

Multidisciplinary Acute Pain Treatment Following Tractor Rollover Accident and Hemipelvectomy: Letter to the Editor

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Introduction

The efficacy and benefits of opioid medication use in the treatment of both acute and chronic pain has been extensively proven in medical literature [1-4]. However, this class of medication has recently come to the forefront of public and media attention because of the unfortunate abuse by the vast minority of patients. The word “opiates” often has a negative connotation in today’s society. This is unfortunate given the vast amount of pain they relieve, quality of life they allow to be retained, and function they allow to be preserved. However, with great power comes great responsibility and the fact remains that the opioid class of pain medications is the most powerful and most effective that we have to offer our patients who are in pain. In the case presented here, we will outline the severity of the patient’s multitrauma to illustrate the various and unique etiologies of the patient’s acute pain which were successfully treated with progressively lower potency opiate regimens. This allowed the patient to successfully complete multiple rehabilitation courses and return to functioning well as a member of society.

Case Description

A 16 year old Caucasian male was found pinned down in the middle of a field status post tractor rollover where he sustained an unstable pelvis and organ evisceration injury. He was alert and oriented with a Glasgow Coma Scale of 15 at the scene but 3T upon arrival to our Level 1 trauma center hospital. He was intubated and given 4 liters intravenous bolus during air evacuation but remained hemodynamically unstable. Patient was taken emergently to the operating room for exploratory laparotomy with pelvic packing, femoral arterial shunt placement, and multiple catheter thrombectomies. He returned to the operating room the following day for procedures that consisted of repair of the right femoral vein, right femoral artery shunt, right lower extremity catheter, embolectomy and thrombectomy, right popliteal artery exploration and thrombectomy, right posterior tibial artery exploration, and tibial thrombectomy, as well as a right leg four-compartment fasciotomy. Per vascular transfusion protocol he received greater than 38 units of packed red blood cells and 15 units of fresh frozen plasma as well as Factor VII in the initial 2 surgeries. On hospital day number 4, he underwent a right hemipelvectomy, debridement of scrotum and perineum, revision laparotomy as well as an end-colostomy with insertion of a nasojejun feeding tube for feeding difficulty. The severity of his trauma indicated more than 25 additional major/minor surgical procedures following the above mentioned operations. His hospital course was complicated by innumerable medical issues including rhabdomyolysis with acute kidney injury and dialysis, severe delirium, multiple deep venous thromboses, hemorrhagic shock, numerous severe infections, and severe acute pain.

His acute pelvic and right lower extremity pain were so intense following the trauma and operations that the only means of controlling his pain was high potency opioid medication. Pain management was consulted and he was placed on intravenous patient controlled analgesia after initial oral regimens did not effectively control the postoperative pain. The PCA provided a maximum lockout of 40 mg/hr morphine equivalent dose or 960 mg/day. He was rotated transitioned to an equivalent oral regimen to provide more effective pain relief during

sleep and prevent significant breakthrough when he woke up. He was discharged from acute care on day 55 on a pain regimen that included Hydromorphone 1-2 mg IV q4 hours, Oxycodone 15 mg PT q4 hours, Fentanyl transdermal patch 50 mcg/hr every 72 hours, Oxycodone/Acetaminophen 5/325 mg 1-2 tablets PT q4 hours PRN breakthrough pain, and Gabapentin 300 mg po TID. This was a reduction to an oral morphine equivalent dose of approximately 107.5 mg every 4 hours or approximately 645 mg/day. After admission to acute rehabilitation, his pain regimen was modified with anticipation of discharge home. The Hydromorphone was weaned and the Gabapentin was titrated up to 800 mg QID to control the neuropathic component of his pain secondary to severe brachial and lumbosacral plexopathy. Multiple electromyography and nerve conduction velocity tests were performed revealing left severe axonotmetic lumbosacral plexopathy and moderate lower trunk brachial plexopathy. Oxycodone/Acetaminophen was also weaned as time passed and the acute inflammation following the initial postoperative phase diminished. During the second phase of his rehabilitation course the Fentanyl patch and Oxycodone regimen was rotated to Oxycodone extended release 40mg po BID with Meperidine 12.5 mg available prior to wound VAC and dressing changes. The morphine equivalent dose for this regimen was approximately 120 mg/day. Following discharge, he continued to require less pain medication over the course of 1 year following his injury. His pain was more than adequately controlled on Oxycodone extended release 10mg BID, or MED 30 mg/day, prior to his second inpatient rehabilitation course for gait training with his right lower extremity prosthesis.

Currently when this case report was composed, the patient is active in school, completing his senior year in high school, and just returned from a school trip. He is looking forward to prom and graduation and plans to pursue a two year degree and transition to a prosthetics and orthotics school. He occasionally experiences some pain primarily due to sacral skin irritation and minor breakdown, but amazingly requires no current pain medications. In fact, he is on no medications at all.

Discussion

This patient is the perfect illustration of a success story from a rehabilitation and pain management perspective. Excellent medical, surgical, rehabilitative, and pain management combined with constant awareness of the patient’s multifactorial pain levels resulted in proper tapering to overcome dependence issues and adverse effects. The

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rehabilitation psychology staff, constant support from his family, and his spiritual beliefs are also key components of his success. Despite these strong motivating factors, it would not have been possible to participate adequately in various therapies during the rehabilitation process without his pain being well controlled. He demonstrated how high doses of opiate medications are not addictive when given to treat pain. Many patients would have initially lost the will to live given the severity of his multitrauma and pain. In contrast, he had the drive to live and live well and he is currently doing just that. Special thanks to the patient and his family for consenting to this case report and allowing those who read this study to learn from his experiences.

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