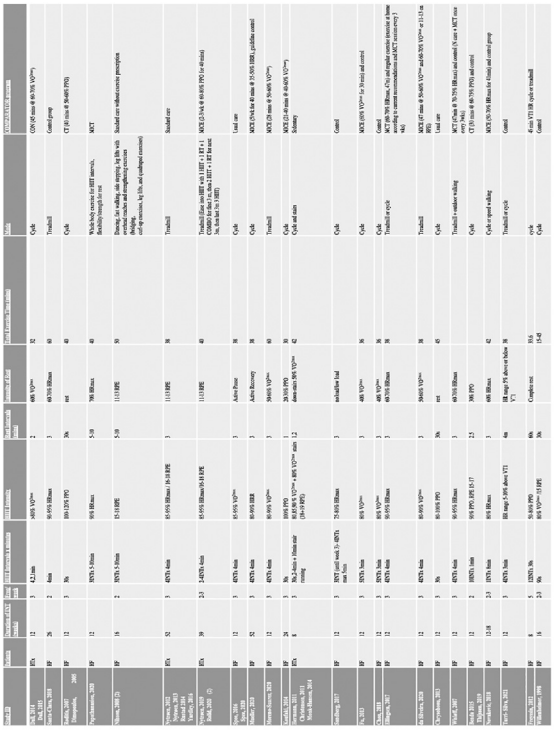

Figure 1. Summary of final findings. PPO= peak power output, HRQoL: health related quality of life, HIIT= high interval intensity training, MICE= moderate intensity continuous exercise, 6MWT= six minute walk test, HADS-A= hospital anxiety and depression scale- anxiety, VO2max= peak oxygen uptake

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IS FLAXSEED EQUIVALENT AND/OR SYNERGISTIC WITH ACE INHIBITION IN THE TREATMENT OF CHEMOTHERAPY MEDIATED CARDIOTOXICITY?

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BACKGROUND: Breast cancer is a major public health concern in Canada. Although the current combination of surgery, radiation, and chemotherapy may lead to a cure in the breast cancer setting, the administration of the anti-cancer drugs Doxorubicin and Trastuzumab (DOX+TRZ) is associated with an increased risk of developing heart failure. Little is known, however, on whether flaxseed (FLX) is equivalent to angiotensin converting enzyme inhibition (ACEi) in the treatment of DOX+TRZ mediated cardiotoxicity.

METHODS AND RESULTS: In a chronic in vivo murine model of chemotherapy mediated cardiotoxicity, DOX+TRZ (8mg/kg and 3mg/kg, respectively) were administered weekly for a total of 3 weeks. Following this, mice were randomized to daily treatment with a 10% FLX supplemented diet, Perindopril (PER) (3mg/kg) via oral gavage, or a combination treatment of FLX+PER for an additional 3 weeks. Serial echocardiography was performed weekly. At the end of week 6, the mice were euthanized, and histological and biochemical analyses were performed on cardiac tissue. In mice treated with DOX+TRZ, the left ventricular ejection fraction (LVEF) decreased from 72±4% at baseline to 30±2% at week 6. Treatment with either FLX, PER, or FLX+PER improved LVEF to 52±4%, 54±4%, and 55±3%, respectively ($P < 0.05$) (Figure 1). Histological analyses confirmed significant disruption of myofibrils, vacuolization, and loss of sarcomere integrity in the DOX+TRZ treated mice. Treatment with FLX, PER, or FLX+PER, however, improved myofibril integrity at week 6 in mice receiving DOX+TRZ.

CONCLUSION: In a chronic in vivo murine model of DOX+TRZ induced cardiotoxicity, although FLX was equivalent to PER in the treatment of adverse LV remodeling, the combination of FLX and PER was not synergistic.

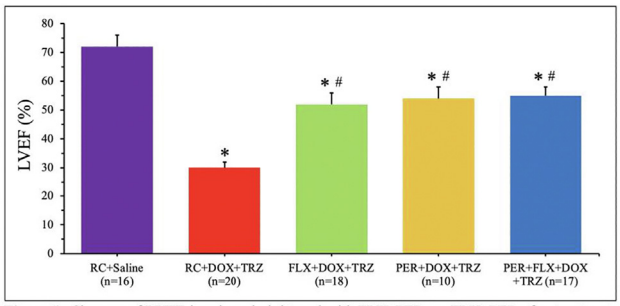

Figure 1: Changes of LVEF in mice administered with FLX, PER, or FLX+PER after treatment with DOX+TRZ. *p<0.05 RC+DOX+TRZ vs. RC+Saline. *#p<0.05 FLX+DOX+TRZ or PER+DOX+TRZ or PER+FLX+DOX+TRZ vs. RC+DOX+TRZ and RC+Saline.

Heart and Stroke Foundation of Canada

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MEDICAL MANAGEMENT OF HEART FAILURE WITH CONCURRENT DIABETES MELLITUS IN CANADIAN PRIMARY CARE

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BACKGROUND: Heart failure (HF) and diabetes (DM) often co-exist and are associated with increased mortality and hospitalization. Although most patients are managed in primary care, the disease intersection has mainly been studied in secondary care, ambulatory registries, and selected cohorts. We therefore assessed HF and DM management in primary care using the Canadian Primary Care Surveillance Network (CPCSSN).

METHODS AND RESULTS: CPCSSN is a primary care data repository consisting of 17 electronic medical record (EMR) systems, spanning all provinces in Canada except Saskatchewan. Data on over 2 million patients are contributed quarterly to the network. Patients with HF and DM were identified using validated case definitions. The sensitivity and specificity are 90% and 93% for identifying HF, and 96% and 97% for identifying DM. Prescription of all medical therapies increased from 2010 to 2020. In patients with HF alone (n=5,319 in 2010 and n=10,699 in 2020), renin-angiotensin blockade (RAASi) increased from 79.6% to 80.3%, beta-blockers from 29.3% to 47.2%, and mineralocorticoid receptor antagonists (MRA) from 6.4% to 17.3%. In those with concurrent DM (n=2,747 in 2010 and n=9,024 in 2020), the corresponding