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Abstract

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Transdermal buprenorphine controls central neuropathic pain.

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Abstract

A 53-year-old male with peripheral sensorimotor neuropathy suffered an intracerebral hemorrhage resulting in right hemiparesis and hemisensory loss. Three months later, he developed constant and burning pain within the entire right side of his body. He was diagnosed with central pain syndrome and treated with antiepileptics and tricyclic antidepressants. Minimal analgesia was achieved, which was limited by intractable sedation and drowsiness. Patient was then treated with oral opioids (morphine and hydrocodone with acetaminophen) in escalating doses that produced cognitive impairment. After an opioid rotation was attempted, by switching morphine to transdermal fentanyl, there was no pain reduction or improved quality of life. A trial of buprenorphine was initiated, by administering transdermal patches in escalating doses in weekly intervals. Patient's pain was eventually successfully controlled with buprenorphine patch 60 µg/h every 7 days. His self-reported Visual Analogue Scale pain scores decreased from an average of 8/10 to 2/10 or less. Patient's overall function and participation in home activities increased. Buprenorphine is a partial µ-receptor and a κ-δ receptor antagonist known to block NMDA receptors and reduce hyperalgesia secondary to central sensitization.(1) Buprenorphine is also a partial agonist at the opioid receptor-like (ORL-1) receptor, which is found to be analgesic and antinociceptive at the level of the spinal cord.(1,2) The difference in analgesic responses between buprenorphine and other opioids may be due to different receptor G protein interactions and/or selective activation of neuronal K(ATP) channels by buprenorphine.(3) Deficient opening of K(ATP) channels has been shown to mediate neuropathic pain(4); therefore, activation of these channels by buprenorphine may contribute to its analgesic effect in neuropathic pain states wherein other opioids fail. More recently, there have been two case reports in which patients with neuropathic pain of different central etiology were successfully treated with buprenorphine.(5) Despite advances in understanding the pathology related to central pain, effective treatment options are limited. Buprenorphine may be an analgesic option for central pain management when opioids fail to reduce hypersensitivity or when patients exhibit intolerable side effects to other medications.

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