The effectiveness of a structured exercise program in preventing chemotherapy-induced peripheral neuropathy: protocol for a randomized controlled trial

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Chemotherapy-induced peripheral neuropathy (CIPN) is a prevalent side effect of neurotoxic cancer treatment. The most common CIPN symptoms are sensory and motor symptoms in the hands/feet. CIPN can interfere with daily activities and cancer treatment. While exercise might alleviate symptoms, evidence quality is low, so it is not included in international guidelines for CIPN prevention (as no other strategy). Additionally there is limited knowledge on the barriers and facilitators of exercise programs during chemotherapy treatment for the prevention of CIPN. This knowledge is essential for optimizing exercise interventions and adherence, and integrating exercise into clinical practice for CIPN prevention. Therefore, the primary goal of this project is to study the effect of an exercise program on symptoms of CIPN in breast and colon cancer patients receiving taxane- or platinum-based chemotherapy. The exercise program is patient-tailored based on exercise guidelines in oncology. A prospective randomized controlled trial with short (3 months) and long-term (6 months) follow up will be conducted with self-reported CIPN symptoms (QLQ-CIPN20, sensory subscale) as primary outcome. Secondary scientific objectives are the effect of the exercise program on CIPN signs (objective evaluation), physical (self-reported and objective evaluation), mental and social functioning (self-reported) and relative dose intensity of chemotherapy (objective evaluation). Tertiary scientific objective is to perform a process evaluation. The aim of this process evaluation is to investigate the barriers and facilitators of the exercise program in patients receiving taxane- or platinum-based chemotherapy by examining adherence to the exercise program as well as how patients and healthcare providers perceive the implementation of the exercise program. Such process evaluation may aid in identifying determinants of exercise program attrition and offering recommendations for valorisation.