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CASE SERIES

Intravenous tapentadol abuse in treatment-seeking young rural adults: a case series

Rajalakshmi Arunachalam*†, Jaikumar Velayutham and Rathika Pichaachari

Department of Psychiatry, Government Vellore Medical College and Hospital, Vellore, India

***Correspondence:** Rajalakshmi Arunachalam, velraj.lakshmi@gmail.com

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Abstract

Background: Tapentadol is a centrally acting opioid analgesic with μ-opioid receptor agonism and norepinephrine reuptake inhibition. Although approved for the management of moderate to severe pain, emerging reports suggest increasing misuse of tapentadol in India, particularly through tampering of oral tablets for intravenous use. Limited data are available regarding the clinical profile and complications associated with this pattern of use.

Case series: We describe 13 treatment-seeking young adults with intravenous tapentadol abuse who presented to a tertiary care center between January and December 2025. All patients were male, aged 16–29 years, and from rural backgrounds. The duration of intravenous tapentadol use ranged from 6 months to 6 years, with maximum daily doses ranging from 500 mg to 4000 mg. Alcohol (46.2%) and cannabis (38.5%) were the most common primary substances used before tapentadol initiation. Eight patients fulfilled the ICD-10 criteria for opioid dependence syndrome, while five had harmful opioid use. At presentation, Clinical Opiate Withdrawal Scale (COWS) scores ranged from 12 to 30, indicating mild-to-moderately severe withdrawal. Patients also exhibited psychiatric features, including low mood, aggressive behavior, suicidal ideation, and deliberate self-harm behavior. Injection-related complications, including abscess, cellulitis, and thrombophlebitis, were observed in three patients, while four patients tested positive for hepatitis B.

Conclusion: Intravenous tapentadol use among young adults from rural backgrounds represents an emerging public health concern in India. Early identification, harm-reduction strategies, and strengthening of regulatory measures are essential to address the growing misuse of prescription opioids.

Keywords: tapentadol, substance abuse, intravenous, opioid-related disorders, rural population, young adult

Introduction

Tapentadol is a centrally acting synthetic opioid analgesic with a dual mechanism of mu-opioid receptor agonism and norepinephrine reuptake inhibition (1). The Central Drugs Standard Control Organization (CDSCO) approved tapentadol use for moderate to severe pain in India in 2011 (2). It is available in both immediate (IR) and extended release (ER) forms with improved gastrointestinal tolerability and lower risk of respiratory depression

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compared to conventional opioids (3). Intravenous use of tapentadol has limited safety data, as parenteral preparations are not available unlike tramadol. However, studies have shown that the injectable route is the third most common route of administration of tapentadol ER (4, 5). According to recent studies, tapentadol abuse is on the rise in India, where users are tampering with 50 and 100 mg tablets for intravenous use. This occurs due to limited regulatory oversight and weak prescription monitoring systems (6). The World Health Organization (WHO) Expert Committee on Drug Dependence has highlighted lack of surveillance data regarding tapentadol abuse and dependence (7).

This case series aims to describe the sociodemographic characteristics, patterns of intravenous tapentadol use, psychiatric features, and medical complications among treatment-seeking young adults with tapentadol abuse from rural backgrounds.

Case series

We report 13 treatment-seeking patients with intravenous tapentadol abuse who presented to a tertiary care center between January 2025 and December 2025. Sociodemographic details of the patients, substance use patterns, clinical features, and family history were recorded. Diagnoses were made according to the International Classification of Diseases, 10th Revision (ICD-10) criteria. The sociodemographic and clinical characteristics of the patients are summarized in **Table 1**.

The clinical profile of the individual patients is presented in **Table 2**. All patients were male and aged between 16 and 29 years, and all were from rural backgrounds. Most were employed (92.3%) and unmarried (53.8%). The age at initiation of tapentadol use ranged from 15 to 25 years. Alcohol was the most common primary substance before tapentadol use (46.2%), followed by cannabis (38.5%) and tobacco (15.4%). Family history of psychiatric illness and substance use disorder was present in 9 patients (69.2%). The duration of intravenous tapentadol use ranged from 6 months to 6 years, with 46.2% using it for more than 3 years. Most patients procured tapentadol through informal sources, and some reported traveling to neighboring states to get the drug at lower cost, while others were unwilling to disclose the sources. The maximum daily dose ranged from 500 mg to 4000 mg, with 5 patients (38.5%) exceeding 1000 mg/day. At presentation, patients exhibited opioid withdrawal symptoms such as insomnia, anxiety, irritability, restlessness, and injection-site swelling. Clinical Opiate Withdrawal Scale (COWS) score ranged from 12 to 30 indicating mild to moderately severe withdrawal. One patient (7.7%) reported deliberate self-harm behavior, and one (7.7%) reported suicidal ideation. Four (30.8%) patients tested positive for Hep-B, and injection-related complications (abscess, cellulitis, or superficial thrombophlebitis) were seen in three (23.1%) patients. Based on ICD-10 criteria, eight patients were diagnosed with opioid dependence syndrome (F11.2) and five with harmful use of opioids (F11.1). Due to the unavailability of opioid substitution therapy, patients were managed symptomatically with quetiapine, diazepam, pregabalin, and baclofen. Craving was addressed using urge

