



Repeat Perineural Steroids: A Potential Therapeutic Option To Reduce Neurogenic Inflammation In Chronic Pain

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Introduction

- Neuropathic pain can be challenging to treat, the efficacy of neuropathic medications being modest at best
- We present a case of acute on chronic neuropathic arm pain, admitted for both etiology workup and crisis pain control
- While pre-existing neuropathic pain may be a relative contraindication to peripheral nerve blocks; in this unique situation, we were able to afford temporary pain relief with functional recovery, after repeated daily boluses of perineural steroid, administered through a continuous brachial plexus catheter.

Patient Presentation

- 31-year-old female with antiphospholipid syndrome and remote right hand DVT complicated by compartment syndrome requiring multiple fasciotomies
- 16-month history of severe chronic right arm pain and swelling associated with allodynia, hyperalgesia, and immobility
- Multiple admissions with inconclusive workups with failed high doses of opiates and neuropathics

Interventions/Outcome

- Initial supraclavicular block with 40ml of 0.5% ropivacaine, 80mg methylprednisolone, and 5mg dexamethasone resulting in no significant pain relief
- Repeat supraclavicular block (3 hours later) with 20ml of 0.5% bupivacaine, 10mg dexamethasone resulting in 16 hours of 50% pain relief
- Supraclavicular catheter placed with continuous infusion of 0.2% ropivacaine at 10ml/hr



A: Pictured diffuse edema throughout upper extremity. Noted patient inability to flex arm secondary to pain. B: Pictured patient arm post nerve block. Noted patient ability to tolerate movement of arm onto bed with improvement in allodynia.

Interventions/Outcome Continued

- Q shift boluses with 5ml of 0.5% bupivacaine but failed to provide analgesia
- Adjusted treatment plan with addition of 5mg dexamethasone to 9ml of 0.2% ropivacaine for bolus
- Pain scores improved from 10/10 to 6/10; improved ability to flex and abduct arm
- Daily bolusing with the same solution for a week resulted in continued pain relief
- Patient tolerated physical exams and imaging studies
- No clear structural etiology emerged
- Final working diagnosis: Neuropathic pain from neurogenic inflammation
- Day after catheter removal: Recurrence of baseline pain but slight improvement in mobility

Discussion

- Both peripheral and central sensitization contribute to amplification and chronicity of pain.
- Dexamethasone has traditionally been used to prolong the duration of single administration peripheral nerve blocks.
- There are potential broader applications of dexamethasone in chronic pain management through suppression of peripheral sensitization.
- Repeat steroid injections are known to have a cumulative analgesic effect on chronic nociceptive transmission.
- Similar to inpatient ketamine infusions for chronic pain, repeated daily perineural steroids may offer a promising option for difficult-to-treat neuropathic pain.
- This case underscores the need for further exploration of this strategy through well-designed studies.

References

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