1 **THE HEART OF THE MATTER:**

Advocating for Physical Therapy in Oncology Survivorship

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2 **OBJECTIVES**

After this presentation, attendees will be able to:

✓Identify secondary cardiac and pulmonary diagnoses associated with chemotherapy and radiation treatment

✓

✓Identify the benefits of physical therapy post oncology treatment

✓Identify resources for a physical therapist treating patients with a prior oncology diagnosis

✓

✓Advocate for physical therapy inclusion in survivorship plans

3 **CANCER IN THE US**

- In 2016 estimated 15.5 M cancer survivors in US, expected to increase to 20.3M by 2026 (Nat'l Cancer Institute)
- 38.4% of men and women will be diagnosed with cancer at some point during their lifetime (based on 2013-2015 data, Nat'l Cancer Institute).
- 5 year survival rates for patients with breast cancer as high as 99% in local and 84% in regional breast cancer (Xie, et al. 2015)
- Heart disease and cancer are the two leading causes of mortality (46.1% world wide) (Thavendiranathan, Nolan, 2017)
- 46% insufficient cardiac monitoring post oncology treatment in the US vs 23% in Canada (Thavendiranathan, Nolan, 2017)

•

•

•

4 **SIDE EFFECTS FROM CHEMOTHERAPY AND RADIATION TREATMENTS**

1 American Cancer Society

2 ❑Changes in mood or thinking

❑Dehydration

- ❑Eating problems
- ❑Falling
- ❑Fatigue
- ❑Fertility and sexual side effects
- ❑Fever
- ❑Hair loss
- 3 ❑Hiccups
- ❑Infection
- ❑Leg cramps
- ❑Low blood count
- ❑Lymphedema
- ❑Mouth problems
- ❑Nausea and vomiting
- ❑Pain
- 4 ❑Peripheral Neuropathy
- ❑Seizures
- ❑Shortness of breath
- ❑Skin problems
- ❑Sleep problems
- ❑Stool and urine changes
- ❑Sweating
- ❑Swelling
- ❑Weakness

5 **A FEW SECONDARY DISEASES FROM TREATMENT**

- 1 • Pulmonary Fibrosis
- • COPD
- • GERD
- • Congestive Heart Failure
- • Cardiac Arrhythmias
- • Cardiomyopathies
- • Secondary Cancers
- • Mental Health Conditions: anxiety, depression, emotional distress

6 **CARDIOVASCULAR COMPLICATIONS**

- • Hypertension (up to 80% of patients)
  - • Chemotherapy: Alkylating agents (bladder, lung, ovarian, hematological, sarcoma)
  - • Targeted therapies (renal, colorectal, and some GI)
  - • Hormonal therapies (prostrate, breast)
  - • Chest radiation

- Cardiomyopathy/Heart failure/Left ventricular dysfunction (up to 48%)
  - More common in younger and elderly, non Caucasian, women, those with pre-existing cardiac disease and CV risk factors
  - Chemotherapy: Anthracycline induced cardiomyopathy irreversible (breast, hematological, and sarcomas), alkylating agents.
  - Targeted therapy: trastuzumab for breast cancer cardiomyopathy often reversible (breast, GI)
  - Chest radiation

7 **CARDIOVASCULAR COMPLICATIONS**

- CAD/thromboembolism
  - Chemotherapy: Anthracyclines, antimetabolites, alkylating agents (breast, hematological, sarcoma, GI, bladder, lung, ovarian, HNC)
  - Hormonal therapies: (breast)
  - Targeted therapies: (hematological)
  - Chest radiation
- Arrhythmias
  - Chemotherapy: Antimetabolites, targeted therapies (hematological)
- Pericardial and valvular heart disease
  - Chest radiation

8 **HEART FAILURE**

- Progressive disorder
- Toxicity from chemotherapy and/or radiation
- Initially may be asymptomatic
- Multiple hits hypothesis (Virani 2016)

9 **HOW DOES THIS HAPPEN?**

Multiple risk factors
Clinical and subclinical CV disease
Multiple targets for intervention

10 **RISK FACTORS**

- Underlying cardiac risk factors
  - smoking
  - HTN
  - diabetes
  - dyslipidemia
  - obesity

- age
- Prior cardiac issues
  - CAD
  - borderline low L ventricular EF
  - history of MI
  - valvular disease
  - arrhythmia
  -

