

Neuromodulation Special Interest Group

American Society of Regional Anesthesia and Pain Medicine

Ziconotide Dosing and Trialing Strategies

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Background

Ziconotide is a non-opioid agent that is delivered into the intrathecal space for the treatment of refractory chronic pain.[1] It is the only non-opioid Food and Drug Administration (FDA) approved intrathecal agent to treat chronic pain. Further, it has been studied by three randomized, placebo-controlled trials,[2-4] along with numerous prospective and retrospective studies.[5-11] Despite these accolades, poor adoption of intrathecal therapy as a treatment modality offered to patients has plateaued, as is the sustainability of monotherapy ziconotide. In diving into the available data, with a keen eye on patient selection, a pathway can be forged.[12,13]

The pharmacokinetics of ziconotide have been extensively described, demonstrating linear kinetics with a half life of 4.5 hours.[14,15] Many trialing options have been described for intrathecal therapy, [16] with no clear superior strategy for predicting long-term success with long-term intrathecal delivery.[17,18] Of these, single shot, intrathecal trialing has emerged as a viable option for ziconotide.[19,20] It is recommended by the Polyanalgesic Consensus Conference (PACC) of 2012 [21] to monitor these patients for at least 12 hours.

Further, introducing ziconotide as the initial intrathecal agent improves the sustainability of the medication.[1,22] Because of the “penetration interval” needed for the ziconotide to reach its site of action, the recommended dosing interval of 1.2 or 2.4 mcg per 24 hours may be too fast, as we suggested a slower titration schedule.

As described, [23] ziconotide is not an opioid. Therefore, patients on opioids need to slowly wean off their systemic medications. It is not recommended for patients with a history of psychosis.

Best Practice

Performing a trial of medication with ziconotide, placed intrathecally, via bolus injection, is recommended. Performing the injection under fluoroscopy, with a lateral

projection with needle entry within the intrathecal space is crucial. Injection of contrast to observe any filling defects prior to injection suggested.

The trial concentration and the manner at which to perform the injection have already been described.[19] Typically, bolus injection dosing begins between 2 or 2.5 mcg/cc and 1 cc of medication is injected with barbotage. The patient is then observed for at least 4 hours.

Once the pump is implanted, placement of the medication within the reservoir of the pump and initiation of the infusion strategy, may occur on the day of surgery or shortly thereafter, in either an inpatient or outpatient setting. The dose initiated should be similar to the successful trialing dose if bolus delivery is performed. If continuous infusion is chosen as the infusion strategy, 0.5 to 1.0 mcg/cc is recommended. In either case, titration should occur in terms of increases of 0.1 to 0.2 mcg/day per week.

If side effects are encountered, the clinician needs to gauge each situation individually. If the side effects are not severe reactions, decreasing the dose by 50% initially, with a slower titration of 0.5 (the previous titration schedule), is recommended.

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