Chronic pain patients often present with “wind-up” of pain in the central nervous system (1-3) that modify the pain, with functional, structural and chemical changes. Patients underwent injections pre and post participation in a 3-week multidisciplinary chronic Pain Rehabilitation Center (PRC) program.

**Background**

Patient, 25 year old male, presented initially with chronic back and neck pain secondary to a motor vehicle accident five years prior. Patient suffered fractures of the thoracic spine, multiple rib fractures, and pulmonary contusions.

He avoided use of narcotics for pain, and instead used OTC NSAIDs and cyclobenzaprine for pain control. He reported limited benefit from physical therapy, which was recommended by his care provider. Patient also underwent T8-L1 spinal fusion after the accident, for which he reported limited benefit.

**Discussion**

Functional imaging studies have shown that brain structure undergoes changes at multiple spatial and temporal scales with engagement of different limbic and paralimbic structures dependent on the specific type of chronic pain (1) and evocation of “wind-up” (2). These functional changes are also associated with DNA methylation in the prefrontal cortex and amygdala, histone modifications in the spinal cord, and changes in micro-RNA expression in the dorsal root ganglion (3). Reversal of some of these changes for chronic low back pain, namely in cortical thickness, was associated with effective treatment but not with depression (4). Thus, new interventions should focus on reversal of the plastic changes caused by pain, including attenuation of functional changes, concomitant psychosocial improvement, compliance, continuity and persistence of outcomes (5).

**References**


**Timeline**

**Abstract**


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**Background**

Patient, 25 year old male, presented initially with chronic back and neck pain secondary to a motor vehicle accident four years prior. Patient suffered fractures of the thoracic spine, multiple rib fractures, and pulmonary contusions.

He avoided use of narcotics for pain, and instead used OTC NSAIDs and cyclobenzaprine for pain control. He reported limited benefit from physical therapy, which was recommended by his care provider. Patient also underwent T8-L1 spinal fusion after the accident, for which he reported limited benefit.

**Diagram**

- CT Scan
- Thoracic/Lumbar CT showed posterior cemented bilateral, at T2-L1, fracture to right L1 pedicle screw, discontinuity in bone fusion bilaterally at T11-T12, posterior dislocation at T8-T9, T11-T12. Moderate right paraspinal swelling, bilaterally at T8-T9, 94 right at T9-10 and T10-T11.
- L1 Trigger Point Injection
  - 2 mL of 0.25% bupivacaine containing 10 mg of triamcinolone was injected down L1 pedicle screw head. Needle was then walked off anterior border and advanced down, for an additional triamcinolone with 2 mL of 0.25% bupivacaine was injected.
- MONTHS 1-2 – Pain Rehab Center (PRC)
  - Patient admitted to Interventional Spine Center for further consideration of interventional therapies. Patient has discontinuity of T11/T12 fusion. Patient reported excellent response to last injection.
- MONTH 5 – Second Injection
  - Patient returned to Interventional Spine Center and underwent 2 mL of 0.25% bupivacaine injection.
- MONTH 6 – Second Follow-up
  - Patient reported excellent response to last injection with 75% reduction in pain leading up to 2 weeks before this visit. Pain reported to be rare.
- MONTH 7 – Return for PM&R Follow-up
  - Patient reported excellent response to last injection discussed for some weeks from last injection.
- MONTH 12 – Return for PM&R Follow-up
  - Patient reported excellent response to last injection with 75% reduction in pain leading up to 2 weeks before this visit. Pain reported to be rare.

**Conclusions**

In this case, the patient’s response to trigger point injection was vastly superior following participation in the PRC program. Multidisciplinary Pain Rehabilitation programs may improve efficacy of interventional treatments by facilitating reversal of “wind-up” phenomenon. More study is warranted.