain might originate or might be self-perpetuating, which gave birth to the principles of acupuncture therapy.<sup>5</sup> Aristotle had believed that pain was a central sensation perceived in the heart due to peripheral stimulation in flesh,<sup>6</sup> which was resisted by Plato, Herophilus, Eistratus, and Galen, who believed that the brain was the destination of all peripheral stimulation.<sup>7,8</sup> Descartes came out with his theory in 1662 which reinstated the role of the peripheral and central nervous systems.<sup>9</sup> This gave way to a mechanistic view of the pain mechanism. This was followed by a lot of theories, some of which include the “specificity theory” by Charles Bell,<sup>10</sup> “pattern theory” by Alfred Goldscheider,<sup>11</sup> and “summation theory” by William K. Livingstone, J.D. Hardy and H.G. Wolff.<sup>4</sup> In 1965, Melzack and Wall introduced the “gate theory,” which forms the basis for the present understanding of the pain mechanism.

Pain was considered a part of life in earlier times, whereby cognitive treatment was insisted. Nonspecific therapies were employed for many types of pain, including acupuncture, the application of humoral opposites, bloodletting, purging, topical and oral herbal compounds, and distraction by creating a competing and more severe pain.

Pharmacological methods were tried for pain relief which led to the discovery of a lot of compounds, including morphine in 1817. A significant change in pain practice followed Morton's landmark demonstration of ether anesthesia in 1846, following Crawford Long's earlier application of ether anesthesia in 1843. Anesthesia and pain practice got a further boost by the development of the hypodermic needle by Rynd and the syringe by Wood, which permitted injection of anesthetic compounds.<sup>4</sup> An early example of injecting specific nerves to produce analgesia was the work of Schloesser in 1903. Rene Leriche came up with injecting local anesthetic procaine and surgical sympathectomy for sympathetically mediated pain. Following this model, anesthesiologists experimented with various local anesthetic nerve blocks to produce analgesia for surgery. The first nerve block clinic for pain relief was started by Emery Rovenstine at Bellevue Hospital in New York in 1936. Eleven years later, the first nerve block clinic in the United Kingdom was established at the University College Hospital in London in 1947. In this era, most of the pain practice and pain centers were unorganized and followed a single disciplinary approach. The two important historical events, World Wars I and II, had led to a lot of people suffering from chronic pain which physicians found difficult to treat and thus both the treating physician and the patient were frustrated. This frustration led to the development of multidisciplinary pain clinics.

## THE PRESENT ERA (1947 TO PRESENT)

Although pain management was being practiced by physicians from different branches, it was in the era of Bonica, Raj, Manchikanti, and Waldman that multidisciplinary pain management was insisted. In early- and mid-20th century, patients with no external tissue damage or unexplained pain were labeled as having psychological problems and were referred to a psychologist for further management, which was not really helpful. Such patients were managed effectively after the introduction of the concept of "chronic pain" or "pathological pain" and the introduction of various antineuropathic drugs for pain control. Advances in technology and a better understanding of the pain mechanism added "interventional pain management" as a special armament in the pain physicians' armamentarium.

## JOHN J BONICA AND IASP

When John J Bonica was working in Madigan Army Hospital, Washington, during World War II, he was frustrated by his inability to effectively treat war veterans who were suffering from chronic pain.<sup>12</sup> He started seeking opinions of physicians from different specialties

dealing with pain and related issues. He then combined those opinions and applied a multimodal approach on his patients which he found was more successful in addressing the problems. Immediately following the war, Bonica developed the first formal interdisciplinary pain management team at Tacoma General Hospital, Washington, in 1947, with members including an anesthesiologist, an orthopedician, a neurosurgeon, an internist, a psychiatrist, and a radiation therapist.<sup>13</sup>

Around the same period, a similar interdisciplinary pain diagnostic and therapeutic program at a Texas Veterans Administration hospital was started by F.A.D Alexander and at a few more centers in Portland (Oregon), Canada, and Europe.<sup>14</sup> Despite the initial success of interdisciplinary chronic pain management, the concept started losing its value due to lack of acceptance by the medical community. Bonica was "about to give up," and later wrote, "Despite my persistent drum beating, consisting of several hundred lectures and the publication of numerous articles in various parts of the world, the multidisciplinary concept was ignored by the medical profession for two decades."<sup>15</sup> A marked improvement happened when Wilbert Fordyce joined Bonica's team in 1960.<sup>16,17</sup> He integrated a strong behavioral component into Bonica's management concept which was instrumental in the development of the modern interdisciplinary pain treatment. Then, pain clinics started to teach patients how to manage their symptoms and restore a positive quality of life than focusing only on the eradication of pain. As behavioral therapy was time-consuming and expensive, the pain treatment concept changed to a cognitive-behavioral approach, which emphasizes the patient as an active participant in his or her rehabilitation who is able to develop coping skills necessary to rest.<sup>12</sup> Then, the pain clinic concept started to increase in popularity, becoming medicine's new growth industry.<sup>18</sup> In addition to providing chronic pain management services, numerous postdoctoral fellowships in pain management developed during this period of time, typically in university-based facilities. Among the most active and prestigious of these facilities was that developed by Bonica at the University of Washington in 1960.

