Health-related Quality of Life (HRQL) in Long-term Breast Cancer Survivors: A CALGB Study (79804)

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Background

- Little is known about how long-term breast cancer survivors are faring.
- Overall good HRQL reported in studies but issues remain:
  - Sexual concerns
  - Psychosocial problems
  - Physical symptoms (pain and lymphedema)
  - Effects of chemotherapy
- Health behaviors – in terms of exercise, diet, screening behaviors – are beneficial. Does cancer serve as a teachable moment?
Overall Goal

To describe the magnitude of physical, economic, psychosocial, and spiritual issues among long-term breast cancer survivors and the impact on overall HRQL.

Population

• Women who participated in CALGB 8541

CALGB 8541:
Arm 1 - high dose: C/DOX/F at 600/60/600 (n=78)
Arm 2 - low dose: C/DOX/F at 300/30/300 (n=74)
Arm 3 - standard: C/DOX/F at 400/40/400 (n=93)
Eligibility Requirements

- Patients must have been treated on CALGB clinical trial 8541 (open to accrual from January 1985 to April 1991).
- Originally registered to CALGB 8541 by an institution that is still a member of CALGB.
- Patient must be free from breast cancer for at least 12 months prior to registration.
- No concurrent malignancy.
- Must be able to read and complete an English-language questionnaire.

Demographics (N = 245)

- A majority of the participants:
  - were 50 – 69 years of age (61%)
  - were White (93%)
  - had incomes > $20,000 (68%)
  - had a high school diploma or greater (94%)
**Measures**

- Socioeconomic Supplement to Background Form
- Your Health - Short Form
- Breast Cancer Survivor Health Questionnaire
- Menopause and Reproductive Health
- Lymphedema and Pain Questionnaire
- Osteoporosis Questionnaire
- SF-36 - General Quality of Life
- Systems of Belief Inventory
- CES-D
- Sexuality Assessment Questionnaire
- Appearance Assessment Questionnaire
- RAND Social Support (version 1.1) (MOS social support survey)
- Social Support Supplement
- Life Events Scale
- Breast Cancer Anxiety and Screening Behavior Scale
- Effect of Cancer on Your Employment and Insurance

**Outcomes**

- SF-36 Mental Health
- SF-36 Role Functioning Physical
- SF-36 Role Functioning Emotional
- SF-36 Quality of Life Scores
Focus of Presentation

• What is going on in long-term breast cancer survivors?
  – general HRQL
  – correlation of HRQL with:
    – the side effects of treatment
    – health behaviors

Health-Related Quality of Life
HRQL in Long-Term Breast Cancer Survivors

Purpose:
• Use a conceptual model to predict effects of factors in 5 domains (physical, psychosocial, economic, spiritual) on global HRQL of breast cancer survivors 9-16 years post-diagnosis.

Quality of Life Model Adapted For Breast Cancer Survivors

Physical Well Being
- Menopausal symptoms
- Vitality/Decreased energy
- Lymphedema
- Co-morbidities (e.g., heart disease, osteoporosis)

Psychological Well Being
- Anxiety/Depression
- Concentration/Memory
- Fear of recurrence
- Feelings about appearance

Social Well Being
- Social support
- Sexuality
- Life events

Economic
- Employment
- Insurance

Spiritual Well Being
- Religious/Spiritual activity

Analyses

Primary Objectives:

• Assess factors within each domain as they impact quality of life.
• Assess factors from each domain on quality of life.

Domain-Specific Impact on HRQL

Physical Well Being
- Decreased energy (1.05)
- Heart disease (4.11)
- Other co-morbidities (4.02)

Psychological Well Being
- Depression (5.93)
- Feelings about appearance (1.07)

Social Well Being
- Social support (1.04)

Spiritual Well Being

Economic

QOL
Results

- Physical and Social Factors were significantly related to global HRQL.
- Co-morbidities (fatigue, heart disease) were associated with poor HRQL.
- Spiritual, economic and psychological factors were not related to global HRQL.
HRQL Differences by Adjuvant Chemotherapy Treatment

Purpose:
- Assess whether adjuvant chemotherapy dose was associated with 5 HRQL domains among long-term breast cancer survivors.
- Identify factors that exhibit differences by treatment arm (co-morbidities, treatment variables and demographic variables).

