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Pregabalin as a Therapeutic Option for Neuropathic Pain in Oncology Patients: A Review of Literature

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Abstract

Introduction. Neuropathic pain is a complex and debilitating condition resulting from damage to, or disease of, the somatosensory nervous system. In oncology, it represents a significant clinical challenge, occurring in up to 40% of cancer patients.

Effective management of neuropathic pain in oncological patients remains difficult, as standard analgesic regimens, including opioids, are often insufficient or associated with adverse effects that limit their use.

Aim. The aim of this review is to summarize the current evidence regarding the efficacy and safety of pregabalin in the management of neuropathic pain among cancer patients, with particular emphasis on its role in neuropathy induced by chemotherapy, radiotherapy and postmastectomy pain syndrome.

Material and Methods. A comprehensive search of the PubMed database was conducted to identify only English- language studies published between 2019 and 2025 using the keywords: "pregabalin," "neuropathic pain," and "cancer." Eligible full-text articles were analyzed with regard to methodology and outcomes.

State of Knowledge. Pregabalin, a ligand of the $\alpha_2\delta$ subunit of voltage-gated calcium channels, is one of the first-line agents in the treatment of neuropathic pain according to current EFNS and NeuPSIG guidelines. The efficacy of pregabalin appears to be variable.

Conclusions. Pregabalin has demonstrated a significant effect in reducing neuropathic pain in cancer patients. Differences in its therapeutic efficacy appear to depend on tumor type, the mechanism of neural tissue injury, drug dosage, and concomitant use of opioids or agents from other pharmacological classes. Furthermore, assessment of long-term safety and the impact of treatment on quality of life in oncology patients should remain a key focus of subsequent clinical trials.

Keywords: pregabalin, neuropathic pain, cancer, chemotherapy-induced peripheral neuropathy, radiotherapy-induced neuropathic pain, postmastectomy pain syndrome

Introduction

The definition of neuropathic pain was established by the International Association for the Study of Pain (IASP), which defines it as pain caused by a lesion or disease of the somatosensory nervous system. Such damage may occur at the level of the peripheral nervous system- resulting in post-traumatic or chronic postoperative pain, diabetic polyneuropathy, postherpetic neuralgia, or phantom limb pain as well as at the level of the spinal cord or central nervous system, such as in post-stroke pain syndromes [4, 6].

Epidemiological data indicate that neuropathic pain affects approximately 7–8% of the general population and is present in 30–40% of individuals with cancer. However, its true prevalence is difficult to determine due to the lack of uniform diagnostic criteria [4, 19, 25]. Diagnosis of neuropathic pain is based on clinical examination, neurophysiological testing, and the IASP classification criteria, which recommend the use of the Douleur Neuropathique en 4 Questions (DN4) questionnaire. The DN4 assesses ten items through four questions, encompassing both patient interview and clinical examination. A total score of ≥4 out of 10 indicates a high probability of neuropathic pain [6]. Clinically, neuropathic pain may manifest as chronic or paroxysmal pain (electric shock-like sensations), sensory disturbances such as tingling, numbness, burning, stabbing, allodynia (pain induced by non-painful stimuli), paresthesia, or dysesthesia [4, 7].

According to the European Federation of Neurological Societies (EFNS), the Neuropathic Pain Special Interest Group (NeuPSIG) of the IASP, and the Polish Society for the Study of Pain, pregabalin is recommended as a first-line agent in the treatment of neuropathic pain. Pregabalin selectively binds to the $\alpha_2\delta$ (1 and 2) subunits of voltage-gated calcium channels (VGCCs) in presynaptic neurons of the spinal cord and central nervous system, thereby reducing Ca^{2+} influx into presynaptic terminals and inhibiting the release of excitatory neurotransmitters such as glutamate. As a result, pregabalin decreases neuronal hyperexcitability and exhibits analgesic, anxiolytic, and anticonvulsant properties [3, 10, 13,18, 20, 25].

