Introducing Intervventional Pain Services in a Large African Teaching Hospital: Challenges and Opportunities

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Abstract: There is a need for interventional pain management in the developing world; however, there are many barriers to the introduction of interventional pain therapies. This brief report describes one approach to the introduction of interventional pain medicine to a Nigerian teaching hospital. Although many barriers exist, interventional pain medicine can be brought to the developing world, as demonstrated in this case series.

Key Words: pain centers, therapeutics, pain clinics, developing countries, interventional pain, Africa

INTRODUCTION

Chronic pain affects approximately 10% to 20% of patients in primary care and is among the most personally compelling reasons for seeking medical attention. Worldwide, about one-half of patients with chronic pain report low back pain, among other conditions, one-fifth report widespread pain and one-third report shoulder pain. People seek health care for pain not only for diagnostic evaluation and symptom relief, but also because pain interferes with daily activities, causes worry, emotional distress and undermines confidence in one’s health. When pain persists for weeks or months, its broader effects on well-being can be profound. Psychological health and performance of social responsibilities in work and family life can be significantly impaired.

Delays in treatment and/or lack of appropriate facilities for treating chronic pain conditions are particularly damaging. In a systematic review, patients with chronic pain who had to wait 6 months from the time of referral until treatment had significant deterioration in health-related quality of life (QOL) and psychological well-being. In older adults, these issues are especially common, as undertreated pain can lead to reduced QOL, decreased socialization, depression, and sleep disturbances. Higher levels of comorbidity are associated with reports of more severe pain, more depressive symptoms, reduced activity, and greater physical impact from pain. Numerous clinical conditions are associated with chronic pain, typically identified by the site of injury (e.g., low back, carpal tunnel, head, neck, viscera) or type of injury (e.g. arthritic, cancer, diabetic, myofascial, neuropathic). Among the most common is chronic low back pain, which has an annual prevalence rate of 15% to 45%. Osteoarthritis affects nearly 27 million US adults, and fibromyalgia affects 5 million.

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In most African hospitals, treatments of chronic pain do not go beyond prescription of oral and systemic medications (paracetamol and nonsteroidal anti-inflammatory drugs), low-potency opioids (tramadol and pentazocine), bed rest with or without spinal traction, and some sessions of physiotherapy. The scope of this multidisciplinary treatment approach can be expanded with better outcomes if appropriate interventional pain therapies can be employed in the management plan. The limitation of this desired broadened conservative treatment is lack of the technical skills and appropriate equipment in most tertiary health centers in Africa. In the 500-bed hospital in this report, there is only one C-arm machine for the orthopedic, cardiothoracic, and spine procedures in the hospital. This scenario often produces competition for use among these professionals. Additionally, there is a lack of expertise in interventional pain medicine.

Due to the limitations of the available treatment modalities in this African practice environment, the decision was made to seek further training and assistance. A visit to the Departments of Palliative Care, Rehabilitation Medicine, and Pain Medicine in 2009 ignited my passion to learn the clinical art, science, skills and techniques of interventional pain management, which are virtually nonexistent in any of the Central and Sub-Saharan African countries.

The challenges ahead included the acquisition of necessary pain materials, strong and formidable mentors in the field of pain medicine, mandatory attendance of courses and workshops on interventional pain management, acquisition of pain equipment and consumables, adaption to African environment, the provision of the interventional pain management services, and the huge number of patients suffering from varied chronic pain conditions.

The experience began in 2009 with a visit to the Department of Pain Medicine, University of Texas, MD Anderson Cancer Center, Houston. Evidence-based interventional techniques were observed for the treatment of chronic pain conditions in the United States, as opposed to therapies used for similar conditions in Nigeria. The comparative rapidity of pain relief in many patients treated with interventional techniques was encouraging.

With help of the WIP foundation, I was able to attend various meetings and workshops for more training. Dr. Gabor Racz donated teaching materials including textbooks, DVDs of various techniques, and other educational items. Having realized that specific pain therapies and treatment can only be learned from a firsthand exposure, I sought for a month clinical placement in Houston Pain Associates, Houston, Texas and Pain Medicine Department, MD Anderson Cancer Center, Houston, to help further my knowledge of treating cancer pain and other chronic pain conditions. While in Houston, I learned firsthand and observed various interventional pain therapies for different chronic pain conditions. This experience helped me to put the knowledge I had gained from various international pain workshops and conferences into proper perspective.

Just as I was finishing my visit at the Houston Pain Associates, Drs. Gabor Racz and Philip Finch donated a used radiofrequency (RF) machine. This would allow me to manage patients with trigeminal neuralgia and facet joints pain. With the fulfillment of basic requirements including acquisition of associated risk management skills, the availability of a C-arm in my hospital, a few necessary consumables, and the RF machine, the ground was set for the initiation of a pain service that included image-guided interventional pain therapies in our hospital. With the help of my colleagues in the Anaesthesia department, I was able to introduce interventional pain procedures at the Ilorin Teaching Hospital, and report here the first cases.

**CASES**

The first case was done on 22 February 2012 and within 4 weeks, six patients have benefitted from the service with several more being referred to us for evaluations. The brief clinical presentations of the first three patients and the appropriate fluoroscopic image are outlined below as a short case series.