TABLE 1 | Sociodemographic and clinical characteristics of patients with intravenous tapentadol use (n = 13).

Variable	Category	n (%)
Gender	Male	13 (100)
Age at first substance use (years)	Mean ± SD	20.1 ± 3.1
Educational status	Primary education	1 (7.7)
	Secondary education	9 (69.2)
	Diploma/ITI	2 (15.4)
	Degree	1 (7.7)
Employment status	Employed	12 (92.3)
	Unemployed	1 (7.7)
Marital status	Married	4 (30.8)
	Unmarried	7 (53.8)
	Divorced/separated/ widowed	2 (15.4)
Primary substance before tapentadol	Alcohol	6 (46.2)
	Cannabis	5 (38.5)
	Tobacco	2 (15.4)
Introduction to tapentadol	Peer group	13 (100)
Route of tapentadol use	Intravenous	13 (100)
Duration of tapentadol use	≤1 year	4 (30.8)
	1–3 years	3 (23.1)
	>3 years	6 (46.2)
Maximum dose achieved	≤1000 mg/day	8 (61.5)
	>1000 mg/day	5 (38.5)
Maximum number of injections/day	≥4	9(69.2)
	1–3	4(30.8)
Concurrent substance use	Alcohol	6 (46.2)
	Cannabis	5 (38.5)
	Tobacco	2 (15.4)
Needle-sharing	Present	13 (100)
Psychiatric features	Self-harm behavior	1 (7.7)
	Suicide attempts	1 (7.7)
	Low mood	2 (15.4)
	Aggressive behavior	2 (15.4)
Medical complications	Injection-site abscess	1 (7.7)
	Cellulitis	1 (7.7)
	Thrombophlebitis	1 (7.7)
	Hepatitis B positive	4 (30.8)
Family history of substance use/psychiatric illness	Present	9 (69.2)
	Absent	4 (30.8)

TABLE 2 | Clinical profile of individual cases with intravenous tapentadol use (n = 13).

Case	Age/ sex	Age at initiation of tapentadol (years)	Duration of IV tapentadol use	Starting dose and pattern	Maximum dose reached	Primary substance use	Chief complaints	COWS (clinical opioid withdrawal scale)	Diagnosis based on ICD-10	Medical complications
1	16/M	15	8 months	200 mg IV	1000 mg/day	Alcohol	Poor academics, behavioral change	18 (moderate)	Opioid dependence syndrome (F11.2)	Abscess at injected site
2	22/M	20	2 years	100 mg oral later 200 mg IV	2000 mg/day	Alcohol	Insomnia, palpitations	23 (moderate)	Opioid dependence syndrome (F11.2)	Hep-B positive
3	24/M	19	5 years	200 mg IV	4000 mg/day	Alcohol	Low mood, deliberate self-harm behavior	26 (moderate)	Opioid dependence syndrome (F11.2)	Hep-B positive
4	20/M	18	2 years	200 mg IV	800 mg/day	Cannabis	Aggressive behavior	12 (mild)	Opioid harmful use (F11.1)	-
5	25/M	19	6 years	200 mg IV	2000 mg/day	Cannabis	Suicidal thought	24 (moderate)	Opioid dependence syndrome (F11.2)	Thrombo phlebitis of the superficial veins
6	22/M	19	3 years	200 mg IV	1000 mg/day	Alcohol	Insomnia	26 (moderately severe)	Opioid dependence syndrome (F11.2)	Hep B positive
7	29/M	24	5 years	200 mg IV	2000 mg/day	Tobacco	Low mood	23 (moderate)	Opioid dependence syndrome (F11.2)	-
8	21/M	20	1 year	200 mg IV	4000 mg/day	Cannabis	Irritability	30 (moderately severe)	Opioid dependence syndrome (F11.2)	Hep B positive
9	23/M	19	5 years	200 mg IV	1000 mg/day	Alcohol	Insomnia	13 (moderate)	Opioid harmful use (F11.1)	-
10	17/M	16	1 year	200 mg IV	500 mg/day	Tobacco	Behavioral disturbance	12 (mild)	Opioid harmful use (F11.1)	-
11	26/M	25	1 year	200 mg/day	1000 mg/day	Cannabis	Emotional distress	15 (moderate)	Opioid dependence syndrome(F11.2)	-
12	24/M	23	6 months	200 mg/day	600 mg/day	Alcohol	Pain and swelling in the injected site	13 (moderate)	Opioid harmful use (F11.1)	Cellulitis
13	25/M	24	6 months	200 mg IV	600 mg/day	Cannabis	Headache, restlessness	12 (moderate)	Opioid harmful use (F11.1)	-

