Descriptive Study of Cognitive Disturbances in Older Adult Breast Cancer Survivors

Melissa Craft, PhD APRN-CNS AOCN
Sigma Theta Tau 43rd Biennial Convention
November 8, 2015
Disclosures

- **Study team:**
  - Melissa Craft PhD APRN-CNS (PI), Michael Wenger PhD, Wajeeha Razaq MD, Doris Benbrook PhD, John Carlson MS, Kaitlyn Curran BA, Gina Crudden MSN APRN-CNS ACCNS-AG, Barbara Carlson PhD RN

- **Learner objectives:**
  - Identify at least two biological and/or functional factors that relate to and impact cognitive function in older adult breast cancer survivors.
  - Discuss potential interventions for people experiencing cognitive impairment following chemotherapy
  - The PI nor any member of the team have any conflicts of interest to declare related to this study.
  - This study was supported by a grant from the Reynolds Center of Geriatric Excellence: Interdisciplinary Seed Grants
• Breast cancer continues to be the number one cause of cancer in women over 50, with a median age of diagnosis at 61. (ACS, 2013)
• Treatment advances have led to a significant increase in the number of breast cancer survivors: survival rates range from 88% at 5 years to 78% after 15 years post diagnosis.
• Cognitive disturbance, “chemobrain”, is a commonly heard complaint among many breast cancer survivors.
• In older patients, the likelihood of cognitive disturbances are even greater. (Ahles, 2010)
• Purpose of this study was to examine how factors, both biological and functional relate to cognitive function in older breast cancer survivors who report persistent cognitive impairment, 12-36 months after completing their chemotherapy regimen.

Research Question/Hypothesis

• What cognitive impairments are breast cancer survivors reporting?
• How closely do perceived cognitive impairments correlate to other measures of cognitive functioning?
• What compensatory strategies are breast cancer patients reporting?
Background

• Aging and chemotherapy impact neuronal health by altering sleep patterns, regional blood flow, and evoking inflammatory-oxidative stress pathways.

• Most breast cancer survivors experience cognitive disturbances during treatment.

• While many improve upon treatment termination, up to 25% may experience persistent cognitive decline 1-year post treatment.

• Discrepancies between perceived and measurable impairment may occur when compensatory strategies are viewed by the woman as requiring more time and effort to complete a task and perceived as a decline in function.
Methods

- **Sample:** 13 breast cancer survivors aged 50+ who had received chemotherapy >12 months ago and <36 months.

- **Procedures:**
  - **Home:** 4 day journal on sleep and cognition pre and post breast cancer, questionnaires on sleep and cognition, wrist actigraphy for 4 days.
  - **Lab:** Memory Consolidation Protocol including behavioral measures of memory function, EEG, cerebral oxygenation and blood draws for inflammation, oxidative stress and neuroprotective factors.
Results

- Demographics: average age 65, range: 52-84
- Participants were asked to wear the actigraph for four days starting in the evening of the first day. They received a sleep log to record the time they went to bed and woke up.
- Only two participants said they had trouble sleeping before cancer. Many of them have had trouble sleeping since their diagnosis and treatment.
Examples of actigraph data
Journals

- Asked to write 20 minutes/day for 4 days.

- Prompts:
  - Day 1: Tell the story of what your sleep was like before breast cancer.
  - Day 2: Tell the story of what your sleep has been like since breast cancer.
  - Day 3: Tell the story of what your thinking and memory were like before breast cancer.
  - Day 4: Tell the story of what your thinking and memory have been like since breast cancer.
Many women felt that their memories and cognitive abilities were really good before cancer.

“Before my cancer and chemotherapy I had a great memory, I knew all the technical information for my job and many co-workers would come to me for help because I could remember everything without looking it up”.

“Before chemo I never had to write things down like grocery lists. I just remembered what I needed. I never lost things either, like car keys or where I parked my car!”
All women noted changes in cognitive processes after treatment. Frequently noted challenges include:

- Word finding: “It feels just like a big blank in my head” (when trying to think of the right word). “Names are really hard!”, “Once I tried to introduce my sister and looked at her and forgot her name—my sister!!”, “It takes me longer just to tell a joke or a story because of word-finding”.

- Focusing on task is difficult: “I have a hard time reading because it is difficult to keep the characters straight”, “ Interruptions create havoc. My concentration is bad!”
Thinking (cont.)

- Multi-tasking exacerbates the problem:
  - “I no longer felt like I knew the answers and I couldn’t multi-task” — ”It made me feel worthless and stupid”.
- Forgetting things:
  - “I had to start making lists and I lose things now, car keys, my car!”
  - “I am more hesitant about doing things now”
  - “I would misplace new orders that were faxed. It got so bad, I was afraid of losing my job”.
  - “I have bought two books twice”.
  - “I am afraid I am going to forget something important like putting gas in my car and get stranded somewhere really scary”.
Why is this different from normal aging?

• Cognitive functioning can be seen as a balance between stressors both biological and emotional/mental and cognitive reserves such as behavioral adaptations.

• Behavioral adaptations may work fine until overwhelmed by fatigue, multiple tasks and emotional stressors.

• “The daughter who had the baby in November is deaf and is married to a police officer who works odd shifts. So I had to be her ‘ears’ at times when she first had the baby... I was tired from the chemo, but knew I had to be alert enough to wake up when the baby woke me up. I wasn’t sleeping well because I had to sleep on the couch”.
More to come....

• The results of this study will help to develop a larger, prospective study aimed at:
  • refining the risk factors for an imbalance between cognitive reserve and stressors.
  • Identifying interventions to help women cope, adapt and improve cognitive reserve and functioning.