

Emerging Therapeutic Strategies for Chemotherapy-Induced Peripheral Neuropathy: Current Evidence and Future Directions

Hager Salah*, Ahmed Hassan Shaaban**, Mona A. Abdelrahman***, Hasnaa Osama****, Asmaa M. El-Kalaawy*****

ABSTRACT

Chemotherapy-induced peripheral neuropathy (CIPN) is a condition where the sensory system deteriorates due to unintended negative consequences of chemotherapy medications such as cisplatin, oxaliplatin, paclitaxel, vincristine, and bortezomib. CIPN, affecting up to 80% of patients, is among the most common and debilitating side effects of chemotherapy that can manifest in diverse manners, with the severity and the specific chemotherapeutic agent playing a crucial role in influencing the illness. Individuals suffering from (CIPN) encounter atypical sensory perception, difficulties with balance, unsteady gait, and sensations such as warmth, burning or discomfort in the limbs. While it is possible for symptoms to ultimately subside, it is important to note that many individuals may experience them indefinitely. Because CIPN is mechanistically heterogeneous, treatment selection should be individualized according to symptom phenotype, pain severity, tolerability, comorbidities, and prior response. Duloxetine remains the best-supported pharmacological option for painful established CIPN, while add-on gabapentin or amitriptyline should be framed as individualized or investigational strategies rather than routine superior therapy. This review critically summarizes pharmacological options, mechanistic rationale, patient-reported outcome measures, and evidence gaps to guide future comparative trials.

Keywords: chemotherapy-induced peripheral neuropathy; duloxetine; gabapentin; amitriptyline; pharmacotherapy; patient-reported outcomes; neurotoxicity; oncology supportive care.

Bahrain Med Bull 2026; 48 (2): 3283-3292

-
- * Clinical Pharmacotherapy Specialist
Solid Organ Transplant and Medical Services
Department of Clinical Pharmacy Services
King Hamad University Hospital, Royal Medical Services
Busaiteen P.O. Box 24343, Bahrain.
Email: hager.salah@rms.bh , hager.salah@rocketmail.com
- ** Assistant Professor, Department of Clinical Oncology
Faculty of Medicine, Beni-Suef University
Beni-Suef 62511, Egypt.
- *** Assistant Professor, Department of Clinical Pharmacy
Faculty of Pharmacy, Beni-Suef University
Beni-Suef 62511, Egypt.
- **** Lecturer, Department of Clinical Pharmacy
Faculty of Pharmacy, Beni-Suef University,
Beni-Suef 62511, Egypt.
- ***** Professor, Department of Pharmacology
Faculty of Medicine, Beni-Suef University,
Beni-Suef 62511, Egypt.