Intranasal ketamine could effectively treat phantom pain

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Phantom pain is a neuropathic disorder that arises when a person experiences a painful sensation from an organ or body part that is no longer or never was physically present. This form of neuropathic pain often results from the surgical removal of a body part. Examples of surgeries that can damage nerve cells include mastectomies, enucleations and limb amputations.

Surgical procedures to remove body parts can be a necessary part of treating cancer, frostbite or infectious diseases such as necrotising fasciitis and Legionnaires' disease. Phantom pain can arise immediately after the removal of a body part or develop slowly over time. It is also possible for people with congenital limb defects or nerve injuries to suffer from phantom pain, which can be managed with antiepileptics such as gabapentin and pregabalin.

Tricyclic antidepressants (TCAs) such as amitriptyline, desipramine and nortriptyline have also been historically indicated for the treatment of phantom pain. These drugs, however, are known for their potential cardiotoxicity, hepatoxicity and nephrotoxicity. In cases where the phantom pain is persistent and severe, patients may be at risk of TCA overdose, which is a medical emergency for which no specific antidote has been identified.

Ketamine is an anaesthetic medication known for causing amnesia and sedation. The drug is most often administered orally or intramuscularly. Clinical trials have, however, shown that ketamine can also be used to manage and modify symptoms of post-traumatic stress disorder. In 2019, Janssen's Spravato (esketamine) became the first intranasally-administrable form of ketamine to gain US Food and Drug Administration (FDA) approval for the treatment of major depressive disorder (MDD).

Given that ketamine-based products have been shown to relieve acute or chronic neuropathic pain in a number of clinical studies, it may be possible for Spravato to be used to treat phantom pain, which can be distressing and significantly impact patients' quality of life.

Spravato has been shown to be potent enough to be administered once or twice weekly. This is a considerable advantage compared to TCAs that are administered once daily. Although ketamine's analgaesic properties have been well-characterised in scientific literature, one year's supply of Spravato costs around $35,000 in the US, assuming that patients use the nasal spray twice a week. In addition, ketamine's addictogenic properties cannot be underestimated. Ketamine is a classified substance and is not purchasable at pharmacies or health clinics. Despite this, the success of Spravato in the MDD market suggests that intranasal, therapeutic administration may be useful for the treatment of other chronic neurological indications such as phantom pain, which can gradually worsen if symptoms are untreated.

Overlooking the potential for intranasal ketamine to relieve symptoms of phantom pain could significantly impact patients' ability to fully enjoy their lives. A more noteworthy consequence of such an oversight would be having to manage the adverse events that come with the use of TCAs.