**Case 1**

A 48-year-old male presented to the cardiothoracic surgery clinic with 3-year history of left anterior chest wall pain involving the 7th, 8th, and 9th intercostal spaces. The pain was said to be sharp/stabbing with associated allodynia provoked by light touch of his clothes. The pain was nonradiating and rated as 10/10 on a VAS scale. An impression of intercostal neuralgia was made and several drugs like tramadol, paracetamol, and diclofenac were given, but there was no improvement in his symptoms. A diagnostic intercostal nerve block with mixture of steroid and local anesthetic agent was given, and patient had significant pain relief, 2/10 VAS, for 3 weeks but abnormal sensations on the skin
still persist. The patient was then planned for image-guided paravertebral nerve block (at T-7 through T-10 intercostal spaces), using mixture of steroid and local anesthetic agent. Patient experienced 100% pain relief for the first 24 hours, and his VAS stabilized at 2/10 in the last 6 weeks; however, the altered skin sensation is still disturbing (Figure 1).

### Case 2

A 74-year-old patient presented with a 10-month history of low back pain and lumbosacral radicular pain involving the left leg and plantar surface of the foot. He had taken several analgesic medications including tramadol, paracetamol, tizanidine, and diclofenac, but his pain persisted. He experienced severe pain of 9/10 on VAS scale despite his regular use of oral medications. He then presented to our pain clinic with low back pain, which was radiating to his left lower limb. The pain has affected his functional activity, as he could not drive himself for the past two years. He underwent a blind lumbar epidural steroid injection, and his VAS was reduced to 6/10 over a 3-month period. Due to persistent radicular pain, he was scheduled for transforaminal epidural steroid injections of the L4 and L5 roots under fluoroscopy. The pedicles of L4 and L5 were visualized, and target point was the 6 o’clock positions of the pedicles. The needle was inserted with the tip is in the “safe triangle.” After good contrast spread, which excluded the intravascular and intra-thechal uptake, the mixture of local anesthetic agent and steroid was deposited close to the nerve root. Immediately after the procedure, he experienced good pain relief, VAS of 0/10 which was sustained for 48 hours with the disappearance of the radicular symptoms. His pain intensity has been stabilized at 2/10 for the past four weeks after the procedure (Figure 2).

### Case 3

A 65-year-old female was referred to our pain clinic by the orthopedic unit on account of acute exacerbation of her lumbosacral radicular pain. She developed low back pain, which was radiating to the left lower limb about 3 years ago. The pain was shocking in nature and of 9/10 in severity on VAS scale, which prevented her from carrying out routine daily activities. MRI of the lumbosacral spine revealed spinal canal stenosis, spondylosis, and spondylolisthesis. She was placed on diclofenac, paracetamol, tizanidine, and tramadol by the orthopedic team with no improvement in her pain intensity. Following her first referral to us 18 months ago, she had three courses of blind translaminar lumbar epidural steroid injections, and her pain intensity reduced to and stabilized at 2/10 over 13-month period. She has been enjoying good pain control until 12 days ago when she presented with acute severe low back pain, radiating to the left leg and sole. She rated the pain 10/10, and she was completely confined to bed rest until after 24 hours dosing of intramuscular pentazocine 60 mg 4 hours,

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**Figure 1.** Needle in the 7th paravertebral space.

**Figure 2.** TFESI of the L5 spinal nerve root. The needle tip and spread of the injectate is shown.
after which her pain intensity reduced to 8/10. She was then referred to us, and she had transforaminal epidural steroid injections of the left L4, L5, and S1 nerve roots and sacroiliac joint injection. She experienced immediate significant pain relief, which has been sustained. Her current pain intensity is 3/10 with good resumption of her functional daily activity.

**DISCUSSION**

Among the challenges encountered in the course of providing the service for the first time were:

1. Strong competition with other specialists for the hospital C-arm usage. This is a difficult problem with sharing of a limited resource among orthopedics, surgery, radiology, and others;
2. Sustainability of the service after exhaustion of the consumables: Efforts are being made to maintain the source from where the items were bought. Supply interruptions of all kinds are common in the developing world;
3. Unavailability of a radiolucent pain table is hampering the smooth multiplanar exposure for various procedures. We have been improvising with the trolley for conveying patients to and from the theater suites, as the operating table completely obstructs the C-arm;
4. Radiation-protecting lead aprons, thyroid shields, and protective eye glasses: There are few lead aprons that are in poor condition and thyroid shield and protective eye glasses are lacking. This exposes the interventionalist and the assistant to high radiation doses.

Although the service is new in our environment, the benefit to patients suffering from various chronic pain conditions was evident from the outcomes of the first series of the procedures. There is enthusiasm from specialty units of the hospital and nearby tertiary health centers to refer patients to us for management and train personnel in interventional pain therapies to reduce the burden of chronic pain among patients.

Addendum: From the perspective of the Western author (AWB), the key ingredient to this success story is Dr. Suleiman’s will to make this happen. His efforts as an interventional pain champion in Central Africa will have far reaching beneficial outcomes. Also, our opportunity in the World Institute of Pain (WIP) is clear; the amount of good that can be done worldwide with directed resources is boundless.

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