Rehabilitation and Cancer Survivorship

Matthew Denning, Samantha Fisk, Alyssa Grigware, Mary Leopold, Erika Lopez, Margaret Masiak, Sebastian Stoltzfus, Ashley Tomaswick

UNE Doctor of Physical Therapy Program

Central Maine Medical Center
December 4th, 2015
Why We Are Here

- Third and final year community based project
- Northern New England Clinical Oncology Society Grant Recipients
- Build awareness on the role of rehabilitation services in cancer survivor management
- Discuss strategies to address existing need
- Motivated by personal and professional connections to cancer survivors
Each cancer survivor has a unique set of risk factors, disease presentation, and course of treatment

Cancer survivors are at high risk for severe and persistent symptoms of physical distress that impair post-treatment function

- Kim BH, 2015

Many cancer survivors can endure physical distress symptoms for up to 10 years following treatment


Comprehensive rehabilitation and extensive wellness services available locally
Triple Aim

- Improving the patient care experience
- Improving the health of populations
- Reducing the per capita cost of health care
Objective & Goals

Objective

- All cancer survivors have the opportunity to receive the additional services they need to maximize their quality of life.

Goals

- Feasible resolution to current barriers
- Identify physical distress screening tools and outcome measures
- Improve utilization of screening tools
- Education on rehabilitation services
2015 Cancer Incidence

National

- Estimated 1,658,370 new diagnoses (ACS, 2015)
  - Breast: 234,190 new cases
  - Lung/Bronchus: 221,200 new cases
  - Prostate: 220,800 new cases
  - Colorectal/Anal: 139,970 new cases

Maine

- Estimated 8,810 new diagnoses (ACS, 2015)
  - Breast: 1,010 (female) new cases
  - Lung/Bronchus: 1,360 new cases
  - Prostate: 1,100 new cases
  - Colorectal/Anal: 610 new cases
CMMC Annual Report 2013

- Cancer survivors treated in 2012: 735
- Total % of 2012 Analytic Cases: 99.9%
  - Breast Cancer: 20.4%
  - Lung/Bronchus: 16.2%
  - Colorectal/Anal Cancer: 8.2%
Late Effects of Cancer Survivorship

- Between 1971 and the projections for 2022, the number of cancer survivors will increase from 3 million to 18 million.

- **Tools** to identify long-lasting side effects of cancer therapy **must be implemented** earlier to treat and/or prevent them.
  - At least 50% of survivors suffer from late treatment-related side effects
  - Many side effects are chronic in nature and even life-threatening

ECOG - Eastern Cooperative Oncology Group Scale of Performance Status

- Currently assessed at each patient visit
- Preliminary tool used for detecting change
- 0 = no impairment
- 5 = death

<table>
<thead>
<tr>
<th>Grade</th>
<th>ECOG</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>Fully active, able to carry on all pre-disease performance without restriction.</td>
</tr>
<tr>
<td>1</td>
<td>Restricted in physically strenuous activity but ambulatory and able to carry out work of a light or sedentary nature (i.e. light housework, office work).</td>
</tr>
<tr>
<td>2</td>
<td>Ambulatory and capable of all self-care but unable to carry out any work activities. Up and about more than 50% of waking hours.</td>
</tr>
<tr>
<td>3</td>
<td>Capable of only limited self-care, confined to bed or chair more than 50% of waking hours.</td>
</tr>
<tr>
<td>4</td>
<td>Completely disabled. Cannot carry on any self-care. Totally confined to bed or chair.</td>
</tr>
<tr>
<td>5</td>
<td>Dead.</td>
</tr>
</tbody>
</table>
Current CMMC Model

Distress Thermometer

- Currently administered at the initial patient visit
- A recommendation by the NCCN to screen for emotional, psychological, and physical distress
- 0 = no distress
  10 = extreme distress
- Practical, Family, Emotional, Spiritual/Religious, and Physical Problems

Oncology Rehabilitation Continuum

- Pre-habilitation
- Surgical Recovery
- Active Cancer Treatment
- Post-Cancer Treatment Survivorship
- Hospice/Palliative Care
Assessment in Oncology Rehabilitation

Health Condition
- Cancer Type
- Treatment (Surgery, Radiation, Chemotherapy)

Body Functions
- Mental Function
- Sensory and Pain
- Voice and Speech
- Cardiovascular, Hematological, Immunologic, and Respiratory
- Digestive, Metabolic, and Endocrine
- Genitourinary and Reproductive
- Neuromusculoskeletal and Movement-Related
- Skin and Related

Body Structures
- Nervous System
- Eye, Ear, and Related
- Voice and Speech
- Cardiovascular, Immunologic, and Respiratory
- Digestive, Metabolic, and Endocrine
- Genitourinary and Reproductive
- Movement-Related
- Skin and Related