surfing techniques and behavioral distraction strategies. Most patients showed improvement in withdrawal symptoms, with a reduction in COWS scores at follow-up.

Discussion

This case series highlights intravenous tapentadol abuse predominantly in rural populations, contrasting with earlier reports mainly from urban and semi-urban settings (1, 6). Out-migration of young adults from rural communities and stronger social networks in rural populations may contribute to drug diversion and distribution within these groups (8). Tapentadol is considered primarily as a rare drug of abuse among other opioids (9). However, in our study, it was the first opioid used by patients, likely due to its low cost and easy availability, consistent with similar studies (10, 11). In our study, patients reported using multiple tapentadol injections per day, which is consistent with previous studies (1). Multiple injections are required to enhance the pleasurable effect due to the lower μ-opioid receptor activity of tapentadol compared with classical opioids, which in turn increases the risk of injection-related hazards (11, 12). When opioids are tampered with, the total opioid dose increases bioavailability, thereby increasing the risk of severe health outcomes (13). When oral drugs are crushed and injected, the excipients—insoluble, inert substances used as fillers and binders in oral tablets to shape and protect active ingredients—enters the pulmonary circulation, get deposited in blood vessels, and provoking granuloma formation, leading to sudden death due to pulmonary hypertension and cor pulmonale (14–16). However, opiate solutions intended for IV use do not cause excipient lung disease due to the absence of insoluble particulate matter (17). The WHO considers people who use drugs as a key adult target population for eliminating hepatitis B virus (HBV) through the promotion of harm reduction services as a core intervention for combating viral hepatitis (18). Needle sharing is one of the major routes of transmission for hepatitis B. Hence, there is an urgent need for strict regulatory action in India. Rescheduling tapentadol from Schedule H (prescription drugs) to Schedule X (narcotic drugs) could reduce risks related to abuse, addiction, and dependence (19).

Clinical implications

- Clinicians should routinely screen for intravenous drug abuse in patients with substance use disorders, especially in rural populations.
- Implementation of harm reduction services for high-risk populations.
- Preventive strategies, such as the availability of abuse-deterrent formulations and rescheduling the drug under the NDPS Act, should be considered.
- Active reporting of drug abuse and strengthening of regulatory frameworks and policies should be encouraged.

Conclusion

Intravenous tapentadol use represents an emerging public health concern, particularly among the rural Indian population. Although this case series is limited by its small sample size, lack of long-term follow-up, and limited generalizability, the findings highlight the need for increasing awareness regarding drug abuse and strengthening health policies for early identification and treatment of affected individuals.

Ethics statement

Written informed consent was obtained from the patients and their legal representatives for publication of this manuscript.

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Generative AI statement

The authors certify that AI was not used for writing the manuscript. However, Grammarly software was used to improve the language of the manuscript.

Declarations of patient consent to participation

The authors certify that they have obtained all appropriate patient consent forms. In the form, the patients and their legal representatives have given their consent for anonymized patient information, images, and other clinical information

to be reported in the journal. The patient(s) understand that their names and initials will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed. The patients also understand that their consent can be withdrawn at any time, and this will not affect their ongoing or future treatment in any way.

Prior presentations

This work was presented as a poster at CAMCON 1.0, the National Conference on Addiction Medicine, conducted at NIMHANS on 27 February 2026.

Reporting guideline

We used the CARE checklist when writing our report (Gagnier JJ, Kienle G, Altman DG, Moher D, Sox H, Riley D; the CARE Group). The CARE Guidelines: Consensus-Based Clinical Case Reporting Guideline Development.