11 **EARLY DETECTION**

- LVEF
  - Baseline assessment prior to start of, during, and after completion of treatment
  - Echocardiogram-3D preferred
  - MUGA scan
  - Cardiac MRI
- Biomarkers
  - Troponins, BNP, C-reactive protein
- Submaximal exercise test with echo (Kearney 2017)

12 **INTERVENTIONS FOR CARDIAC COMPLICATIONS**

- Heart Failure
  - Medications:
    - Address HTN given during chemotherapy
    - Cardioprotective
    - Prophylaxic ?
  - Exercise
- CAD, HTN, arrhythmia, thromboembolism
  - No data on prevention strategies
  - Address any underlying CV issues, minimize cardiac radiation exposure
  -

13 **PULMONARY COMPLICATIONS**

- Pneumonitis
  - Chemotherapy: bleomycin, busulfan, cyclophosphamide, methotrexate, taxanes (hematological, testicular, ovarian, cervical)
  - Targeted therapies: (renal, melanoma, lung)
  - Chest radiation
- Pulmonary fibrosis
  - Chronic inflammation leads to fibrotic changes
- Emphysema
  - Chemotherapy: bleomycin, busulfan, cyclophosphamide, methotrexate, taxanes (
- Pre-exisiting lung disease (COPD, toxic allergen exposure) increases risk

•

14 **INTERVENTIONS FOR PULMONARY COMPLICATIONS**

- Pneumonitis/Pulmonary fibrosis/Emphysema
  - Medications:
    - withhold chemotherapy drug
    - corticosteroids
  - Exercise

15 **WHERE ARE WE HEADING**

❖Cancer targeting drugs

❖Biomarkers

❖

❖Pharmacologic prevention

❖

❖Cardio-oncology

❖

❖Oncology Physical Therapy!

http://soundandspirit.co.il/%D7%A7%D7%A9%D7%94-%D7%9C%D7%9A-%D7%9C%D7%A2%D7%96%D7%95%D7%91/

16 **CARDIO-ONCOLOGY (HAMPTON 2016)**

17 **CARDIO-ONCOLOGY THE EXPERTS**

"It is no longer only about managing complications as they arise. Rather, it is about assessing and mitigating the cardiovascular risk acutely and chronically and allowing cancer patients to receive the best possible cancer therapy at the lowest risk for the most optimal long-term outcome."

Joerg Hermann, MD (Hampton 2016)

"Recalibration of this modelling will be required in the development of exercise as an alternative, nondrug preventative strategy to the emergence of cardiotoxicity

Thomas H Marwick, MBBS, PhD, MPH (Marwick 2016)

18 **ENTER ONCOLOGY PHYSICAL THERAPY**

19 **ACADEMY OF ONCOLOGIC PHYSICAL THERAPY**

- APTA Specialization established in 2016

-
- Current members:
  - 1380 total members as of 11/30/18
-
- SIG: HIV Disease, Hospice and Palliative care, Lymphedema, Pediatric
-
- Advocates for the ethical, effective and high quality treatment of individuals affected by cancer, HIV, and lymphedema
-
- Oncology PT Fact Sheets

20 **WHY WE ARE NEEDED**

-
-
- Care gap post treatment of known cardio toxic agents
-
- The largest concern for cancer survivors is secondary cancers and CVD (Yu, Jones 2016) – PT can help to prevent both of these!
-
- Up to 80% of oncology providers are unaware of exercise guidelines for their patients (Schwartz et al 2017)
-
- Patient education is lacking

21 **PHYSICAL THERAPY CAN HELP**

BUT WHERE DO WE START…

22 **HOW ABOUT SOME CLINICAL APPLICATIONS?**

23 **CONGESTIVE HEART FAILURE**

What is it?

Heart failure is when the heart does not pump enough blood to meet the demands of the body

Signs & Symptoms?

Left sided: Fatigue, cold extremities, decreased ability of ADLs, mottling of skin, decreased functional capacity

Right sided: (can occur secondary to left sided) SOB, decreased ability of ADLs, orthopnea, paroxysmal nocturnal dyspnea, peripheral edema, decreased PaO2, crackles, cardiac wheezing with activity

Abnormal heart sounds such as S3, S4 and murmurs

-

24 **CONGESTIVE HEART FAILURE**

Risk factors?