Activity and Participation
- Learning and Applying Knowledge
- General Tasks and Demands
- Communication
- Mobility
- Self-care
- Domestic Life
- Interpersonal Interactions and Relationships
- Major Life Areas
- Community, Social, and Civic Life

Environmental Factors

Personal Factors

http://ptjournal.apta.org/content/89/3/286
Common Cancer-Related Impairments

Fatigue

- “Overwhelming and sustained exhaustion and decreased capacity for physical and mental work...not relieved by rest”
- As many as 75% of patients have cancer-related fatigue
- **Tools:** Distress Thermometer, Brief Fatigue Inventory (BFI), FACIT-F, FACIT-An
- **PT Intervention:** promote mobility, ambulation, passive/active ROM, light resistance exercises

Silver, *CA Cancer J Clin.* 2013
Common Cancer-Related Impairments

Sensory, Balance, Gait, and Fall-Risk

- Most prevalent neurological complication of cancer is chemo-induced peripheral neuropathy (CIPN)
- May develop in 50-60% of patients treated with taxanes
- **Tools:** various PT balance tests, fall risk screenings, Dizziness Handicap Inventory (DHI), visual acuity tests, Modified Total Neuropathy Score (mTNS)
- **PT Intervention:** fall risk prevention, vestibular rehab, balance activities, strengthening exercises, assistive devices, adaptive equipment

Silver, *CA Cancer J Clin*. 2013
Common Cancer-Related Impairments

Pain

- PT and wellness programs early in cancer treatment “may help to diminish the intensity and incidence of chronic pain in long-term survivors.”
- “30-50% of patients undergoing acute cancer treatment and up to 70% of patients with metastatic disease”
- **Tools:** Visual Analog Scale (VAS), Numeric Pain Rating Scale (NPRS), Faces Pain Scale (FPS), Distress Thermometer, Brief Pain Inventory (BPI)
- **PT Intervention:** modalities, manual therapy, pressure point release, transcutaneous neuromuscular stimulation (TENS), positioning, stretches

Silver, *CA Cancer J Clin.* 2013
Common Cancer-Related Impairments

**Neuromusculoskeletal**

- ROM loss, decreased muscle strength, gait pattern abnormalities, and balance deficits
- Weakness is present in up to 78% of patients with brain tumors and 74-76% of patients with cancer-related spinal cord injury
- **Tools:** goniometry, manual muscle testing, grip strength, deep tendon reflexes, gait speed, gait analysis, etc.
- **PT Intervention:** PROM/AROM, muscle endurance and strength exercises, balance activities, and assistive devices

Silver, *CA Cancer J Clin.* 2013
Common Cancer-Related Impairments

Incontinence Related to Pelvic Floor Imbalances/Weakness

- More common with pelvic cancers, such as cervical, ovarian, uterine, or vaginal cancer in women or prostate or testicular cancer in men
- **Tools:** Numerous standardized questionnaires available for symptoms, QoL, and sexual function
- **PT Intervention:** pelvic floor rehab/EMG, transverse abdominis muscle training, manual therapy, soft tissue release, positioning, education
Common Cancer-Related Impairments

Lymphedema

- Can cause disfigurement, physical discomfort, and functional impairment
- 6.3% - 22.3% develop secondary lymphedema following SLND and ALND
- **Tools:** EDGE task force, circumferential measurements, FACIT-Lymphedema
- **PT Intervention:** complex decongestive therapy

Shaitelman et al. *CA Cancer J Clin.* 2015
Positive Effects of Physical Activity

- Reduces cancer mortality by up to 17%

- Pre-habilitation and rehabilitation can reduce physical distress and improve QoL
  Bernat et al. *BJU Int.* 2015

- Reduces cancer-related fatigue
Additional Oncology Rehabilitation Services

**Occupational Therapy**
- ADL management
- Assistive device management
- Energy conservation and relaxation techniques
- Environmental modifications
- Return to leisure activities
- Lymphedema management

**Speech-Language Pathology**
- Neurogenic Communication Disorders
- Cognitive-Communication Assessment - “Chemo-brain”
- Augmentative/Alternative communication
- Dysphagia
- Intraoperative language mapping
- Laryngectomy Rehabilitation
- Voice Therapy
Fitness and Wellness for Survivors

The Patrick Dempsey Center for Cancer Hope and Healing

- Massage, Reiki, yoga, Tai Chi, meditation
- Mindfulness Meditation ongoing series
- Toll-free cancer assistance line
- Short-term therapeutic counseling services
- Financial resource counseling
- Nutrition counseling
- Nutrition for Life series
- Community cancer-related health outreach and education
- Professionally facilitated cancer and caregiver support groups

- Educational workshops on a variety of cancer and wellness-related topics
- Patient Navigation
- The Healing Tree program, which offers support, education and wellness services for youth and families impacted by cancer.
- Space to Breathe and Space to Grieve, adolescent outdoor adventure programs
- Interactive website and social media
- A cancer resource Lending Library including books, periodicals and DVDs
Need for Referral