Results
- Significant relationship between role-functioning (physical) and treatment arm – standard arm had lowest mean score (p<.0001).
- No relationship between treatment arm and the following:
  - Physical functioning
  - Role-functioning – emotional
  - Social function
  - Bodily pain
  - Mental health
  - Vitality
  - General health perceptions
### Multivariate Logistic Regression Analysis: Association of Demographic and Medical Characteristics with Decreased Physical Role Functioning

<table>
<thead>
<tr>
<th>Variable</th>
<th>Odds Ratio</th>
<th>95% CI</th>
<th>P-Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age at time of interview: &gt;60 years old vs. &lt;60</td>
<td>2.78</td>
<td>1.12, 6.67</td>
<td>0.03</td>
</tr>
<tr>
<td>Vitality Score</td>
<td>1.06</td>
<td>1.04, 1.09</td>
<td>&lt;0.0001</td>
</tr>
<tr>
<td>Menopausal Symptom Total Score</td>
<td>1.05</td>
<td>1.02, 1.08</td>
<td>0.0003</td>
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<tr>
<td>Socioeconomic Status: Lower vs Higher</td>
<td>2.44</td>
<td>1.06, 5.65</td>
<td>0.04</td>
</tr>
</tbody>
</table>

### Side Effects of Treatment
Lymphedema in Breast Cancer Survivors

Purpose

• To describe:
  – Characteristics of arm and hand swelling; and
  – Effects of swelling upon perceived physical functioning and mental health.

Results

• 31% of the 245 long-term survivors reported arm/hand swelling since their surgery.
• Of these survivors:
  – 76% reported current swelling;
  – 49% reported constant swelling; and
  – Swelling was most often experienced in upper arm.
Results

• Of those who reported swelling since surgery:
  – 88% perceived swelling was mild or moderate.
  – Swelling interfered with daily activities
    • Fit of clothing: 36%
    • Perceptions about general appearance: 32%
  – Only 37% sought treatment for swelling.
  – 43% also experienced pain with swelling.

Results

• Regarding relationship between swelling characteristics, perceived physical functioning and mental health:
  – Swelling severity was negatively associated with physical functioning.
  – Swelling showed little association with mental health.
Health Behaviors

Exercise & Diet Change in Survivors

Purpose

• to investigate:
  – Prevalence & clustering of self-reported exercise & diet changes.
  – Relationships between behavior changes and ongoing cancer-related symptoms, social support, and stress.
  – Compliance with breast cancer screening exams and pelvic examination tests.
Results

• Over half of survivors reported making positive diet or exercise changes since diagnosis, and over 25% reported making exercise AND diet changes.
• Survivors who reported increasing their exercise also reported significantly lower fatigue.
• Reports of behavior changes were not associated with depression, anxiety, sexual satisfaction or body satisfaction.

Results

• 58% of these 227 long-term survivors reported making 1+ positive changes in exercise or diet (fat, fiber, fruits/vegetables) since diagnosis
Screening Adherence

Results

Psychological Symptoms, Body Satisfaction, and Social Support
Mean (SD)

| Psychological Symptoms | Breast Cancer | Anxiety | Depression | Stress | Body Satisfaction | Social Support |
|------------------------|---------------|---------|------------|--------|-------------------|               |
| Pelvic Examination     |               |         |            |        |                   |               |
| Recommended period     |               |         |            |        |                   |               |
| n=230                  | p=0.008       |         |            |        |                   |               |
| n=238                  | p=0.001       |         |            |        |                   |               |
| n=237                  | p=0.03        |         |            |        |                   |               |
| n=236                  | p=0.38        |         |            |        |                   |               |
| n=239                  | p=0.09        |         |            |        |                   |               |
| Recommended period     |               |         |            |        |                   |               |
| within period          |               |         |            |        |                   |               |
| n=162                  | 0.78 (0.42)   | 9.29 (7.5) | 4.95 (3.9) | 25.82 (7.5) | 78.92 (18.1)     |
| Not within recommendation |       |         |            |        |                   |               |
| n=77                   | 0.93 (0.50)   | 12.80 (9.3) | 6.27 (5.4) | 24.67 (7.3) | 73.85 (24.2)     |

Adjusted for age, marital status, and insurance coverage
Implications

• The modeling in this study provides an important framework for assessing HRQL in long-term survivors.
• Despite the benefits of chemotherapy, side effects may greatly impact HRQL in long-term survivors 9-16 years post-diagnosis.
• Lymphedema is a chronic problem for many survivors.
Implications

- The prevalence of screening adherence, exercise and diet change is encouraging but… more health promotion efforts are needed with survivors.
- Fatigue may limit survivors’ ability to change their health behaviors; or, survivors who increase exercise may experience less fatigue.

Future Directions
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• Prospective studies are needed to explore the role of clinical and SES factors as potential areas for intervention in improving HRQL in long-term survivors.

• Lymphedema prevention and treatment, if appropriate, should be included as part of survivorship care plan.

Future Directions

• Develop patient-level educational programs to improve knowledge and activate survivors to communicate with their healthcare providers about cancer surveillance.

• Interventions are needed to:
  – educate women about ways to detect and manage problems to reduce severity; and
  – enhance social support through improved interactions with family, health care providers.
79804 Publications


- Health-Related Quality of Life in Long-Term Breast Cancer Survivors: Differences by Adjuvant Chemotherapy Dose in CALGB Study 8541. Paskett ED, Herndon JE II, Donohue KA, Naughton MA, Grubbs SS, Pavy MD, Hensley ML, Stark N, Kornblith AB, Bittoni MA. *Cancer* (under review).