Smoking, hypertension, high cholesterol, family history, obesity, sedentary lifestyle, diabetes, medications, ETOH abuse, stress

Treatment options?

Medication, lifestyle changes, cardiac rehabilitation, heart valve surgery, angioplasty or bypass, ventricular assist devices, heart transplant

-
-

25

Case 1

Meet Mr H.

26 **CASE 1: MR. H**

HPI: 70 year old male recently diagnosed with (L) ventricular heart failure following episode of chest pain and SOB after running to catch the T.

Workup for MI in the ED was negative.

Mr. H reports orthopnea and SOB during the day for the past 3 weeks requiring increased his use of rescue inhaler.

Mr. H's chief concerns are fatigue and shortness of breath that have decreased his ability to walk his dog and do laundry in the basement. Mr. H is 6' tall and 198 lbs.

27 **CASE 1: MR. H**

Social: Mr. H is a retired accountant, lives alone in a 2nd floor apartment with elevator access and 3 stairs to enter his building.

He is a widower of 8 years, no children but does have a cousin who lives 20 minutes away.

Mr. H would like to return to walking his dog and return to fishing and biking with his cousin on the weekends.

28 **CASE 1: MR. H**
EXAM

1. PMHx:
2. Current Medications

3 Vitals on Admission
4 Hypertension
DM2
Depression
Anxiety
Asthma
Appendectomy at age 16

5 Lisinopril (10 mg/day)
Metformin (500mg/day)
Zoloft (25 mg/day)
Advair (250/50)
Albuterol (90 mcg/actuation PRN)
Xanax (.25 mg 2-3/day)

6 *At Rest:*
HR: 115
BP: 150/96
RR: 26
SpO2: 93% on RA
With Activity:
HR: 128
BP: 170/106
RR: 32
SpO2: 91% on RA

29 **CASE 1: MR. H**
EXAM

1 Cardiac Testing
2 • CK: 320 (<322)
• CK-MB: 8 (<10)
• CK-MB Index: 2.5% (<6%)
•
• Echocardiogram revealed left ventricular dilation and mild aortic valve insufficiency
• EF: 39%
• Recommending Cardiac Stress Test
•
3 Cardiac Sounds
4 • Normal S1, S2 sounds
• S3 and diastolic murmur present

- Presence of cardiac wheezing after activity
-
- Lung Sounds
-
- Bilateral crackles present 1/3 of lung field from base
-

30 **CASE 1: MR. H**
EXAM

1

Peripheral

2 • Bilateral 2+ edema of dorsal aspect of feet and ankles
• Bipedal pulses present, distal extremities are cold, pale, clammy, nail beds are pale blue
•

3 Medication Additions

4 • Lasix (40mg 2x/day)
• Digoxin (.25 mg/day)
• Hydralazine (25mg 4x/day)
•

31 **CASE 1: MR. H**
OUTCOME MEASURES

- 6 Minute Walk Test
- 10 Meter Walk Test
- Berg Balance Scale
- Activity Balance Confidence Scale
- Borg Rating Scale
- RPE Scale

32 **CASE 1: MR. H**
GOALS OF PHYSICAL THERAPY

✓Strengthen the heart
✓Decrease symptoms
✓Improve quality of life
✓Reduce risk of worsening symptoms or acute incidents
✓Promote longevity
✓
✓

33 **CASE 1: MR. H**
PHYSICAL THERAPY INTERVENTIONS

1 Properly Prescribed Exercise

2 •

• Mode: aerobic and strength training
• Intensity: based on stress test and RPE
• Duration: as tolerated based on deconditioning/symptoms (5 mins twice daily, 10 min/day, 20 mins 3-5 times a week etc.)
• Frequency: 5-7 days, depends on duration
•

3 Diet Evaluation

4 •

• Reach and maintain a healthy weight
• Reduce salt intake
• Eat a heart healthy diet
• Reduce alcohol intake

34 **CASE 1: MR. H**
PHYSICAL THERAPY INTERVENTIONS

Stress Reduction

• Reduce and maintain a healthy blood pressure
• Relaxation techniques
• Tai chi, yoga, meditation

Education

• Reduce cholesterol levels
• Smoking cessation
• Energy conservation techniques
• Breathing techniques

35

Case 2

Meet Mr R.