The Neuropathic Pain Special Interest Group (NeuPSIG) has updated in 2025 its therapeutic recommendations, originally published in 2015, by incorporating the latest evidence from randomized controlled trials—a total of 313 studies, including 284 on pharmacological treatments and 29 on neuromodulation techniques. The results highlight the limited efficacy of many pharmacotherapeutic approaches to neuropathic pain, which likely reflects the

heterogeneity of its underlying mechanisms and the variability of patient phenotypes in clinical studies [19, 25]. Based on the GRADE methodology and current evidence, NeuPSIG recommends tricyclic antidepressants (TCAs- e.g., amitriptyline), serotonin–norepinephrine reuptake inhibitors (SNRI- e.g., duloxetine), and $\alpha_2\delta$ ligands of voltage-gated calcium channels (pregabalin, gabapentin, and mirogabalin) as first-line treatments for neuropathic pain. Second-line therapies include topical agents used for localized peripheral neuropathic pain—such as 8% capsaicin patches, 5% lidocaine patches, and capsaicin cream—which, despite moderate efficacy, are characterized by high tolerability and safety. Third-line options include botulinum toxin type A and, in selected cases, tramadol and other opioids (morphine, oxycodone, buprenorphine, methadone). A notable addition in the updated guidelines is repetitive transcranial magnetic stimulation (rTMS), introduced as a promising, though still investigational, neuromodulation technique [19, 24, 25].

Most of the available studies are based on diabetic neuropathy or postherpetic pain. However, there are relatively few studies addressing neuropathic pain in the context of neoplastic diseases. In this review article, I aim to focus on neuropathic pain associated with cancer (NCP) resulting from the neurotoxic effects of chemotherapy and radiotherapy, as well as nerve injuries secondary to surgical interventions, by analyzing the safety and efficacy of treatment with pregabalin [7, 16].

Material and Methods

A literature review was conducted using the PubMed database, covering studies published between 2019 and 2025 that examined the use of pregabalin in the treatment of neuropathic pain among cancer patients. Only full-text articles written in English were included in the analysis. The aim of this review was to provide a comprehensive and reliable summary of the efficacy and safety of pregabalin therapy in the context of neuropathic pain specifically in oncology patients, as well as to identify the most recent adjunctive treatment strategies that may support pharmacological management.

Results

Chemotherapy-Induced Neuropathic Pain

Chemotherapy-induced peripheral neuropathy (CIPN) is characterized by sensory, motor, and autonomic disturbances, accompanied by neuropathic pain resulting from the neurotoxic effects of specific groups of anticancer agents, particularly taxanes, platinum derivatives, and vinca alkaloids. This condition represents a significant clinical problem, as it often leads patients to

discontinue chemotherapy, thereby reducing the overall effectiveness of oncological treatment and markedly impairing their quality of life [12, 22]. Currently, there is no established pharmacological strategy for either preventing or treating CIPN. The most commonly used drugs include pregabalin, palmitoylethanolamide (PEA), duloxetine, gabapentin, and amitriptyline [22].

Paclitaxel, a widely used chemotherapeutic agent, increases the expression of the $\alpha_2\delta$-1 subunit in sensory neurons and the spinal cord and enhances the interaction between $\alpha_2\delta$-1

and NMDA receptors. This leads to presynaptic hyperactivation of NMDARs and excessive glutamate release in the dorsal horn of the spinal cord—a mechanism responsible for chronic chemotherapy-induced neuropathic pain. Pregabalin, by binding to the $\alpha_2\delta$-1 subunit of voltage-gated calcium channels, inhibits the trafficking of $\alpha_2\delta$-1 and its interaction with NMDARs, thereby normalizing glutamate release and reversing presynaptic hyperactivity.

Consequently, pregabalin counteracts the molecular mechanisms underlying paclitaxel- induced neuropathic pain [2, 3].

The predictive role of baseline mechanical pain threshold in determining the analgesic efficacy of pregabalin was also evaluated in patients with painful chemotherapy-induced peripheral neuropathy (CIPN) caused by docetaxel, paclitaxel, or oxaliplatin. The study by Hincker et al. found no significant relationship between baseline pain threshold and treatment response. However, a post hoc analysis of patients treated with oxaliplatin ($n = 18$) demonstrated a greater pain reduction with pregabalin compared to placebo (35.4% vs. 14.6%, $P = 0.04$) [12].

In a large multicenter study conducted by Selvy et al., involving 406 patients, the long-term prevalence of oxaliplatin-induced CIPN was assessed five years after chemotherapy discontinuation in patients with colorectal cancer. The study revealed that neuropathic pain persisted in 36.5% of patients. Among them, 3.2% received pregabalin, 1.6% gabapentin, and 1.6% amitriptyline. The authors highlighted the overall insufficiency of pharmacological management and emphasized that, according to the American Society of Clinical Oncology (ASCO), duloxetine remains the first-line agent with proven efficacy in CIPN treatment rather than pregabalin [23].

