

INVESTIGATION OF CHRONIC, SEVERE, AND DOSE-LIMITING RISK FACTORS ASSOCIATED WITH PERIPHERAL NEUROPATHY IN CANCER PATIENTS

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Chemotherapy-induced peripheral neurotoxicity (CIPN)

Aim: To identify risk factors for chemotherapy-induced peripheral neurotoxicity (CIPN) across 3 categories:

1. **Dose-limiting CIPN**- dose modification during treatment due to CIPN?

2. **Chronic CIPN**- persisting symptoms >6 months post treatment

3. **Chronic severe CIPN**- persisting severe symptoms >6 months post treatment

Patient Demographic information

The study recruited 903 patients (age 61 (IQR 50-69) years, 66% female) who were assessed 12 (IQR 6-24) months post neurotoxic treatment (57% taxanes, 32% platinum, 11% haematological cancer treatments).

CIPN assessed via three approaches

Patient reported measure
European Organization for Research and Treatment of Cancer CIPN20

Clinically graded CIPN
National Cancer Institute Common Terminology Criteria for Adverse Events

Neurological assessment
Total Neuropathy Score & Sural nerve conduction studies

Table 1. Clinical risk factors associated with each category of CIPN

	Dose Limiting	Chronic CIPN	Chronic Severe CIPN
Older age (≥ 60 years)	✓	✓	✓
Diabetes		✓	
Increased BMI		✓	
Prior ntx treatment		✓	
Female sex	✓		
Pre-existing PN			

Significant Risk Factors on Multivariate Analysis (Table 1)

1. **Dose-limiting CIPN**- Female (OR=1.9) and older patients (OR=1.4) are more likely to have dose reduction due to CIPN (all $P < 0.05$).

2. **Chronic CIPN**- Older age (OR=2.0-3.3, $\beta=1.7-4.1$), diabetes (OR=2.8, $\beta=1.5-3.3$), increased BMI (OR=1.1-2.2, $\beta=1.0-4.0$) and prior neurotoxic treatment (OR=3.2, $\beta=1.4-5.6$) are associated with increased risk of CIPN across all CIPN assessment approaches (all $P < 0.05$).

3. **Chronic severe CIPN**- Age (≥ 60 years) is the only significant risk factor consistent across all approaches of CIPN assessment (OR=1.8-3.1, $P < 0.05$).

Key Takeaways

- Risk factors varied depending on how CIPN is assessed, with risk profiles for dose-limiting and chronic severe CIPN also differing.
- Older females are most at risk for dose-limiting CIPN during treatment.
- Risks for chronic and severe CIPN include older age, diabetes, increased BMI and prior neurotoxic treatment.
- Specific mechanisms for increased CIPN risk needs to be identified in order to guide intervention.