36 **CASE 2: MR. R**

HPI: 21 year old male recently diagnosed with (L) ventricular heart failure secondary to chemotherapy pre and post surgical resection of (L) tibial osteosarcoma after episode of chest pain and SOB after running to catch the T.

Workup for MI in the ED was negative.

Mr. R reports orthopnea and SOB during the day for the past 3 weeks requiring increased use of his rescue inhaler.

Mr. R's chief concerns are fatigue and shortness of breath that have decreased his ability to walk his dog and do laundry in the basement. Mr. R is 6' tall and 198 lbs.

•

37 **CASE 2: MR. R**

Social: Mr. R is a full time student who lives alone in a 2nd floor apartment with elevator access and 3 stairs to enter his building.

Mr. R is attending college away from his mom and sister but does have a cousin who lives 20 minutes away.

Mr. R would like to return to walking his dog and return to fishing and biking with his cousin on the weekends.

38 **CASE 2: MR. R**

1 PMHx:

2 • Hypertension
• DM2
• Depression
• Anxiety
• Asthma
• Appendectomy at age 16
• Osteosarcoma Dx at age 13
• Chemotherapy and radiation treatment at age14
•

3 Treatment:

4 • Parameters should be individualized
• Cardiopulmonary testing
• Warm up and cool down
• Requires a skilled PT educated on the potential comorbidities post chemotherapy treatment
• EDUCATION!
•
•

39 **A 21 YEAR OLD MALE WHO:**

• Delayed diagnosis based on age
• Has to limit or eliminate alcohol consumption
• Re-evaluation career choices
• Analyze dietary intake
• Prioritize physical activity
• Commit to life long cardiac follow up

40 **MR. H VS MR. R**

2 Differences:

3 • Not eligible for transplant
• High risk of comorbidities
• Age difference
• Baseline difference
• Group programs

- Cognitive behavior therapy
-

41 **MR. R**

- Lifespan
  - 5 year survival rate with heart failure is 50%
  - 2 year survival rate for cardiotoxicity related HF is 60% (Thavendiranathan 2017)
  -
- Comprehensive Systems Screening
  - Neurological
  - Musculoskeletal
  - Cardiac
  -
- Comprehensive systems screening
  - Reproductive system
  - Renal system
  - Special Senses (vision, hearing, taste, touch, smell)
  - Cognition

42 **EVIDENCE BASED APPROACHES TO CARE**

43 **INTEGRATED CARE PLANS**

- Surgical
-
- Systemic
-
- Survivorship
-
- Palliative
-
- Comprehensive
-

Kahn, Al, et al. 2017

-

44 **INTEGRATED CARE PLANS IN A NUT SHELL**

1. Benefits
2. Barriers
3. Key Aspects

4 ❑Organize the care process
❑Monitor variance & outcomes
❑Increase communication
❑Adherence to Best EBP
❑Reduce Complications
5 ❑Gaps in information Technology support
❑Limited physician buy-in
❑Time and resource intensity
6 ❑Multi-discipline teams
❑Interactive development
❑Patient needs assessment
❑Transitional planning

45 **INTEGRATED CARE PLAN FOR MR. R**

Initially surgical, now survivorship
Receive multidisciplinary care/communication
- Cardiology
- Physical therapy
- Dietary
- Pulmonology

Increased patient education
Long term follow up

46 **CHOOSING A CARE MODEL**

47 **WHICH MODEL TO CHOOSE?**

48 **FROM THE REHABILITATION EXPERTS (STOUT, ET AL 2016)**

49 **WHERE TO FOCUS**

- Physical Performance/Fitness
  - Geriatric Assessment
- Functional Mobility
  - Geriatric model – function ambulation
- Review of:
  - Functional status
  - Comorbidities
  - Medications
  - Cognition
  - Psychological
  - Social
  - Nutrition

50 **BARRIERS**

- Insufficient capacity of existing workforce
-
- Challenges in screening for rehabilitation
-
- Lack of awareness of benefits of rehabilitation

51 **GO BACK TO THE BASICS**

➢Break down the assessment

➢

➢System screening

➢

➢Use the tools you know

➢

➢Evidence based practice

(Gilchrist, et a. 2009)

