

Lidocaine Infusions for Lower Extremity Cramping for Hypercalcemia

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Case Description: A 47-year-old woman with a history of poorly-controlled type-1 diabetes mellitus, fibromyalgia, and PTH-dependent hypercalcemia presented with bilateral lower extremity cramping and bone pain. The PTH was abnormal with a slightly elevated calcium level. She had tried NSAIDs, muscle relaxants, duloxetine, and lidocaine patches without symptom improvement, while amitriptyline, and gabapentin were slightly helpful. Tizanidine led to modest pain control at high doses only. Finally, she was started on lidocaine infusions with, consequently, more than 90% improvement in pain. Therefore, lidocaine infusions may be a helpful adjunct for pain control in hypercalcemia, although additional research is needed. (97 words)

Introduction: The effectiveness of lidocaine infusions in chronic pain patients with fibromyalgia¹, diabetic neuropathy² and other neuropathic pains has been previously demonstrated, but the utility of lidocaine infusions in lower extremity pain secondary to hypercalcemia has not been explored. This case will discuss another potential utility of lidocaine infusions in a patient with hypercalcemia-related lower extremity cramping/burning pain. Muscle cramping pain is a known manifestation in patients with hypercalcemia.³ A purported mechanism of action of lidocaine infusion is thought to be an inhibitory effect on voltage-gated Na⁺ channels as well as NMDA receptors and indirectly increasing endogenous opioids via muscarinic antagonism.⁴

Case background: A 47-year-old woman with a history of poorly-controlled insulin-dependent diabetes mellitus, fibromyalgia, PTH-dependent hypercalcemia presented with long standing (since 09/2016), 8/10, bilateral lower extremity cramping and “bone pain” from her bilateral groins down to her calves with dermal hypersensitivity to pressure but no allodynia. She had an extensive negative workup for tib-fib fractures, DVT, rhabdomyolysis, spinal cord impingement, vitamin B12 deficiency, multiple myeloma, HIV and Hep B and C. Her PTH was normal at 39 pg/mL but with a calcium level of 11 mg/dL. Her HgbA1c was 13.3% in Sep, 2016 and 7.3% in March, 2017. She had tried NSAIDs, cyclobenzaprine 30 mg QD, duloxetine 20 mg QD, and lidocaine patches without symptom improvement, while amitriptyline 50 mg QD, and gabapentin 3600 mg/day, and daily epsom salt baths and heating blankets were slightly helpful. Tizanidine led to modest pain control at high doses (4-6 mg Q6 hrs) only. Finally, she was started on lidocaine infusions 400 mg with partial relief for two days. The second trial of a higher dose of 650 mg provided more than 90% improvement in pain that lasted at least a week.

Conclusions: The presence of both fibromyalgia and diabetes in this patient brings an extra challenge to tease out the culprit of the patient's symptoms. Our suspicion for diabetic neuropathy as the main cause of this pain was low as this patient did not present with a typical stocking and glove pattern and did not have any sensory deficits. It is possible that the underlying fibromyalgia had been causing/exacerbating her symptoms, though she reported her pain as focal and crampy in her bilateral calves (instead of widespread, and did not affect the feet). Her pain was much improved with lidocaine infusions, but it is difficult to know the exact etiology without further studies. In conclusion, lidocaine infusions could be a potential useful symptomatic treatment of lower extremity pain due to hypercalcemia, however more research needs to be done to exclude confounding disorders such as fibromyalgia and diabetic neuropathy.