In summary, pregabalin demonstrates therapeutic potential in managing chemotherapy-induced neuropathic pain; however, its clinical effectiveness remains inconclusive. Therefore,

further studies comparing pregabalin with other first-line treatments—such as duloxetine are warranted to determine its precise role and optimize therapeutic strategies.

Radiotherapy-Induced Neuropathic Pain

Available scientific publications indicate that radiotherapy most often caused neuropathic pain in patients with head and neck cancer. This may be due to the fact that nearly 75% of patients with this diagnosis undergo radiotherapy. The consequences of radiotherapy can be both acute and chronic in nature [15, 16, 30].

In a study by Kouri M. et al., the effect of pregabalin was evaluated in five patients with chronic neuropathic pain following radiotherapy for head and neck cancer. Patients received between 150 mg and 300 mg of pregabalin daily, and the character and intensity of pain were assessed using the DN4 and NRS scales. At baseline, the mean DN4 score was 4.6 ± 0.89 and the mean NRS score was 6 ± 3.08. After two to three months of pregabalin therapy, significant improvement was observed, with the mean DN4 decreasing to 1.6 ± 1.67 and the NRS to 1.6 ± 1.67. Complete resolution of pain symptoms occurred in two patients, and no recurrence was observed in any of the five patients after one year of follow-up [15].

In another study, after 16 weeks of pregabalin treatment at a dose of up to 600 mg per day in patients with head and neck squamous cell carcinoma (HNC) following radiotherapy, a significant reduction in pain intensity was noted—by 2.4 points on the NRS scale compared to 1.6 points in the placebo group ($p = 0.003$). A 50% reduction in pain intensity was achieved in 30% of patients receiving pregabalin versus 7.8% in the placebo group [16].

Furthermore, in the RELAX study, which included 116 patients with moderate to severe radiotherapy-related neuropathic pain (RRNP) in head and neck cancer, the efficacy and safety of an innovative approach were assessed. Patients were divided into two groups, both receiving pregabalin 75 mg twice daily. The experimental group additionally underwent transcutaneous auricular vagus nerve stimulation (taVNS) twice daily for seven days. The study by Zuo X. et al. demonstrated that on day 7, a 50% pain reduction was achieved in 48.3% of patients in the taVNS group compared with 24.1% in the control group ($p = 0.007$). No significant adverse effects were reported in either group, while patients receiving taVNS experienced reduced fatigue and improved quality of life. The authors concluded that combining taVNS with pregabalin provides superior pain relief compared to pregabalin monotherapy and exerts a beneficial anti-inflammatory effect, which is particularly desirable in RRNP [28].

In summary, the available evidence supports the effectiveness of pregabalin in alleviating neuropathic pain associated with radiotherapy for head and neck cancers. Moreover, the combination of pregabalin with transcutaneous auricular vagus nerve stimulation (taVNS) appears to enhance analgesic efficacy and represents a promising direction for future clinical research.

Neuropathic Pain in Post-Mastectomy Patients

Patients with breast cancer undergoing mastectomy often develop postmastectomy pain syndrome (PMPS), most commonly due to injury of the intercostobrachial nerve (ICBN). This pain is typically described as sharp and burning, localized around the postoperative scar, shoulder, axilla, or upper arm and persists for at least two months after surgery. The reported prevalence of PMPS in the literature varies widely, ranging from 25% to 60% [5, 14, 17, 21].

The investigators analyzed the effect of perioperative administration of pregabalin on the prevention of the development of PMPS. Vig S. et al. conducted a randomized controlled trial involving 80 patients to assess the perioperative effect of pregabalin administered at a dose of 75 mg before surgery and continued for one week post-mastectomy, compared with placebo. After three months, chronic pain was reported in approximately 55% of patients in the control group and 45% in the pregabalin group ($P = 0.407$), indicating that pregabalin might not effectively prevent neuropathic pain following breast surgery. However, the authors noted limitations of their study, including the lack of long-term follow-up assessments [17]. In contrast, Reyad R.M. et al. demonstrated different results in their randomized controlled trial. Perioperative administration of pregabalin 75mg, continued for one week postoperatively, significantly reduced the incidence of PMPS at 4, 12, and 24 weeks compared with that in the control group. PMPS was diagnosed in 11% of patients receiving pregabalin and in 29% of the control group ($P < 0.001$, relative risk: 0.26, 95% CI: 0.12–0.56). Visual Analogue Scale (VAS) scores were also significantly lower in the pregabalin group, and no increase in adverse events was observed. The authors emphasized the need for long-term evaluation of pregabalin's preventive efficacy beyond 12 months after surgery [21].