52 **MR. R**

53 **TOOLBOX OF MEASURES BY SYSTEM**

1 Mental Function

2 Sensory Function and Pain

3 Neuromusculoskeletal and Movement Functions & Structures

4 ✓High sensitivity Cognitive Screen

✓Mini-mental state exam

✓Profile of mood stress

5 ✓Numeric Pain rating scale

✓Modified total neuropathy score

✓Semmes-Weinstein monofilaments

✓Dizziness handicap inventory questionnaire

6 ✓Manual muscle testing

✓Grip strength

✓Deep tendon reflexes

✓Gait analysis

✓Goniometery

✓

(Gilchrist, et al. 2009)

54 **TOOLBOX OF MEASURES BY SYSTEM**

1 Cardiovascular, Hematologic, Immunologic & Respiratory Systems Function

2 Self-Care
3 Domestic Life, Interpersonal Relationships & Major Life Area
4 ✓Vitals (HR, BP, O2, RR)
✓Pulmonary function tests
✓Graded exercise testing
✓2 or 6 minute walk test
✓Borg rating scale of perceived exertion
✓Brief fatigue inventory
✓Functional assessment of chronic illness therapy – fatigue
✓Limb volume
5 ✓The Karnofsky Performance Scale
✓Functional Independence Measure
✓Barthel Index
6 ✓General Sickness Impact Profile
✓Reintegration of Normal Living Index
✓
(Gilchrist, et al. 2009)

55 **HEADING INTO NEW TERRITORY**

• Age related norms
•
• Age related diagnoses
•
• Long term effects
•
• Gold standard for treating cardiotoxicity?
•

56 **THE PULMONARY SIDE**

57 **PULMONARY FIBROSIS**

What is it?

Pulmonary fibrosis is an interstitial lung disease where the lung tissue becomes thickened, stiff and scared which decreases the efficiency of oxygen transport into the bloodstream

What causes it?

Smoking, environmental factors, chronic viral or bacterial infections, acid reflux disease, genetics, chemotherapy or radiation treatment, certain medications, connective tissue and autoimmune diseases

Prognosis?

Median survival is 3-5 years

Treatment Options?

Oxygen therapy, pulmonary rehabilitation, medical management, lung transplantation

*Pulmonary fibrosis may result in the following comorbidities: COPD, GERD, OSA, CAD
https://www.physio-pedia.com/Pulmonary_Fibrosis

58 **PULMONARY FIBROSIS**
SIGNS AND SYMPTOMS

- Dyspnea
- Shortness of breath especially with activity
- Chronic, dry, hacking cough
- Crackling breath sounds
- Fatigue and weakness
- Loss of appetite/unexplained weight loss
- Muscle and joint pain, swelling
- Dry eyes and mouth
- Clubbing of the fingertips

- https://www.insightsinipf.com/resource-center/auscultation-of-breath-sounds/ipf/
- https://youtu.be/DWCK1KUattY

59

Case 3

Meet Mrs P.

60 **CASE 3: MRS. P**

HPI: Mrs. P is a 57 year old female recently diagnosed with idiopathic pulmonary fibrosis via HRCT after seeking medical attention for chronic dry, hacking cough, general muscle soreness, shortness of breath and an unexpected 10 lb weight loss. Mrs. P is 5'6" tall and 160 lbs

Social: Mrs. P lives with her husband in a first floor apartment with 2 stairs to enter. She is retired, a grandmother of 2 small children who live down the street. Mrs. P's chief concerns are fatigue, breathlessness with ADLs, and a chronic dry cough. Mrs. P would like to be able to play with her grandchildren, go out to dinner with her husband and attend book club on the weekends.

61 **CASE 3: MRS. P**

PMHx: Chronic bronchitis last 2 years, hypertension, L knee OA, G2P2, L ACL repair at age 14 (allograft), social ETOH use, no smoking history.

Current Medications: multivitimin1/day, ibuprofen 600mg PRN for joint pain, ProAir Inhaler (albuterol sulfate) 90 mg per actuation PRN for SOB

Mrs. P reports and increased use of her inhaler over the past few weeks and has generally been homebound for the past month due to SOB and fatigue.

