

## Nonpharmacological Modality of Treating Opioid Withdrawal

Sir,

Opioid dependence is an alarming situation when a person is physiologically and psychologically addicted to an opioid.<sup>[1]</sup> Opioid withdrawal is characterized by pupillary dilatation, severe muscle cramps, profuse diarrhea, abdominal cramps, yawning, piloerection, rhinorrhea, lacrimation, hypertension, tachycardia, temperature dysregulation, dementia, and delirium.<sup>[2]</sup> Opioid withdrawal manifests in a palliative care patient if the opioid is not available on time or patient who was earlier dependent on it has stopped using it. Reason for stopping of opioid could be interruption of supply, financial issues, or due to intolerable adverse effects. Another reason of manifestation of withdrawal is when a route of administration of an opioid is changed (for example, tablet morphine is now changed to transdermal fentanyl patch for better patient compliance).

Recently, lofexidine which is an alpha-2 receptor agonist marketed as oral formulation has been approved for managing opioid withdrawal.<sup>[3]</sup> The drug has to be judiciously prescribed owing to its pharmacological profile as it causes hypotension and bradycardia in susceptible patients. The US-FDA has recently approved auricular neurostimulation device which is nonpharmacological modality for treating opioid withdrawal. The device is specific, safe, and flexible to use. The device is fitted to the ear which sends electrical impulses. The device can be used for a maximum of 5 days.

The auricular branches of V, VII, IX, and X cranial nerves innervating the ear are connected to the brainstem, especially to the nucleus tractus solitarius (NTS). The auricle is considered as gateway to the brain as it is innervated by cranial nerves which are targeted in neurostimulation. Amygdala is responsible for the negative emotional state of withdrawal to opioids and drug craving. The auditory neurostimulation device modulates NTS which interferes with the impulses and mediators reaching hypothalamus, amygdala, and rostral ventral medulla. In this way, neuromodulation of limbic system helps in reducing symptoms occurring due to opioid withdrawal.<sup>[4]</sup>

At this moment, it is not understood if the device has any effect on other mediators released during opioid withdrawal such as norepinephrine, adrenocorticotrophic hormone, cortisol, and endorphins. Preliminary studies have shown that this device reduced clinical opioid withdrawal scale score by 63% in initial 20 min itself and 84.6% in 60 min without any rescue medication.<sup>[5]</sup> The device claims to help in detoxification and later facilitate rehabilitation of patient-facing opioid withdrawal. The device is available in the market with the brand name Drug Relief™ marketed by DyAnsysis® Private Ltd.

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Nil.

### Conflicts of interest

There are no conflicts of interest.

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