Framework to leverage physical therapists for the assessment and treatment of chemotherapy-induced peripheral neurotoxicity (CIPN)

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CIPN is common, uncomfortable, expensive, and tough-to-treat

Postma, et al (2005)

- Numbness, tingling, hot/burning pain, sharp/shooting pain, cold sensitivity in hands and feet
- 2/3 of patients on "neurotoxic" chemotherapy (taxane, platinum, vinca alkaloid, thalidomide, proteasome inhibitors) for breast, prostate, lung, gastrointestinal, blood, genitourinary, and other cancers
- Despite nearly 100 clinical trials and decades of research there are no CIPN prophylactics and only one treatment (drug Duloxetine) that is only partially effective

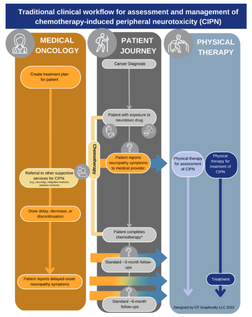
Exercise is a promising yet unproven treatment for CIPN

- Mostly aerobic, resistance, or balance/sensorimotor
- About a dozen RCTs comparing exercise vs. non-exercise control: most studies found exercise to be beneficial, some studies found no effects of exercise, and no studies found exercise to be harmful
- No Phase III RCTs published or pre-registered

Kleckner et al. (2021), Chung et al. (2022)

Exercise methods are already being used for CIPN by physical therapists – and they are underutilized in healthcare

- PTs are trained to assess balance and physical impairments
- PTs use resistance, aerobic, and balance exercises to improve physical function
- PTs are not trained specifically in how to address CIPN because there are no guidelines
- PTs are plentiful (>500k in US) but underutilized in oncology

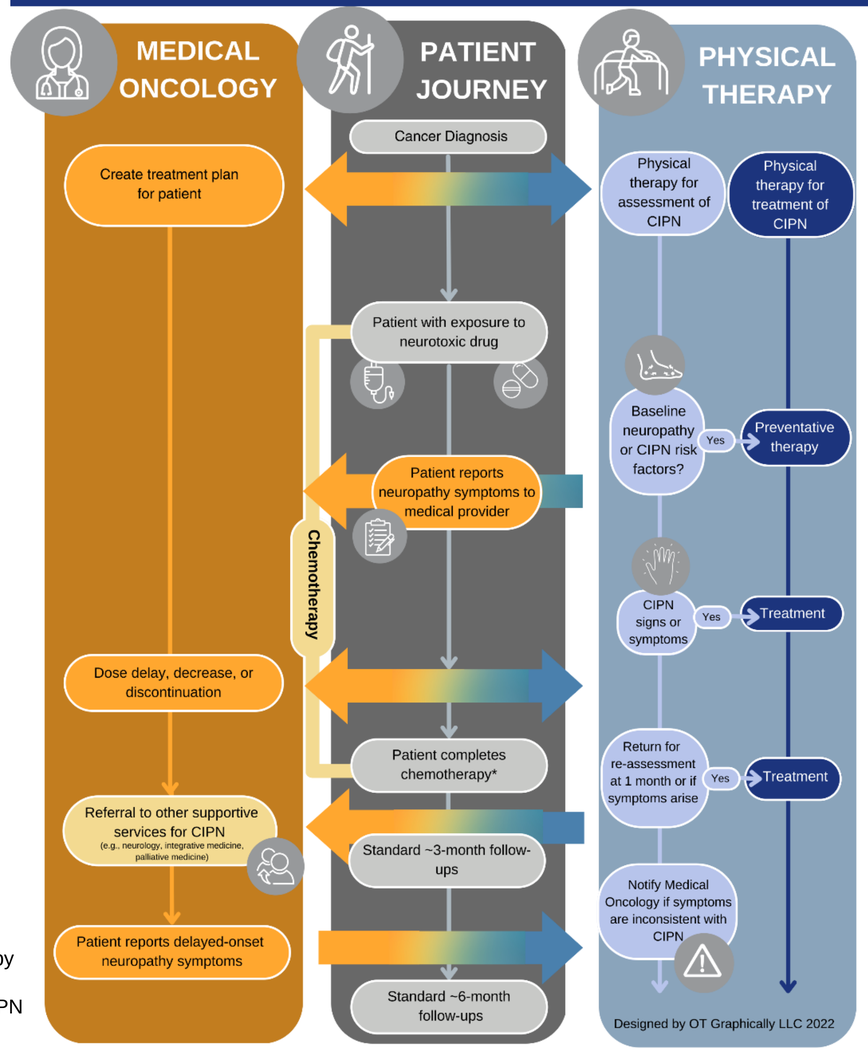


Current clinical workflow for CIPN care show gaps where physical therapists can contribute

Three goals of this project

1. Establish a novel clinical treatment workflow for patients receiving neurotoxic chemotherapy that includes physical therapy services throughout the cancer care continuum
2. Provide clinical practice recommendations for PTs on the assessment and treatment of CIPN
3. Identify action items for clinicians, physical therapists, researchers and patients

Proposed clinical workflow for assessment and management of chemotherapy-induced peripheral neurotoxicity (CIPN)



Result 1. Physical therapy assessment outcome measures for CIPN

- Suggested patient-reported outcomes, and sensory, motor, balance and gait assessments that are PT-focused
- Oncology EDGE outcome measures
- Clinical screening battery→ flag referral to PT
  - Romberg Test
  - Short Physical Performance Battery (SPPB)
  - Timed Up and Go (TUG)

Result 2. Example 60-minute physical therapy treatment session

- Aerobic warm-up, balance exercises, resistance training, flexibility cool-down
- All based in the FITT (frequency, intensity, type, and type) and difficulty progression over weeks
- Home-exercise program considerations (less is more, typically just 1-2 exercises)

Result 3. Action items

For oncologists

1. Find local PTs https://www.choosept.com in the US, or https://www.find.physio
2. Work with PTs to assess, prevent, and treat CIPN
3. Share our paper with patients who want to find their own PT

For patients

1. Share this paper with your doctor to get a referral to PT
2. Find your own PT if needed
3. Avoid extended sedentary time

For physical therapists (PTs)

1. Review our paper for suggestions on how to assess and treat CIPN
2. Communicate with medical oncologists including assessment of concern (yes/no) to inform chemo dosing
3. Consider referring patients to psychosocial support to perhaps improve CIPN symptoms

For researchers

1. Collaborate with PTs to conduct research (inform, conduct, disseminate, etc.)
2. Consider PT-relevant research questions, such as how to optimize exercise, dose-response, how to use telehealth
3. Consider healthcare system questions such as making PT free and accessible to patients

Cancer Control Mind & Body Lab

Download our papers

Supportive Care in Cancer (2023) 31:293
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REVIEW

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Seeking to understand how the body and brain produce subjective feelings, and to translate that knowledge into treatments that help patients with cancer feel better.

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