In the initial days, the multidisciplinary pain treatment was practiced as an inpatient modality, believing that inpatient treatment allowed for a higher level of control over contingencies than outpatient programs. However, inpatient treatment was expensive, and it had been shown by Peters and Large<sup>19</sup> in 1990 that it offered only a little advantage over outpatient treatment. The trend then changed to outpatient care. A rapid growth in the understanding of the pain mechanism, treatment options, and better technology attracted a lot of physicians to practice pain treatment. The invention of radiofrequency

generators, stimulators, implantable pumps, and imaging techniques had advanced the pain management options and also the standard of pain centers. A lot of associations were formed to provide a platform for education and training, for forming guidelines, and for legal and political clearance, certification, and research. Among those, the IASP had a lot of contributions.

The IASP brings together scientists, clinicians, healthcare providers, and policy-makers to stimulate and support the study of pain and to translate that knowledge into improved pain relief worldwide. It has members from 130 countries in all specialties with a common interest in pain. It has nearly 90 chapters throughout the world. The IASP also encourages the adoption of a uniform classification, nomenclature, and definition of pain and pain syndromes. It educates general public on the results and implications of current pain research. The first World Congress on pain was held in 1975 in Florence, Italy. The official journal of IASP, *PAIN*, was started in January 1975. Over the years, a number of key items have appeared in *PAIN*, including the first list of pain definitions and the first edition of the Classification of Chronic Pain. In 1993, IASP Press, the official publishing arm of the association, was established. In 1993, IASP began publishing *Pain: Clinical Updates*, a free topical newsletter for clinicians. The first Global Day against Pain, in conjunction with a Global Year against Pain, was launched in 2004 with the slogan "pain treatment should be a human right." Since 2004, the Global Year has focused on pain in childhood, pain in older persons, pain in women, cancer pain, musculoskeletal pain, acute pain, headache, and visceral pain.

The American Pain Society (APS) was formed in 1977 and the American Academy of Pain Medicine (AAPM) in 1983. The American Board of Pain Medicine (ABPM) was formed to certify pain physicians in "Diplomates in pain medicine." In 1983, the Commission on Accreditation of Rehabilitation Facilities (CARF) was the first to offer a system of accreditation for pain clinics and pain treatment centers.<sup>2</sup> The American Society of Interventional Pain Physicians (ASIPP) is another national organization in the United States for pain physicians who are mostly involved in interventions.

## WALDMAN AND INTERVENTIONAL PAIN MANAGEMENT

Although interventional pain procedures were done earlier also, it was in 1995 when Steven D. Waldman officially coined the term "interventional pain management" (IPM) that the concept came into prominence. In the preface of the second edition of his book *Interventional Pain Management*, he wrote: "I had coined the term *Interventional Pain Management* (which I had liberally

borrowed from our radiology colleagues) in an effort to recognize and distinguish the increasing number of pain management physicians who devoted their efforts to help patients in pain by the use of interventional pain management techniques as opposed to limiting their efforts to pharmacologic approach."<sup>20</sup>

## PRITHVI RAJ AND THE WORLD INSTITUTE OF PAIN

In 1993, the World Institute of Pain (WIP) was formed under the leadership of Prithvi Raj with his colleagues, Niv, Serdar, Ricardo, and Racz, and this took the pain specialty one step ahead. The WIP provides a global forum for education, training, and networking to thousands of physicians who have dedicated themselves to the worldwide phenomena of acute and chronic pain syndromes. The WIP is an international organization for pain physicians that facilitates the exchange of pain medicine knowledge and practical expertise through participation in World Congresses, international and regional symposia, and practical workshops. One of the most important goals of the WIP is to develop an international examination process for testing and certifying qualified interventional pain physicians. By showing proficiency in both general pain knowledge and the safe performance of interventional procedures, the successful candidates are awarded the designation "Fellow of Interventional Pain Practice" (FIPP).