The aforementioned studies primarily focused on whether perioperative pregabalin use could prevent chronic postmastectomy pain. However, acute postoperative pain should also be considered. Ganduboina R. et al. addressed this issue, demonstrating that pregabalin at a dose of 150 mg significantly reduced acute hyperalgesia in patients with postoperative breast pain compared with placebo (standardized mean difference: –0.61; 95% CI: –1.02 to –0.20; $P <$

0.01). No significant reduction in 24-hour morphine consumption was observed. The authors highlighted that further research is needed due to patient heterogeneity and concomitant use of additional analgesics [11].

Other investigators analyzed the efficacy of pregabalin in the management of postoperative pain after mastectomy and also compared it with other medications. Khan J.S. et al. compared the effectiveness of pregabalin, lidocaine, and their combination in postoperative pain management among 100 mastectomy patients. Lidocaine was administered intraoperatively as a 1.5 mg/kg bolus followed by a 2.0 mg/kg/h infusion, while pregabalin was given as 300 mg preoperatively and 75 mg twice daily for nine days postoperatively. Neither pregabalin nor lidocaine significantly reduced acute postoperative pain. After three months, persistent neuropathic pain occurred in 43.1% of patients treated with lidocaine versus 63.3% in the placebo group, confirming lidocaine's benefit. In contrast, persistent pain was present in 60% of pregabalin-treated patients compared with 46% in the placebo group, suggesting pregabalin's lack of efficacy. The combination of pregabalin and lidocaine provided no additional benefit (52% vs. 58.3%), and neither drug affected morphine consumption. The small sample size was identified as a limitation [14].

Further studies explored the efficacy of pregabalin compared with capsaicin. Flöther L. et al. described a case of a patient with refractory postmastectomy neuropathic pain who was treated with pregabalin 300 mg/day, amitriptyline 50 mg/day, and tapentadol 300 mg/day without satisfactory relief- 5/10 in NRS scale. The addition of 8% capsaicin in 1-2 patches every three months reduced neuropathic pain (allodynia, hyperesthesia) to NRS 3/10 and improved quality of life [8]. Similarly, in the CAPTRANE trial, Dupoiron D. et al. found that a topical 179 mg capsaicin patch (HCCP) provided pain relief comparable to oral pregabalin in patients with postsurgical neuropathic pain (PSNP) following breast cancer surgery. After two months the pain area was significantly reduced to 66.1 cm^2 in the HCCP group versus 91.9 cm^2 in the pregabalin group, with greater efficacy in relieving allodynia. Adverse events in the HCCP group were primarily local, whereas systemic side effects predominated with pregabalin. Notably, 27 of 51 patients switched from pregabalin to HCCP, while none switched in the opposite direction, underscoring the potential of capsaicin patches as a future therapeutic option [5].

Reducing the use of strong opioids remains a major goal in modern neuropathic pain management. Pushkarna G. et al. conducted a randomized trial in 90 patients undergoing

breast-conserving cancer surgery to evaluate postoperative morphine use. Patients received 75 mg pregabalin, 100 mg tramadol, or placebo one hour before surgery. The 24-hour morphine requirement was 17.5 mg in the pregabalin group, 15 mg in the tramadol group, and 22 mg in the placebo group. Tramadol provided superior analgesia compared to pregabalin, but it was associated with a higher incidence of nausea, vomiting, and pruritus. Both pregabalin and tramadol reduced morphine consumption and improved VAS scores compared with placebo [20].

Thabet T.S. et al. conducted a randomized study assessing pain reduction through stellate ganglion destruction using alcohol or thermal ablation under ultrasound guidance. The procedure significantly decreased pregabalin consumption after 4 and 8 weeks and improved VAS scores, with superior outcomes in the alcohol group compared to thermal ablation [27].

