



Memantine Therapy for Refractory Neuropathic Pain and Dysautonomia: A Case Report

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Introduction

- Glutamate is a neurotransmitter contributing to development of chronic pain through action on N-methyl-D-aspartate (NMDA) receptors.
- Memantine is a non-competitive antagonist of the NMDA class of glutamate receptors in the central nervous systems and has antagonistic actions at nACh and 5-HT3 receptors [1].
- Off-label uses of memantine suggest potential use in pain management [2].

Case Report

- Patient informed consent was obtained for submission.
- 56-year-old female with diabetes, chronic kidney disease, and depression presented with chronic pain in the neck, anterior thorax, lower back, and legs. Thoracic pain was her most significant pain and was in a neuropathic pattern that triggered anxiety and crying spells.
- Patient endorsed dysautonomia, including episodic tachycardia, sweating, and dyspnea.
- Imaging revealed cervical spinal stenosis.
- Treatments included:
 - C7/T1 epidural steroid injection
 - Trigger point injections for myofascial pain
 - Injections helped only neck/back pain

Case Report

- Treatment Continued:
 - Trials of NSAIDs, muscle relaxants, and opioids with minimal response.
 - Unable to trial other neuropathic agents due to allergic reactions and limited on SSRI/TCA treatment as under care of a psychiatrist for antidepressant medications.
- Short acting memantine was initiated for neuropathic pain, with clinical course below.

Initiation of 5 mg memantine once daily.

1 week: Uptitration to 5 mg twice daily.

2-month appointment: lower extremity neuropathy almost resolved, dysautonomia improved. Further uptitration of memantine.

Follow up appointments: thoracic neuropathy with noticeable improvement. No longer having crying spells or dysautonomia, with improvements in affect and concentration. If dose missed, temporary return of these symptoms which resolved with memantine re-initiation.

Tried on extended-release tablet of 21 mg daily.

Switched to short-acting 5 mg four times a day per patient preference.

Overall, patient reported satisfaction and major improvement on memantine.

Discussion

- Previous studies for the use of memantine in the treatment of pain are limited. Some reports describe memantine use in prevention and alleviation of chronic pain [2-3].
- Animal models have described overexpression of NMDA receptors in neuropathic pain syndromes, offering additional therapeutic rationale for memantine use [4].
- Prior reports also found that improvements in pain with memantine therapy coincided with improvements in dysautonomia, consistent with our case [5].
- **Overall, we report a successful clinical case of a patient with refractory chronic neuropathic pain and dysautonomia who had substantial improvement in pain and dysautonomia with memantine therapy.**

References

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