The WIP also recognizes the best pain clinics around the globe through its award of "Excellence in Pain Practice" (EPP) for the pain clinics. The criteria for this award are the level and maintenance of basic standards in terms of facilities, the impact in regions of pain management, and number of publications by pain clinics, and training facilities. About 25 pain clinics around the globe have been recognized as centers of excellence and awarded the EPP.

The hallmarks of this era were the establishment of pain management as a distinct specialty recognized by all other disciplines of medicine, the development of a multidisciplinary approach of pain management, and the establishment of IPM as a subspecialty. Thus, the popularity of pain clinics grew in leaps and bounds in almost every country.

However, the failures of this present era are the failure of multidisciplinary models despite enough evidence of its benefits and lack of judicial applications of interventional procedures based on evidence-based guidelines. Thus, single-modality pain clinics, mostly intervention-based, anesthesiologist-run pain clinics, grew maximally. The reasons for this growth are that they are economically viable and profitable, they give

instant pain relief to patients, and it is easier to manage a pain clinic without any chance of differences in opinions among many specialists.

## INDIAN SOCIETY FOR STUDY OF PAIN AND INDIA

The Indian Society for Study of Pain (ISSP) was started in 1984 and was involved in many academic and awareness activities since its formation. The first national conference was conducted in 1985 and now it has more than 1,300 members in this society. Initially, palliative care was focused by pain physicians in India and later on, chronic pain conditions were treated by them due to better teaching programs that were started in New Delhi and Kolkata. The ISSP had started a 1-year fellowship program in pain management which was considered as an important milestone in academic activities. Now, medical universities in West Bengal, Uttar Pradesh, and Tamil Nadu had started postdoctoral fellowship program in pain management and are running successfully. Tamil Nadu has both 1-year and 2-year fellowship programs in pain management.

In India, pain management was practiced initially as part of anesthesiology. It had a rapid growth, when some eminent doctors took pain management as a full-time profession. Lots of young-generation doctors were attracted to this emerging field and started pain management practice even in small towns in India. India is a forerunner in pain management among South Asian countries and also trains doctors of other countries in pain management. As an important milestone, Daradia Pain Hospital, exclusively for chronic pain management with 50 inpatient beds, was started in Kolkata on February 5, 2018, the first of its kind in the world.

## DEFICIENCIES OF PRESENT PAIN CLINICS AND PAIN PRACTICE

The present practicing pain physicians and researchers must identify the deficiencies of present pain clinics and pain practice and try to find solutions for future. The deficiency areas are:

- Overdependencies on interventional procedures despite failure of long-term results in most situations and potential complications of such procedures
- Lack of evidence-based practice
- Failure to popularize the multidisciplinary model of pain clinics
- Lack of safer drugs for long-term use, which is very much effective in pain management
- Failure to establish a palliative care model of chronic pain management rather than a curative model, though it is well established that most chronic pains can be controlled but cannot be cured

- Lack of evidence in favor of the regenerative therapy, as most chronic pains are degenerative in origin
- Vague and restricted criteria for reimbursements by insurance companies

## THE FUTURE ERA

Future pain clinics should try to address the deficiencies of pain clinics and pain practice in the present era. The currently available treatments provide modest improvements in pain and minimum improvements in physical and emotional functioning. The quality of evidence is mediocre and has not improved substantially during the past decade.<sup>21</sup>

The following should be the future of pain clinics and this is in the hands of present-day pain physicians:

- Promoting multidisciplinary pain clinics, as they have a long-term success and are able to manage all kinds of pain through their multispecialty team
- Ensuring coordinated efforts from all specialties
- Identifying measurement tools and programs to measure the outcome of treatment offered by pain clinics
- Promoting palliative models rather than curative models of pain treatment
- Identifying complications of interventional procedures and promoting safe and evidence-based interventions
- Carefully nurturing interventional procedures so as to ensure their proper growth
- Promoting advances in biotechnology which may help in discovering safer and more effective analgesics, thus advancing pain management
- Promoting discoveries in genetic and regenerative therapies, which will be safer and more economical
- Establishing second-opinion clinics for interventional procedures, thus ensuring that evidence-based interventions are practiced
- Establishing hospitals exclusively for pain management

## CONCLUSION

We all look up to future pain clinics to offer safe and effective ways to manage pain. There might be new technologies and new medicines available for better management of pain, but identifying chronic pain as a multidimensional problem and approaching it as a multidisciplinary way is the most important task of all pain clinics and all practicing pain physicians.

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