



Lidocaine Infusion for the Treatment of Phantom Eye Syndrome: Case Report

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INTRODUCTION

- Phantom eye syndrome (PES) is defined by phantom pain, phantom vision, and/or phantom sensations
- Although the prevalence of PES is less than its counterpart of phantom limb, it still is estimated to affect 50-60% of patients after undergoing enucleation
- Disruption of the somatosensory innervation of the orbit leading to reorganization of the cortical representation of the eye is hypothesized to lead to the development of PES [2]
- PES affects multiple aspects of a patient's quality of life and can result in a chronic pain state

PATIENT PRESENTATION

- 19-year-old male with no significant past medical history presented with multiple gunshot wounds, including penetrating wounds to the right temporal area resulting in bilateral orbit obliteration
- Patient underwent bilateral eye enucleation approximately 1 month after admission
- Patient reported uncontrolled "swelling pain" and burning and shooting sensation of the orbits and face which was thought to be secondary to PES

DISCUSSION

- Given the low incidence of PES, much of what is known, including treatment strategies, is extrapolated from phantom limb syndrome, which itself is not fully understood
 - In 2002, Wu et al. showed that while stump pain in PLS was reduced by both morphine and lidocaine infusions, phantom pain was reduced by only morphine infusion [5].
 - Earlier studies in the 1980s have shown improvement in phantom pain scores with lidocaine infusion
- Management of phantom eye syndrome requires a multidisciplinary approach involving both pharmacological treatment and nonpharmacological support [3]
 - Drug response is difficult to predict, and no standard therapy exists
 - Multiple drug classes have been utilized including antidepressants, NMDA antagonists, and opioids [1,3]
- Intravenous lidocaine infusion has been used to treat chronic neuropathic pain through multiple mechanisms including [4,6]
 - Sodium channel blockade
 - Reduced excitability of pain fibers
 - Modulation of dopamine receptors
 - Reduction in pro-inflammatory cytokines
- In this case report, lidocaine infusion was successfully used to treat acute phantom eye pain
- Patient experienced decreased pain as demonstrated by subjective report and reduced hydromorphone use
- Although patient experienced intermittent eye pain after lidocaine was discontinued, he has had no further complaints regarding his eye at his three-month follow-up
- Further investigation: can lidocaine infusions in the acute setting prevent central sensitization and chronic pain states?

TREATMENT

- Initial pain management included acetaminophen, gabapentin, tizanidine, scheduled opioids, and PRN opioids for breakthrough pain
- Inpatient pain team was consulted on POD 3
- Initial recommendations included duloxetine for central pain and scheduled anxiolytics (trazodone, quetiapine, hydroxyzine)
- Ketamine infusion was avoided to prevent exacerbation of visual hallucinations and disorientation in the setting of new blindness and immobility
- Intravenous lidocaine infusion at 1 mg/kg/hr of IBW [6] was initiated on POD 4 for refractory eye pain and continued for 48 hours with good response; serum lidocaine levels were checked to ensure no toxicity

REFERENCES

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