

Intravenous Lidocaine is a safe and good alternative in the Emergency Department: Recent Advances

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Lidocaine is a drug with a high safety profile which has no significant side effect in low doses. Availability and low price are other advantages of lidocaine [1]. Pain control management and sedation are essential parts of emergency department care. Lidocaine has anti arrhythmic effects as well. Intravenous form of lidocaine is used for diagnostic and therapeutic purposes since 1980. Pain from neurological diseases such as stroke and myofascial pain as well as neurogenic facial pain can all be managed by lidocaine [2]. The percentage of patients who responded to intravenous lidocaine was 78%. Results of randomized clinical trials support use of lidocaine as an analgesic in the emergency department. Comparing lidocaine with opioids and other analgesics; lidocaine has less complications and adverse effects. The side effects of lidocaine are predictable which increases the safety profile. Owing to short duration of action, toxicity of lidocaine is temporary and reversed rapidly which is particularly important in the emergency department [2]. Lidocaine is effective in variety of cases including neuropathic pain, post herpetic neuralgia, central pains, post-operative pain and in patients with headache or malignant neurological lesions. Voltage dependent Na channels are blocked by local anaesthetics; therefore, no impulse is produced or transmitted in the axons. Local anaesthetics are chemically divided to two main categories: amino amides and amino esters. Liver is responsible for amino amides metabolism while plasma esterase metabolises amino esters. The effect of lidocaine is initiated fast and its duration of action is medium. Lidocaine is used to treat neuropathic pain beside acute and chronic pain. Lidocaine is an amide for local anesthesia with other vast usages in the emergency department [1]. As lidocaine alleviates central and visceral pain, intravenous (IV) form can be used in cases that opioids are less effective, have limitations or undesirable side effects. IV lidocaine (1.5 mg/kg over 5 minutes) for pain control in patients with renal colic is more effective than opioids which ensues from reduced smooth muscles' sympathetic tone through decreased transmission in the afferent sensory pathways [2]. IV lidocaine is also reported to be effective in refractory renal colic [3]. Although lidocaine is not the first choice in patients with migraine

headache, it can be used as good alternative to opioids and non-steroidal anti-inflammatory drugs (NSAIDs) in refractory headaches, the hypothetical mechanism is slow saturation of Na⁺ channels which culminates in appropriate blockade [1]. Weak evidences exist about IV lidocaine use in status epilepticus and studies continue [4]. Using IV lidocaine in patients with low back pain did not have definite results but spinal cord injury pain responds to intravenous lidocaine [5,6]. Injured nerve, ganglion and neuromata produce ectopic discharges that are inhibited by lidocaine. Neuropathic pain responds to lidocaine 10% subcutaneous infusion. Many studies and evidences find lidocaine effective in the treatment of post herpetic neuralgia, a study that evaluated two times administration of intravenous lidocaine (0.5 mg/kg in the first hour with subsequent 2.5 mg/kg in the following hour) for post herpetic neuralgia and allodynia concluded that lidocaine in the intravenous form was effective in these mentioned cases [1].

References

1. Golzari SE, Soleimanpour H, Rahmani F, Zamani Mehr N, Safari S, et al. (2014) Therapeutic approaches for renal colic in the emergency department: a review article. *Anesth Pain Med* 4: e16222.
2. Soleimanpour H, Hassanzadeh K, Vaezi H, Golzari SE, Esfanjani RM, et al. (2012) Effectiveness of intravenous lidocaine versus intravenous morphine for patients with renal colic in the emergency department. *BMC Urol* 12: 13.
3. Soleimanpour H, Hassanzadeh K, Mohammadi DA, Vaezi H, Esfanjani RM (2011) Parenteral lidocaine for treatment of intractable renal colic: a case series. *J Med Case Rep* 5: 256.
4. Zeiler FA, Zeiler KJ, Kazina CJ, Teitelbaum J, Gillman LM (2015) Lidocaine for status epilepticus in adults. *Seizure* 31: 41-48.
5. Tanen DA, Shimada M, Danish DC, Dos Santos F, Makela M, et al. (2011) Intravenous lidocaine for the emergency department treatment of acute radicular low back pain, a randomized controlled trial. *J Emerg Med* 47: 119-124.
6. Finnerup NB, Biering-Sørensen F, Johannesen IL, Terkelsen AJ, Juhl GI, et al. (2005) Intravenous lidocaine relieves spinal cord injury pain: a randomized controlled trial. *Anesthesiology* 102: 1023-1030.

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