Neuropathic pain following mastectomy remains a major clinical concern and one of the most common complications in breast cancer patients. Clinical trials show mixed evidence regarding pregabalin's efficacy—some support its benefit, while others contradict it.

Promising results have been observed with topical capsaicin therapy. Consideration should be given to alternative pharmacologic agents that may offer better efficacy and fewer side effects [29]. Furthermore, non-pharmacologic methods such as stellate ganglion neurolysis have shown encouraging outcomes. Despite advances in understanding neuropathic pain mechanisms, there is still no standardized management approach for PMPS, highlighting the need for further research to improve the quality of life in breast cancer patients.

Discussion

Neuropathic pain represents a significant clinical challenge in oncology, affecting a considerable proportion of cancer patients. Its complex pathophysiology—involving damage to both peripheral and central nervous system structures—necessitates a multifaceted and individualized therapeutic approach. Pregabalin, a ligand of the $\alpha_2\delta$ subunit of voltage-gated calcium channels, remains one of the first-line treatments for neuropathic pain according to current EFNS, NeuPSIG, and PTBB guidelines [24]. It exhibits analgesic, anxiolytic and anticonvulsant properties; however, its efficacy in cancer-related neuropathic pain varies, and clinical data regarding its effectiveness in managing chronic cancer pain remain limited [7].

The analysis of available studies indicates that pregabalin can alleviate chemotherapy- induced neuropathic pain, particularly associated with paclitaxel and oxaliplatin. However, further

comparative studies are necessary to evaluate the efficacy and safety of pregabalin therapy in comparison with other medications, such as duloxetine, in order to draw reliable and conclusive conclusions. Pregabalin may also provide benefit in radiotherapy-induced neuropathic pain in patients with head and neck cancers—especially when used in combination with transcutaneous auricular vagus nerve stimulation (taVNS). In the case of postmastectomy pain syndrome (PMPS), research findings are inconsistent: some studies confirm pregabalin's preventive and therapeutic efficacy, while others show no significant difference compared to placebo. Promising results have been observed with alternative approaches, such as topical capsaicin and neuromodulatory techniques, though the latter still require long-term studies to establish their efficacy and safety. It is also worth noting that many studies included concomitant use of other analgesics, such as morphine, tramadol, or paracetamol, which could have influenced outcome interpretation.

Importantly, Chakraborty P et al. demonstrated not only the efficacy of pregabalin in the treatment of chronic neuropathic pain but also a significant reduction in depressive symptoms as assessed by the Hamilton Depression Rating Scale. These findings are particularly relevant for terminally ill cancer patients, as pregabalin's dual analgesic and antidepressant effects may improve overall quality of life [1].

Despite its established role, pregabalin therapy carries a risk of adverse effects, including dizziness, somnolence, and peripheral edema [26,28]. Therefore, treatment should be tailored to the patient's individual profile and combination therapy or switching agents should be considered when efficacy is insufficient. Given the increased risk of adverse effects in elderly patients and potential drug interactions with opioids, a personalized safety assessment is essential before initiating therapy.

Conclusions

In conclusion, effective management of neuropathic pain in cancer patients requires an integrated, multidisciplinary approach that combines pharmacotherapy (e.g., pregabalin, SNRIs, TCAs) with interventional methods (e.g., neurolysis, rTMS) and the treatment of comorbid conditions. Pregabalin remains a key component of therapy, yet further research is needed to determine its optimal role within evolving treatment strategies and to enhance the quality of life of oncology patients [19, 25]. Moreover, patients with advanced cancer and neuropathic pain should receive specialized care within pain management and palliative care clinics [9]. There is also a pressing need to standardize guidelines for neuropathic pain management in oncology.