92% of women with metastatic breast cancer had at least 1 physical impairment Silver, CA Cancer J Clin. 2013
- 91% of those impairments required a physical rehabilitation intervention
- 88% required PT and/or OT
- Fewer than 30% received this care

63% of survivors of the 10 most common cancers reported the need for at least 1 rehabilitation service Silver, CA Cancer J Clin. 2013
- 40% of the patients reported unmet rehabilitation needs
Estimated Patient Rehab Needs for CMMC Survivors

- 30%: 220
- 45%: 330
- 65%: 477

Survivors Receiving Oncology Rehab
## Barriers and Opportunities to Access Services

<table>
<thead>
<tr>
<th>Potential Barriers</th>
<th>Potential Opportunities</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cancer survivors overwhelmed and limited available time</td>
<td>Progressive thinking</td>
</tr>
<tr>
<td>Financial burden</td>
<td>Pilot a PT in Cancer Center to increase referrals and financial revenue</td>
</tr>
<tr>
<td>Lack of awareness</td>
<td>Encourage utilization of nearby facilities</td>
</tr>
<tr>
<td>Lack of financial incentive</td>
<td>Empower cancer survivors to be an active participant in their treatment</td>
</tr>
</tbody>
</table>
An example of lymphedema:

- 6.3% – 22.3% of breast cancer survivors

- Healthcare costs increase with lymphedema $14,877-$23,167 using traditional care
  - Shih et al. *Journal of Clinical Oncology*. 2009
Prospective surveillance screening:
- Before beginning treatment
- Follow-up screening at 3 month intervals

OT/PT in Maine
0.2 FTE = $15,000 (BLS.gov)

Cost:
- Prospective Surveillance Model: $636.19
- Cost to manage late lymphedema: $3,124.92

Economic Impact

- Fatigue is most common impairment among cancer survivors
- 75% changed their employment status
- 65% of family caregivers took extra days off work
- Work loss due to cancer accounts for 0.8% of GDP
  - 120 billion dollars

Silver et al. *CA Cancer J Clin*, 2013
Rehabilitation for Advanced Cancer Survivors

- 103 adults undergoing radiation therapy for advanced cancer

- Single-blinded RCT

- 8 multi-disciplinary interventions of 90 minutes, 30 minutes devoted to PT

- 89.3% attendance rate

“Studies published so far report statistically significant benefits for multidimensional interventions over usual care, most notably for the outcomes fatigue and physical functioning….all [available economic evaluations] showed favorable cost effectiveness ratios.”

Opportunities

Central Maine Comprehensive Cancer Center
The Central Maine Medical Family

Working together with
Massachusetts General Hospital Cancer Center

Annual Report 2013

| TOTALS  | 809 | 763 | 735 |
Our Recommendation: The Cancer Center

- Increased frequency of Distress Thermometer administration
- Referral to rehabilitation services with a Distress Thermometer score of 4 or more
  - Indicates significant distress requiring screening
- Allow rehabilitation services to perform additional patient screens in Cancer Center
Our Recommendation: Rehabilitation Dept.

- A full-time rehab clinician as part of the oncology team
  - Patient care and interdisciplinary team meetings
- Clinician follow-up with patients based on distress thermometer results
- Improve clinical collaboration with LiveStrong program and the Dempsey Center
Our Recommendation: The Dempsey Center

- Volunteer representative in the Cancer Center (Medical Oncology & Radiation Oncology)
- Pamphlets/Calendars available in waiting room, exam room, gowned waiting room in Radiation Oncology
- Enhance access in Cancer Center to visiting massage therapist, Reiki practitioner, and meditation services
- Enhance collaboration with patient navigator
Turning Challenges into Opportunities

- Identifying the right patient at the right time
  - CMMC Cancer Center Infusion Center
- Securing patient buy-in
  - through word-of-mouth, pamphlets, and personal experience
  - face-to-face interaction with a PT to educate patient on benefits of rehabilitation specific to their cancer diagnosis and treatment
- Feasibility
Acknowledgements

- CMMC Rehabilitation Services and the Cancer Center
  - Jay Burtchell, PT, MDT, Outpatient Clinical Supervisor
  - Kathleen Vieira, RN, Nurse Manager
- The Patrick Dempsey Center for Cancer Hope and Healing
  - Wendy Tardif, Executive Director
- Northern New England Clinical Oncology Society
- University of New England Doctorate of Physical Therapy Program
Thank You!
References

- Ashford J, Logemann J, McCullough G. Treatment Efficacy Summary: Swallowing Disorders (Dysphagia) in Adults. American Speech-Language Hearing Association


Kim BH. Social networks and physical activity behaviors among cancer survivors: Data from the 2005 health information national trends survey. 2015.