62 **CASE 3: MRS. P**
THE EVALUATION

1 Vitals

2 • At Rest: HR 80, BP 130/86, RR 20, SaO2 91% on RA
• With Activity: HR 110, BP 140/90, RR 26, SaO2 88% on RA
•
• Breathing pattern is shallow with decreased chest expansion and shoulder elevation present during inspiration
•
• Breath sounds are diminished bilaterally with bilateral crackles in the lung bases during middle and late inspiration R>L. Cough production is effective and dry

3 PFTs

4 • Female: vital capacity (ml)=(21.78−0.101×age)×height(cm)
• Estimated for 5'6" 57yo F: 2.69 L
• Actual: 2.0 L
• FEV1/FVC: 107%
• VC: 74%
• TLC: 76%
• DLCO: 67%

63 **CASE 3: MRS. P**
GOALS OF PHYSICAL THERAPY

✓Improve function, quality of life, general health and wellbeing
✓Decrease the work of breathing
✓Educate the patient on self-management, prevention of infection
✓Optimize lung capacities and volumes
✓Maximize aerobic capacity and oxygen transport efficiency
✓Increase muscle strength for peripheral oxygen transport
✓Increase exercise tolerance and endurance
https://emrnews.com/physical-therapy-marketing-perspective-in-clinical-goals/

64 **CASE 3: MRS. P**
TREATMENT CONSIDERATIONS FOR PT

1 • Pacing
• Breathing exercises
• Relaxation techniques
• Effective coughing strategies
• Functional training
• Aerobic exercise

- Resistance strength training
- Chest wall mobility
- Balance training
- Flexibility
- Patient Education – preventative measures, about PF, energy conservation, body positioning
- Caregiver education
- Home evaluation to increase functionality and safety
-

*Oxygen may be required during exercise if Mrs. P she is demonstrating desaturation by measure of SpO2. If she experiences desaturation when sleeping she will likely need oxygen for exercises

CASE 3: MRS. P
OUTCOME MEASURES

- 6 Minute Walk Test
- 10 Meter Walk Test
- Berg Balance Scale
- Activity Balance Confidence Scale
- Borg Rating Scale
- Dyspnea Scale

Case 4

Meet Mrs F.

CASE 4: MRS. F

HPI: Mrs. F is a 28 year old female recently diagnosed with pulmonary fibrosis secondary to chemotherapy treatment for Hodgkin's lymphoma when she was 12 years old. Mrs. F was diagnosed with pulmonary fibrosis via HRCT after seeking medical attention for chronic dry, hacking cough, general muscle soreness, shortness of breath and an unexpected 10 lb weight loss. Mrs. F is 5'6" tall and 160 lbs

Social: Mrs. F lives with her husband in a first floor apartment with 2 stairs to enter. She works from home as a data processor, is an aunt of 2 small children who live down the street. Mrs. F's chief concerns are fatigue, breathlessness with ADLs, and a chronic dry cough. Mrs. F would like to be able to play with her nieces, go out to dinner with her husband and attend book club on the weekends.

•

CASE 4: MRS. F

PMHx: Chronic bronchitis last 2 years, hypertension, L knee OA, L ACL repair at age 14 (allograft), social ETOH use, no smoking history. Diagnosis of Hodgkin's lymphoma at 12

years of age which was successfully treated with Chemotherapy and radiation. No recurrence to date.

Current Medications: multivitimin1/day, ibuprofen 600mg PRN for joint pain, ProAir Inhaler (albuterol sulfate) 90 mg per actuation PRN for SOB

Mrs. F reports an increased use of her inhaler over the past few weeks and has generally been homebound for the past month due to SOB and fatigue.

•

69 **CASE 4: MRS. F**
THE EVALUATION

1 Vitals

2 • At Rest: HR 80, BP 130/86, RR 20, SaO2 91% on RA
• With Activity: HR 110, BP 140/90, RR 26, SaO2 88% on RA
•
• Breathing pattern is shallow with decreased chest expansion and shoulder elevation present during inspiration
•
• Breath sounds are diminished bilaterally with bilateral crackles in the lung bases during middle and late inspiration R>L. Cough production is effective and dry

3 PFTs

4 • Female: vital capacity (ml)=(21.78−0.101×age)×height(cm)
• Estimated for 5'6" 28yo F: 3.18 L
• Actual: 2.35 L
• FEV1/FVC: 107%
• VC: 74%
• TLC: 76%
• DLCO: 67%

