



Abstracts of the MASCC/ISOO Annual Meeting 2018

Supportive Care in Cancer

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Supportive Care Makes Excellent Cancer Care Possible

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Conclusions

Dexamphetamine up to 30 mg/day, is well tolerated in non progressive PBT patients suffering from severe fatigue, but does not provide a significant benefit on fatigue, anxiety, depression, cognition, and QOL.

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AN ORAL BOTANICAL EXTRACT REDUCES FATIGUE IN A RADIATION-INDUCED FATIGUE MOUSE MODEL

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Introduction

Cancer related fatigue (CRF) is a particularly prevalent debilitating condition with multifactorial etiology that can persist even during survivorship. No gold-standard treatment is approved for CRF due to insufficient understanding of underlying mechanisms.

Sustained inflammation is believed to play a key role in CRF.

We previously observed significant correlations between changes in the expressions of eight mitochondria-related genes (e.g., *BCL2*) with worsening of fatigue symptoms in radiation-treated men. We also observed that Cellium, a safe botanical extract, inhibited inflammation and normalized *BCL2* levels in human alopecia models.

Objectives

To investigate the anti-fatigue effects of oral Cellium in a radiation-induced fatigue mouse model.

Methods

Two successive placebo-controlled experiments (N=40, n=20 Cellium, n=20 placebo) were conducted. Oral Cellium/placebo were provided to all mice before, during and following irradiation. Voluntary wheel running activity measuring distance and speed, served as the surrogate objective measure of fatigue-like behavior in these mice.

Results

Average cumulative post-irradiation running distance in the Cellium-group was up to 47% greater than the Placebo-group. The Cellium-group returned to initial running distance 5-8 days earlier than the Placebo-group with no between-group differences in bodyweight. Average speed improved post-irradiation in the Cellium-group by up to 77% compared to the placebo-group.

Conclusions

Oral Cellium had anti-fatigue effects in irradiation -induced fatigue mice, possibly related to its anti-inflammatory and *BCL2* effects. Further investigations on the anti-fatigue effects of Cellium on cancer patients receiving treatment and cancer survivors are warranted.

eP150

CORRELATION BETWEEN HANDGRIP STRENGTH AND ONCOLOGICAL FATIGUE IN OLDER ADULTS CANCER SURVIVORS

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Introduction

Introduction: The functional limitations of aging are important predictors of mortality, morbidity and disability. Consequently, the manual grip force is used as an indicator of functional physical capacity. However, for those with cancer, fatigue has been described as a major concern during treatment, in advanced stages of the disease and after curative treatment.

Objectives

The aim of this study was to analyze the relationship between manual grip strength and oncological fatigue in elderly cancer survivors

Methods

Method: Consists of a cross-sectional observational study. Forty-three adult elderly cancer survivors who attended the polyclinics of the Hospital del Salvador participated. To evaluate fatigue, the Brief Fatigue Inventory was used and to evaluate the handgrip strength the digital hand-held dynamometer model Baseline® Hidraulic were used

Results

Results: Negative correlation was identified between the hand grip strength with the fatigue score ($\rho = -.416$) and with the Minimalist score ($\rho = .319$).

Conclusions

Conclusion: There is a negative correlation between hand grip strength and oncological fatigue in older Adults Cancer Survivors in suggesting the need for kinesic treatment by means of exercises to improve these functions and and quality of life in elderly cancer survivors.

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FATIGUE AMONG WOMEN WITH BREAST CANCER: LONGITUDINAL RELATIONSHIP TO COGNITIVE PERFORMANCE, CHEMOTHERAPY AND CLINICAL FACTORS

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Introduction

Women with breast cancer may experience persistent cognitive deficits and fatigue after treatment. However, the interrelationships of fatigue and cognitive dysfunction is not well-understood, particularly across the active treatment regimen and into survivorship.

Objectives

The severity and impact of fatigue was examined longitudinally among women with early-stage breast cancer. Changes in fatigue across treatment phases and the relationship of fatigue severity and impact to on cognitive performance were examined.