Simultaneous submission to another journal or resource

This work manuscript has been submitted solely to this journal and is not published, in press, or submitted elsewhere.

Conflict of interest

The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

References

1. Mukherjee D, Shukla L, Saha P, Mahadevan J, Kandasamy A, Chand P, et al. Tapentadol abuse and dependence in India. *Asian J Psychiatry.* (2020) 49:101978.
2. CDSCO. *CDSCO Approved Drugs/Vaccines/r-DNA/Blood Products*. New Delhi: Central Drugs Standard Control Organization (2026). Available online at: https://cdscoonline.gov.in/CDSCO/DrugsCDSCO
3. Alshehri FS. Tapentadol: a review of experimental pharmacology studies, clinical trials, and recent findings. *Drug Des Devel Ther.* (2023) 17:851–61.
4. Vosburg SK, Beaumont J, Dailey-Govoni ST, Butler SF, Green JL. Evaluation of abuse and route of administration of extended-release tapentadol among treatment-seeking individuals, as captured by the addiction severity index-multimedia version (ASI-MV). *Pain Med.* (2020) 21(9):1891–901.
5. Kathiresan P, Pakhre A, Kattula D, Sarkar S. Tapentadol dependence: a case series. *Prim Care Companion CNS Disord.* (2019) 21(5):19l02444.
6. Basu D, Mahintamini T, Ghosh A, Roub F, Subodh BN, Mattoo SK, et al. Tapentadol, the new kid on the block in India: is it time to worry? *Indian J Psychiatry.* (2020) 62(6):697–702.
7. World Health Organization. *WHO Expert Committee on Drug Dependence: Thirty-Sixth Report*. Geneva: World Health Organization (2015). Available online at: https://books.google.com/
8. Keyes KM, Cerdá M, Brady JE, Havens JR, Galea S. Understanding the rural-urban differences in nonmedical prescription opioid use and abuse in the United States. *Am J Public Health.* (2014) 104(2):e52–9.
9. Severtson SG, Gurrola MC, Parrino MW, Ellis MS, Cicero TJ, Iwanicki JL, et al. Abuse of tapentadol compared to other atypical opioids among individuals entering treatment for opioid use disorders. *J Opioid Manag.* (2023) 19(5):445–53.
10. Shivaprakash P, Shukla L, Joshi S, Mahadevan J, Kandasamy A, Chand PK, et al. Tapentadol as a drug of abuse - a preliminary report. *Indian J Psychiatry.* (2025) 67(2):256–9.
11. Avula VCR, Vullanki SS, Munivenkatappa S. Tapentadol dependence through intravenous injection ('shooting') of crushed tablets associated with cutaneous pseudoallergic reactions. *BMJ Case Rep.* (2023) 16(12):e257721.
12. Raffa RB, Elling C, Tzschentke TM. Does "strong analgesic" equal "strong opioid"? Tapentadol and the concept of "μ-load". *Adv Ther.* (2018) 35(10):1471–84.
13. Roulet L, Rollason V, Desmeules J, Piguet V. Tapentadol versus tramadol: a narrative and comparative review of their pharmacological, efficacy and safety profiles in adult patients. *Drugs.* (2021) 81(11):1257–72.
14. Cook CM, Simpson SQ, Satterwhite L. Excipient-induced pulmonary vascular disease: an underrecognized and deadly complication of opioid addiction. *Lung.* (2021) 199(4):363–8.
15. Tomashefski JF Jr., Felo JA. The pulmonary pathology of illicit drug and substance abuse. *Curr Diagn Pathol.* (2004) 10(5):413–26.
16. Nguyen VT, Chan ES, Chou SHS, Godwin JD, Fligner CL, Schmidt RA, et al. Pulmonary effects of IV injection of crushed oral tablets: "excipient lung disease". *AJR Am J Roentgenol.* (2014) 203(5):W506–15.
17. Arnett EN, Battle WE, Russo JV, Roberts WC. Intravenous injection of talc-containing drugs intended for oral use. A cause of pulmonary granulomatosis and pulmonary hypertension. *Am J Med.* (1976) 60(5):711–8.
18. Kannappan R, Pasupuleti MR, Sibbala B, Venugopal S. Rhabdomyolysis associated with tapentadol abuse. *Indian J Psychiatry.* (2024) 33(Suppl 1):S305–6.
19. Suresh J, Shukla S, Vivekanandan K, Singh Raghuvanshi R. Tapentadol: navigating the complexities of abuse, patient safety & regulatory measures. *Curr Med Res Opin.* (2024) 40(12):2201–7.