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Adjuvant analgesia in perioperative care

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Acute perioperative pain can produce structural and functional changes in the pain pathways. In addition, poorly controlled pain at the time of surgery may predispose to chronic postsurgical pain (CPSP). Although opioids are the mainstay of perioperative analgesia, multimodal analgesia is increasingly used to improve pain management and decrease opioid consumption and some opioid-related side-effects. It is increasingly recognized that acute perioperative pain often has a neuropathic component. That is why the medications prescribed traditionally for the treatment of chronic neuropathic pain are increasingly used as adjuvant medications in the management of acute postoperative pain. Ketamine in sub-anaesthetic doses non-competitively blocks the NMDA receptors and by preventing hyperalgesia, sensitization, and wind up, it may also reduce the incidence of CPSP. It also reduces pain intensity and analgesic consumption up to 48 hrs after surgery. Gabapentinoids (gabapentin and pregabalin) bind to $\alpha 2\delta$ -1 subunit of presynaptic voltage-gated calcium channels and modify the release of excitatory neurotransmitters (especially glutamate) from activated nociceptors. They may contribute to better postoperative pain management, enhance opioid analgesia, prevent opioid tolerance, and prevent CPSP. Lidocaine inhibits Na channels and NMDA and G-protein-coupled receptors and may help attenuate neurogenic inflammation. It has been found to be useful only in abdominal surgery and may decrease the duration of postoperative ileus. $\alpha 2$ -Adrenoceptor agonists (Clonidine and dexmedetomidine) activate the G1-protein-gated K channels in the neurons, resulting in membrane hyperpolarization. Systemic clonidine and dexmedetomidine may be associated with a moderate decrease in pain intensity, opioid consumption, and early postoperative nausea.

Biography

Alireza Khajehnasiri has completed his anesthesiology residency and pain fellowship course in Tehran University of Medical Sciences (TUMS) in Iran, and is now working as Assistant Professor in Shariati Hospital, a teaching hospital of TUMS. He has published several articles in international and Iranian journals.