Methods

Our group completed a 2-year prospective study of 75 women with early-stage breast cancer using an validated questionnaires and an objective measure of cognitive performance (CNSVS). Fatigue and performance-based cognitive testing was assessed at five time points beginning prior to chemotherapy and finishing 24 months after initial chemotherapy. Temporal changes in fatigue were examined as was the relationship between fatigue and cognitive performance at each time point

Results

Severity of reported fatigue and the extent to which it interfered with daily living varied over time. Fatigue severity and functional impact was moderate at baseline, increased significantly during chemotherapy, and returned to near baseline levels at two-years. At each time point, fatigue severity and impact were significantly associated with processing speed

An oral botanical extract reduces fatigue in a radiation-induced fatigue mouse model

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Background

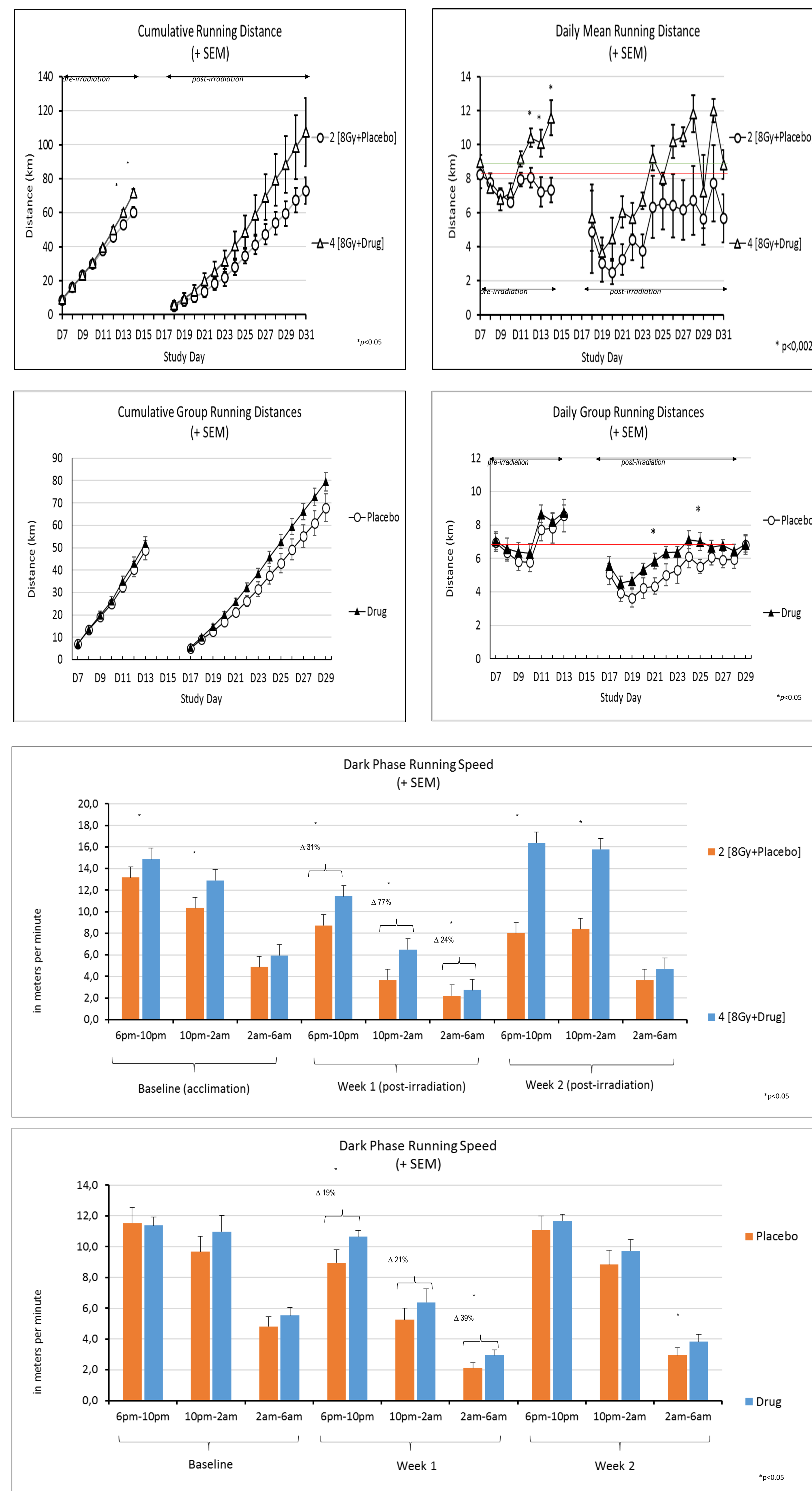
- Fatigue is a common and highly distressing symptom following cancer treatments including radiation therapy. It is frequently undertreated in clinical practice [1].
- The etiology of cancer-related fatigue is poorly understood, but inflammation and mitochondrial dysfunction have been proposed [2].
- Currently, there is no US FDA-approved treatment for cancer-related fatigue.
- We previously observed significant correlations between changes in the expressions of eight mitochondria-related genes (e.g., BCL2) with worsening of radiation therapy-related fatigue [3].
- We also observed that Cellium, a safe botanical extract, inhibited inflammation and normalized BCL2 levels in human alopecia models.
- The goal of this study is to investigate the anti-fatigue effects of an oral botanical extract on a previously developed peripherally irradiated mouse model [4].

