CHEMOTHERAPY-INDUCED PERIPHERAL NEUROPATHY

LONG-TERM OUTCOMES OF PACLITAXEL-INDUCED PERIPHERAL NEUROPATHY FOR CANCER SURVIVORS

Hannah Timmins IN FOCUS
# Faculty Disclosure

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Breast Cancer Survival for Women

17.2 million

36.4%
canceratlas.cancer.org

- Breast cancer is commonly treated with taxanes including paclitaxel
- Peripheral neuropathy is a common complication of paclitaxel treatment
- Paclitaxel-induced peripheral neuropathy (PIPN) may impact a large proportion of breast cancer survivors.
Paclitaxel-induced peripheral neuropathy

- Reduces treatment tolerability & produces long-term deficits
- No effective neuroprotection
- Mechanisms of neurotoxicity are poorly understood
- No method to identify at-risk patients
- Quantitative and functionally relevant assessment tools are lacking

Aim: To examine long term neurological deficits using objective clinical assessments and patient reported outcomes (PROs).
Assessment package

Patient reported outcomes

- Functional Assessment of Cancer Therapy/Gynecologic Oncology Group - Neurotoxicity questionnaire (Fact/GOG-Ntx)
  - Validated for use in CIPN
  - Increasing uptake in clinical trials

Neurological examination

- The Total Neuropathy Score (TNS)
  - Composite grading measure of symptom report and objective neurological assessment comprising of pinprick, vibration-sensibility, power and tendon reflexes.

Neurophysiology assessment

- Compound sensory action potentials (CSAPs) recorded from the median nerve.
Patient group

- 22 females diagnosed with breast cancer (mean age: 48±3.8 years)
- Weekly paclitaxel for 12 weeks: 80 mg/m²

Ongoing chemotherapy treatment

Baseline

Final
Mean Cumulative dose: 891±28 mg/m²

Long term follow-up
10±0.6 months post-treatment

CIPN assessment
Paclitaxel infusion: 80 mg/m²
Cessation of treatment
Neuropathy Status

At final treatment: Patient-reported symptoms

- 85% reported numbness and tingling in the hands and feet
- 45% reporting ‘quite a bit’ or ‘very much’
- Reports of difficulty walking and reduced tactile sensation for 25%
Neuropathy Status

At final treatment: Objective neuropathy assessment

- On neurological examination 80% presented with two or more abnormalities
  - Reduction in tendon reflexes and pin prick sensibility most common

- Increase in objective neuropathy scores (TNSc: 1.1±0.3; 4.6±0.4, p<.05)

- Reduction in peak sensory amplitudes (p<.05), suggestive of axonal dysfunction
Neuropathy Status

At Long term follow-up (10±0.6 months): Patient-reported symptoms

- Fewer patients reported numbness and tingling compared to final treatment (p<.05)
- Residual symptoms remained in 63% of patients
- As did deficits in walking (27%) and reduced tactile sensation (14%)
Neuropathy Status

At Long term follow-up (10±0.6 months): Objective neuropathy assessment

- No significant improvement in neurological examination (TNSc: 4.6±0.4; 3.1±0.5, p=.97), or neurophysiological parameters (p=.92) compared to final treatment
Conclusion

- Patients report significant symptoms of PIPN post-paclitaxel treatment, which persists long term and impacts on function.
- Discrepancies between the level of objective and patient-reported neuropathy exist.
- Consistent reductions in neurophysiological measures suggest higher sensitivity to nerve dysfunction compared to PROs, but may lack insight into the impact of PIPN on patients.
- Incorporating objective measures and PROs will better inform treatment strategies to improve long-term quality of life in breast cancer survivors.
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