Abbereviations: IASP- International Association for the Study of Pain, DN4-Douleur Neuropathique en 4 Questions, EFNS- European Federation of Neurological Societies, NeuPSIG- Neuropathic Pain Special Interest Group, NCP- neuropathic pain associated with cancer, CIPN- Chemotherapy-induced peripheral neuropathy, RRNP- radiotherapy-related neuropathic pain, taVNS- transcutaneous auricular vagus nerve stimulation, PMPS- postmastectomy pain syndrome, HCCP- capsaicin patch, VAS- Visual Analogue Scale

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References

1. Chakraborty P, Borgohain M. Evaluating pregabalin in cancer patients with chronic neuropathic pain and depression: an observational case series. World J Clin Oncol. 2025;16(4):104827. https://doi.org/10.5306/wjco.v16.i4.104827
2. Chen Y, Chen SR, Chen H et al. Increased α2δ-1-NMDA receptor coupling potentiates glutamatergic input to spinal dorsal horn neurons in chemotherapy-induced neuropathic pain. J Neurochem. 2019;148(2):252–274. https://doi.org/10.1111/jnc.14627
3. Deng M, Chen SR, Pan HL. Presynaptic NMDA receptors control nociceptive transmission at the spinal cord level in neuropathic pain. Cell Mol Life Sci. 2019;76(10):1889–1899. https://doi.org/10.1007/s00018-019-03047-y
4. Di Stefano G, Di Lionardo A, Di Pietro G et al. Neuropathic pain related to peripheral neuropathies according to the IASP grading system criteria. Brain Sci. 2020;11(1):1. https://doi.org/10.3390/brainsci11010001
5. Dupoiron D, Bienfait F, Seegers V et al. Evaluating treatment preferences and the efficacy of capsaicin 179 mg patch vs. pregabalin in a randomized trial for postsurgical neuropathic pain in breast cancer: CAPTRANE. Cancers (Basel). 2025;17(2):313. https://doi.org/10.3390/cancers17020313
6. Ferraro MC, McAuley JH. Clinimetrics: Douleur Neuropathique en 4 Questions (DN4). J Physiother. 2024;70(3):238–239.

https://doi.org/10.1016/j.jphys.2024.02.010

7. Finnerup NB, Kuner R, Jensen TS. Neuropathic pain: from mechanisms to treatment. Physiol Rev. 2021;101(1):259–301. https://doi.org/10.1152/physrev.00045.2019
8. Flöther L, Avila-Castillo D, Burgdorff AM et al. Capsaicin in the treatment of refractory neuropathic pain after mastectomy surgery: a case report. Case Rep Oncol. 2020;13(2):997-1001. https://doi.org/10.1159/000508948
9. Fontaine C, Libert I, Echterbille MA et al. Evaluating pain management practices for cancer patients among health professionals in cancer and supportive/palliative care units: a Belgian survey. Support Care Cancer. 2024;32(12):811. https://doi.org/10.1007/s00520-024-08984-4
10. Gaber S, Saleh E, Elshaikh S, Reyad R et al. Role of perioperative pregabalin in the management of acute and chronic post-thoracotomy pain. Open Access Maced J Med Sci. 2019;7(12):1974–1978. https://doi.org/10.3889/oamjms.2019.556

11. Ganduboina R, Dutta P, Pawar SG et al. Prescription of pregabalin for prevention of acute post-mastectomy pain syndrome (APMPS): a systematic review and meta-analysis of randomized controlled trials. Ann Med Surg (Lond). 2024;87(2):830-837. https://doi.org/10.1097/MS9.0000000000002899
12. Hincker A, Frey K, Rao L et al. Somatosensory predictors of response to pregabalin in painful chemotherapy-induced peripheral neuropathy: a randomized, placebo-controlled, crossover study. Pain. 2019;160(8):1835–1846. https://doi.org/10.1097/j.pain.0000000000001577
13. Kawczak P, Feszak I, Bączek T. Epinephrine, pregabalin, and crizotinib as three medicines with Polish implications over three last centuries and in view of three different drug discovery approaches. Biomedicines. 2024;12(9):2021. https://doi.org/10.3390/biomedicines12092021
14. Khan JS, Hodgson N, Choi S et al. Perioperative pregabalin and intraoperative lidocaine infusion to reduce persistent neuropathic pain after breast cancer surgery: a multicenter, factorial, randomized, controlled pilot trial. J Pain. 2019;20(8):980-993. https://doi.org/10.1016/j.jpain.2019.02.010
15. Kouri M, Papadopoulou E, Vardas E et al. Pregabalin for neuropathic pain in post-radiotherapy head and neck cancer patients: a retrospective study and review of the literature. Cureus. 2024;16(11):e72951. https://doi.org/10.7759/cureus.72951
16. Kouri M, Rekatsina M, Vadalouca A et al.Pharmacological management of neuropathic pain after radiotherapy in head and neck cancer patients: a systematic review. J Clin Med. 2022;11(16):4877. https://doi.org/10.3390/jcm11164877
17. Lee JH, Cho TJ, Park MG et al. Clinical study on concurrent use of electro-acupuncture or Chuna manual therapy with pregabalin for chemotherapy-induced peripheral neuropathy: safety and effectiveness (open-labeled, parallel, randomized controlled trial, assessor-blinded): a study protocol. Medicine (Baltimore). 2020;99(3):e18830. https://doi.org/10.1097/MD.0000000000018830
18. Meaadi J, Obara I, Eldabe S et al. The safety and efficacy of gabapentinoids in the management of neuropathic pain: a systematic review with meta-analysis of randomised controlled trials. Int J Clin Pharm. 2023;45(3):556–565. https://doi.org/10.1007/s11096-022-01528-y
19. Mulvey MR, Paley CA, Schuberth A et al. Neuropathic pain in cancer: what are the current guidelines? Curr Treat Options Oncol. 2024;25(9):1193–1202.