Experimental Procedures

- **Irradiation:** Mice were irradiated after 2 – 3 weeks of acclimation. Prior to irradiation, mice were anesthetized with ketamine/xylazine given intraperitoneally. Mice were irradiated in a GammaCell 40 Irradiator (Best Theratronics) with custom-made lead shielding targeting the irradiation to the lower abdomen and upper thighs. The irradiation dose was 8 Gy per day for three consecutive days. Immediately following irradiation, mice were placed above heating pads until they recovered from the anesthesia.
- **Voluntary Wheel Running Activity:** Mice were housed with a running wheel (Lafayette Neuroscience) that tracked wheel rotation in one-minute intervals for one week before and for two weeks after irradiation. Any minute during which the wheel turned was counted as one minute of activity.
- Two successive placebo-controlled experiments (N=40, n=20 Cellium, n=20 placebo) were conducted.
- Oral pharm grade Cellium (0.9 mg) mixed with pharm grade 1% saccharine or just plain 1% saccharine (placebo) were provided using sipper tubes as dietary supplement to mice before, during and following irradiation. All mice were given ad lib access to water and NIH-31 formula diet.

Results

Voluntary Wheel Running



Experiment 1: The average post-irradiation cumulative running distance of the Cellium-group was 47% greater than placebo-group. Cellium-group returned to initial running distance 8 days earlier than Placebo-group (no group-difference in bodyweight).

Experiment 2: The average post-irradiation cumulative running distance of the Cellium-group was 17% greater than placebo-group. Cellium-group returned to initial running distance 5 days earlier than Placebo-group (no group-difference in bodyweight).

Experiment 1: One week after irradiation, the average post-irradiation running speed of the Cellium-group was systematically improved in the active phase versus placebo-group. Note that a decrease in voluntary wheel running speed was most pronounced during the late hours of the active phase (i.e. dark cycle).

Experiment 2: One week after irradiation, the average post-irradiation running speed of the Cellium-group was systematically improved in the active phase versus placebo-group. Note that a decrease in voluntary wheel running speed was most pronounced during the late hours of the active phase (i.e. dark cycle).

Conclusions

- Irradiation had a large effect on running wheel activity, particularly during the later hours of the awake period.
- Dietary supplementation with Cellium showed faster recovery of physical function following irradiation compared to placebo.
- In addition, the wheel running speed of mice receiving dietary supplementation with Cellium significantly improved compared to mice in the placebo-group, specifically during the late hours of the active phase which is clinically relevant considering that fatigue has been reported to be worst in the evening in patients receiving radiation for cancer [5,6].
- There were no difference in body weight over time in the Cellium and placebo groups.
- Clinical application of using oral Cellium supplementation is warranted.

Animal Care

- This is an ACUC-approved study (H-0288). All aspects of animal testing, housing, and environmental conditions used in this study were in compliance with The Guide for the Care and Use of Laboratory Animals [7].
- Male mice (>6 weeks old at the beginning of each study) were housed individually on a standard 12:12 h light-dark cycle.
- Twice-daily health checks were maintained throughout the study. There were no obvious signs of distress after irradiation, and mice that showed clear signs of illness or pain were excluded from the study.

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