IV LIDOCAINE INFUSION FOR THE TREATMENT OF LONGSTANDING THORACIC ALLODYNIA IN THE SETTING OF DIFFICULT STIMULATOR PLACEMENT

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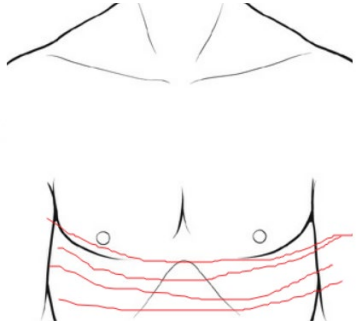
HISTORY

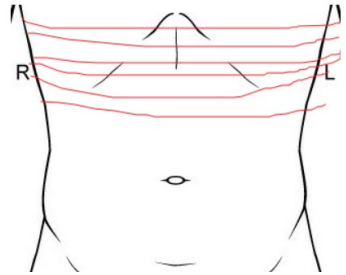
- 46 year old male presenting with long standing thoracic pain
- Active cyclist in good health
- Sustained bicycle accident which resulted in a T3-T4 spinal fracture in August 2020
- In March 2022, he underwent a T1-T6 spinal fusion followed by a revision which included plastics for flap and ortho for hardware removal. Had difficulty coping after the accident and was diagnosed with Bipolar Disorder stable on Lamictal.
- The pain was rated 8/10, described as shooting and spasming. It occurs consistently with mechanical, non noxious touch such as wearing a shirt. The pain is stable.
- Followed by pain management since first surgery and has undergone several medication and interventional trials with little long term efficacy.

HISTORY CONT.

- Trialed Therapies
  - Gabapentin, Lyrica, Tylenol/Advil, Cymbalta, Nortriptyline, Capsaicin, Topical Lidocaine, Baclofen, Methocarbamol, Memantine
  - TPI, Erector spinae nerve block, Intercostal nerve block
  - Unable to perform PT
- Current Therapy
  - Baclofen 10mg TID, Lamotrigine 200mg daily
- Since the accident he has made tremendous functional recovery but remains quite uncomfortable with persistent thoracic pain and allodynia. Also has known mild right-sided L4-L5 radiculopathy but this pain does not bother him nearly as much.
- Unable to continue work as a researcher, and he feels socially isolated because he can only tolerate 1-2 hours with his shirt on. He feels desperate as nothing has given any relief.

PHYSICAL EXAM





- Positive Signs:
  - Chest wall tenderness, crepitus, pain to closed fist percussion present.
  - Shooting pain to palpation along T4-T9 dermatomes.
  - Tenderness to palpation of Right and Left Trapezius
  - Tenderness to palpation of the abdomen
- Negative Signs:
  - No mass, erythema, lacerations, deformity, swelling or edema. There is no dullness to percussion.
  - No abnormalities in Cervical exam including inspection, palpation, ROM, UE strength, sensation
  - No abnormalities in Shoulder exam including inspection, palpation, ROM, strength, sensation
  - No abnormalities in Lumbar exam including inspection, ROM, LE strength, sensation, bowel/bladder
- Able to heel-to-toe walk, normal gait
- Scoliosis

IMAGING

- **MR T-Spine:**
- The spinal canal is partially obscured by hardware artifact at the surgical levels. There is some trace cord signal change at the level of T3 likely reflects myelomalacia. There is no abnormal cord enhancement. There is no suspicious epidural or leptomeningeal enhancement.
- There is mild indentation and narrowing of the thecal sac at the level of T3 secondary to posterior cortical bulging.
- There is scattered mild disc desiccation. Mild disc bulges at T8-9, T9-10, T10-11 and T11-12 indent the ventral thecal sac without significant canal stenosis. There is no significant neural foraminal narrowing at any level.
- Posterior instrumented fusion from T1-T6 with associated susceptibility artifact and no evidence of hardware complication by MR technique.
- **CT T-spine:**
- Posterior instrumented fusion from T1-T6 with chronic fractures of T3 and T4 with mild associated osseous retropulsion. No high-grade canal stenosis. No significant neural foraminal stenosis

THERAPY

- IV Lidocaine Infusion trial (3 sessions)
  - 2mg/kg/hr →3mg/kg/hr →5mg/kg/hr
    - Preprocedure NRS 8
    - Session 1 →NRS 6
    - Session 2 →NRS 4
    - Session 3 →NRS 4
- Continuing care with pain psychology
- Consider Bilateral T5 intercostal PNS, Paddle SCS, ITDD
- Majority of responders get between 3-30 days of relief. Advancing age and pain severity significantly increased the odds of being a lidocaine responder. Controlled for all other factors, each decade of advancing age increased the odds of being a lidocaine responder by 36%. Each 1-point increase, on an 11-point scale of baseline pain severity, increased the odds of being a lidocaine responder by 29%. (Carroll)

QUESTIONS

Relevant Studies Worth Your Attention

- Kim Y, Castañeda AM, Lee C*, et al.* Efficacy and Safety of Lidocaine Infusion Treatment for Neuropathic Pain: *A Randomized, Double-Blind, and Placebo-Controlled Study Regional Anesthesia & Pain Medicine* 2018;**43:**415-424.
- Petersen P, Kastrup J, Zeeberg I, Boysen G. Chronic pain treatment with intravenous lidocaine. Neurol Res. 1986 Sep;8(3):189-90. doi: 10.1080/01616412.1986.11739753. PMID: 2877413.
- Cahana A, Shvelzon V, Dolberg O, Magora F, Shir Y. [Intravenous lignocaine for chronic pain: an 18-month experience]. Harefuah. 1998 May 1;134(9):692-4, 751, 750. Hebrew. PMID: 10909615.
- Carroll I, Gaeta R, Mackey S. Multivariate analysis of chronic pain patients undergoing lidocaine infusions: increasing pain severity and advancing age predict likelihood of clinically meaningful analgesia. Clin J Pain. 2007 Oct;23(8):702-6. doi: 10.1097/AJP.0b013e31814b1afa. PMID: 17885349; PMCID: PMC2919575.