70 **CASE 4: MRS. F**

1 Outcome Measures:

2 ❖6 Minute Walk Test
❖10 Meter Walk Test
❖Berg Balance Scale
❖Activity Balance Confidence Scale
❖Borg Rating Scale
❖Dyspnea Scale

3 Treatment:

4 ❖Treatment parameters should be the same
❖Requires a skilled PT educated on the potential comorbidities post chemotherapy treatment
•

71 **CASE 4: MRS. F**

Differences:

❖Lung transplantation will not be offered to someone with a history of cancer

❖

❖Mrs. F has the potential to have more comorbidities than Mrs. P despite age difference

❖

(Schwartz et al 2017)

•

72 **CASE 4: MRS. F**

• Individualized treatment plan
• Support/exercise groups
• PATIENT EDUCATION!
•
•
•
•
•

(Schwartz et al 2017)

73 **SOUND FAMILIAR?**

74 **EXERCISE GUIDELINES**

75 **HTTPS://SALUD-AMERICA.ORG/UPDATED-PHYSICAL-ACTIVITY-GUIDELINES-FOR-AMERICANS/**

76 **THE EVIDENCE**

•
• There is a 1% reduction in overall mortality rate for each 15 mins of exercise per week (Hampton, 2016)
•
• Only 32% of breast cancer survivors were meeting recommended level of activity at 3 years post treatment (Yu, Jones, 2016)
•
• Aerobic capacity decreases 10-30% during a 12 week treatment of chemotherapy (Schwartz, et al. 2017)

77 **THE EVIDENCE**

• "Exercise is an effective intervention for cancer-related fatigue, and it is recommended that a multidimensional measure be used to capture the physical, emotional and mental aspects of fatigue" (Gilchrist, et al. 2009)

- Rehabilitation interventions are effective before, during and after treatment to screen for, assess and treat patients' functional needs (Stout, 2016)
- More evidence is on the way!

78 **THE BOTTOM LINE**

- Individuals with cancer diagnoses are living longer
- Cancer is a life long chronic disease
- Cardiac and pulmonary monitoring after treatment is lacking in the US
- The medical world is researching how to prevent cardiac toxicity but it is a long road
- Physical therapist are experts in movement and in patient education
- Physical therapy is safe and effective in oncology populations

- The evidence is coming…. But we cannot wait!

79 **SYSTEMS IMPACTED BY TREATMENT**

80 **RECOMMENDATIONS**

- Approach treatment for this population from a geriatric model of care rather than a modified cardiac model. (Stout, et al. 2016)
- Advocate for PT involvement before, during and after treatment (Emter, Bowles, 2008)
- Become familiar with the organs impacted by chemotherapy and radiation treatment (Ginsberg, Womer, 2005)

81 **RECOMMENDATIONS**

- Understand the process: treatments, management strategies
  - "Exercise benefits have been shown to prevent or treat cardiotoxicity. Aerobic training but not to exhaustion as well as a strength program is beneficial to improve function and quality of life" (Cardinale, et al. 2016)
- Keep up on the research! Critically analyze what is available until we have more
- Inform providers / advocate for better utilization of Physical Therapy for this population

82 **"WITHOUT SOUNDING PEDANTIC, WE HAVE AN OBLIGATION TO PREVENT CARDIAC COMPLICATIONS WHEN FEASIBLE, TO LESSEN THE IMPACT WHEN INJURY OCCURS, AND TO WORK MORE CLOSELY WITH ONCOLOGISTS AND**

INDUSTRY PARTNERS TO MAKE CERTAIN THAT WE DO NOT FIND OURSELVES TRADING A CANCER DIAGNOSIS FOR END-STAGE HEART FAILURE."

- Hauptman 2016

83 **ONLINE RESOURCES TO UTILIZE**

- American Cancer Society: https://www.cancer.org/
- APTA: http://www.apts.org or http://www.apta.org/Sections/
- APTA Oncology Section: http://oncologypt.org/home-page.cfm
- American Heart Association: http://www.heart.org/HEARTORG/
- Lungs and you: https://www.lungsandyou.com/facts
- Physio-pedia: https://www.physio-pedia.com/Pulmonary_Fibrosis

84 **QUESTIONS?**

85 **REFERENCES**

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