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Editorial

Opioid-free analgesia in the emergency department: A new aspect

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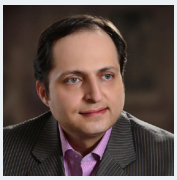
Pain is the most common symptom in patients referred to the emergency department (ED), so its rapid and effective relief can increase patients' satisfaction as well as decrease their physical and mental complications.[1] Morphine is the most commonly used opioid in emergency medicine (EM) to relieve pain in patients. Despite its accessibility and its ability to alleviate pain, it has side effects such as excessive sedation and increased respiratory depression, and also its effectiveness in cases of severe pain is controversial. Therefore, the use of other non-opioid analgesic drugs can be helpful in controlling the pain of patients referred to the ED in cases where we have limited opioid use.[1-3] In the following, we mention some of these drugs. Lidocaine as an amino amide local anesthetic agent inhibits voltage-dependent sodium channels and impulses in axon.[2-4] Lidocaine causes alteration in sympathetic smooth muscle tone by decreasing the transmission of afferent sensory pathways. Intravenous (IV) administration of lidocaine causes significant decrease in pain and can be a proper substitute for cases in which narcotics are unsuccessful or associated with adverse effects.[3] Lidocaine has been successfully used to relieve pain in patients with renal colic compared to morphine. The quickness and reduction of pain relief by lidocaine is significantly greater than that of morphine.[3] Another drug is magnesium sulfate which is used in patients with trigeminal neuralgia. Magnesium (Mg^{2+}) and the N-methyl-D-aspartate (NMDA) receptors are involved in the pain management. Magnesium has been recommended as a treatment choice for migraines due to its NMDA receptors blockage property. The NMDA receptors play the most important role in the progress of hypersensitivity states and the mechanisms responsible for central sensitization in the spinal cord. They are significantly important in the setting up process of different chronic neuropathic pain situations. Magnesium sulfate (MgSO4) is an NMDA receptor antagonist and inhibitor of voltage gated calcium channel. Intravenous administration of MgSO4 (1 g) has also been recommended as an effective, and well tolerated drug in the treatment of migraine attacks. Magnesium added to local anesthetics for central block has an advantageous effect in various pain states. Moreover, magnesium sulfate is a low-cost, efficient and safe medication for the treatment of intractable trigeminal neuralgia in both short term and long standing states.[5] The other drug is ketamine, which is used as an alternative to opiates in the EM. In comparison with morphine, it significantly reduces pain 15 minutes after its intravenous injection in patients with severe pain .[1] Ketamine has also been used in various chronic pain syndromes, particularly those syndromes that have a neuropathic component, such as complex regional pain syndrome type 1, post-herpetic neuralgia and neuropathic pain from peripheral nerve damage, and also fibromyalgia, pain after spinal cord injuries, chronic pain after amputation, and cancer pains.[1,6] The last drug is propofol which is used to relieve pain in patients with migraine headaches.[7,8] Use of this drug can significantly and rapidly alleviate headaches in patients with migraine headaches in comparison with dexamethasone. The mechanisms of therapeutic effects of propofol is through interactions at various neurotransmitter receptors, especially chlorine channels in β1 subunits of gamma-



Author's Biosketch

Prof. Hassan Soleimanpour (First top researcher of the East Azerbaijan province of Iran in the field of Medical Sciences in 2020 and also first top researcher of the Medical Faculty, Tabriz University of Medical Sciences (TUOMS) in 2013-2014), is Professor of Anesthesiology, Fellowship in Trauma Critical Care and CPR, and subspecialty of Intensive Care Medicine (ICM) in the TUOMS. He is a Board Man of Emergency Medicine in Ministry of health and medical education, Iran (2019- Ongoing). He has published 5 academic books regarding CPCR and Airway management and 82 articles in renowned medical journals. His H-index is 14-22 (depending on source: Scopus and Google Scholar). He is founder of 7 E-learning Programs (Hypothermia After Cardiac Arrest (HACA), ACLS Drugs, Airway management, Basic Life Support, ACLS, Capnography, Oxygen therapy and Procedural sedation, CME, TUOMS).

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aminobutyric acid (GABA) receptors. As a result of high tendency of propofol to GABAergic receptors that are in low functional status in refractory migraine headaches, it seems that propofol overcomes this physiological condition through stimulating these receptors and leads to significant decrease in pain.[7] Consequently, propofol can be presented as a drug that is efficient, rapid-acting, and safe with a small number of adverse effects for relieving acute migraine headaches.[8]

Conflict of Interest

The author declares that he has no competing interest.

Ethical Approval

Not applicable.

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