https://doi.org/10.1007/s11864-024-01248-7

20. Pushkarna G, Badhan C, Gupta R et al. Evaluation of the postoperative morphine-sparing effect of oral premedicants used as pre-emptive analgesics in breast- conserving cancer surgeries: a randomisedplacebo-controlled trial. Indian J Anaesth. 2022;66(Suppl 2):S95–S101. https://doi.org/10.4103/ija.ija_361_21
21. Reyad RM, Omran AF, Abbas DN et al. The possible preventive role of pregabalin in postmastectomy pain syndrome: a double-blinded randomized controlled trial. J Pain Symptom Manage. 2019;57(1):1-9. https://doi.org/10.1016/j.jpainsymman.2018.10.496Sardo S, Varrassi G, Scartozzi M et al. Exploring outcome priorities and real-life management of chemotherapy-induced peripheral neurotoxicity: a survey of the Italian Association for the Study of Pain members. J Pain Res. 2023;16:3227–3238. https://doi.org/10.2147/JPR.S414389
22. Selvy M, Pereira B, Kerckhove N et al. Long-term prevalence of sensory chemotherapy-induced peripheral neuropathy for 5 years after adjuvant FOLFOX chemotherapy to treat colorectal cancer: a multicenter cross-sectional study. J Clin Med. 2020;9(8):2400. https://doi.org/10.3390/jcm9082400
23. Singh VK, Shetty YC, Salins N et al. Prescription pattern of drugs used for neuropathic pain and adherence to NeuPSIG guidelines in cancer. Indian J Palliat Care. 2020;26(1):13–18. https://doi.org/10.4103/IJPC.IJPC_172_19
24. Soliman N, Moisset X, Ferraro MC et al. NeuPSIG Review Update Study Group. Pharmacotherapy and non-invasive neuromodulation for neuropathic pain: a systematic review and meta-analysis. Lancet Neurol. 2025;24(5):413–428. https://doi.org/10.1016/S1474-4422(25)00068-7
25. Sun W, Wang J, Wang J et al. Esketamine combined with pregabalin on acute postoperative pain in patients undergoing resection of spinal neoplasms: study protocol for a randomized controlled trial. Trials. 2023;24(1):144. https://doi.org/10.1186/s13063-023-07178-3
26. Thabet TS, Khedr SA. Stellate ganglion destruction with alcohol versus thermal ablation for chronic post-mastectomy pain: a randomized trial. Pain Physician. 2024;27(2):E231–E238. PMID: 38324788.
27. Wang Z, Naeem I, Oyenola T, et al. Pregabalin for the treatment of neuropathic pain: a systematic review of patient-reported outcomes. Cureus. 2024;16(9):e70443. https://doi.org/10.7759/cureus.70443
28. Wen C, Wang M, Liu M, et al. Pregabalin Combined With Opioids for Managing

Neuropathic Pain in Patients With Cancer: A Systematic Review and Meta-analysis of Randomized Controlled Trials. Pain Physician. 2025;28(1):1-10.

29. Zuo X, Xu Y, Li S et al. Efficacy and safety of transcutaneous auricular vagus nerve stimulation plus pregabalin for radiotherapy-related neuropathic pain in patients with head and neck cancer (RELAX): a phase 2 randomised trial. EClinicalMedicine. 2025;86:103345. https://doi.org/10.1016/j.eclinm.2025.103345