Geriatrics: The New Face of Oncology Patients

Catherine Klein RN-BC, BSN, OCN
Geriatric Oncology Nurse Coordinator
Sidney Kimmel Comprehensive Cancer Center
Johns Hopkins Bayview Medical Center

Objectives

- To review aspects of aging and cancer.
- To apply the principles of the geriatric assessment to the oncology setting.
- To examine the role of nurses in improving care for older patients with cancer.

“Aging in the general population alters the demographics of cancer…”

- L. Balducci, MD
Cancer Facts

- Single greatest risk factor is advancing age
- 60% of all cancers occur in persons older than 65
- Cancer is the leading cause of death for those aged 60–79 years
- By 2030 approximately 70% of all cancers will be diagnosed in adults 65 years or older

Age at Diagnosis of Common Tumors for Men and Women

Cancer incidence (Millions)
Realization of Oncogenic Potential

- Increased environmental susceptibility
- Increased cell senescence
- Decreased host responses
- Longer duration of carcinogen exposure

Initiation → Promotion → Transformation → Progression

Time (years)


“and aging in an individual alters the biology of cancer”

- L. Balducci, MD

Unique Issues for Older Adults

- Biology of certain neoplasms
- Responsiveness to treatment
- Physiologic status
- Comorbidities
Biology of Neoplasms

- Breast: tumors more frequently express hormone receptors
- Lung: twice as many squamous cell carcinomas in 80 year olds vs. 40 year olds
- Bladder: tumor grade is often higher in older individuals
- Hodgkin’s Disease & AML: older people more likely to have disease resistant to treatment

Physiologic Changes

<table>
<thead>
<tr>
<th>Physiologic Change</th>
<th>Consequence of Chemotherapy</th>
</tr>
</thead>
<tbody>
<tr>
<td>Slower repair of DNA damage</td>
<td>Prolonged toxicity</td>
</tr>
<tr>
<td>Reduced stem-cell mass and hematopoiesis</td>
<td>Slow recovery of blood and mucosal cells</td>
</tr>
<tr>
<td>Reduced functional reserve of organ systems</td>
<td>Risk of organ failure with additional tissue loss</td>
</tr>
<tr>
<td>Reduced gastrointestinal absorptive surfaces, gastric motility and gastric secretion</td>
<td>Reduced drug absorption</td>
</tr>
<tr>
<td>Reduced fat-free mass</td>
<td>Altered drug distribution</td>
</tr>
<tr>
<td>Greater anemia</td>
<td>Increased levels of circulating drugs</td>
</tr>
<tr>
<td>Decreased liver mass</td>
<td>Reduced drug metabolism</td>
</tr>
<tr>
<td>Decreased nephron mass</td>
<td>Reduced drug secretion</td>
</tr>
</tbody>
</table>

Impact of Comorbidity on Cancer Care

Limited treatment options
- CHF (anthracyclines), CRI (Cisplatin), RA (MTX)

Increased likelihood of dose modification
- CRI (bisphosphonates, Carboplatin), Hepatic dysfunction (CPT 11)

Early cessation of treatment
- In NSCLC, Charleson score informs course: 30% Vs. 82%

Alterations in life expectancy
- Variation in cancer survival based on comorbidities
- OS and DFS related to comorbid illness itself


In many cases, older people are less likely to get effective cancer treatment than are younger people

– Institute of Medicine

Barriers to Cancer Care

- Age
- Access to care/resources
- Comorbid illness – impact and burden
- Finances
- Homogeneity principle
- Paternalism
- Polypharmacy
- Delay to diagnosis
- Physiologic changes associated with age
- Patient’s perspective
- Lack of evidence-based data*
Proper selection of patients & individualized care plans are key in administering effective and safe cancer treatments

- Is the patient going to die with the disease or from the disease?
- Is the patient likely to suffer from complications of the disease?
- Will the patient be able to tolerate the treatment?
- Are there reversible conditions that may interfere with treatment?
The optimal approach to treatment should provide the best QoL for the maximum duration of life, taking into account acceptable risks to the patient.


Geriatric Oncology Program Goals

- Proactive vs. Reactive
- Optimize treatment planning & patient outcomes
- Provide therapeutic treatment while maintaining quality of life

Comprehensive Geriatric Assessment (CGA)

- Helps to identify conditions that may interfere with cancer treatment
- Validated tools to identify geriatric syndromes
- Patients 70 years or older
CGA in Geriatric Oncology …

- Establishes a common language for evaluation
- Estimates life expectancy and a threshold for treatment tolerance
- Identifies reversible conditions
- Increases the likelihood of receipt of optimal therapy
- Preserves functional autonomy
- Guides resource utilization
- Decreases rate of hospitalization
- Shapes interventions and clinical decision making


CGA, Oncology Style

- Oncology Domains
  - Pathology
  - Tumor type and site
  - Stage
  - Performance status
  - Pain, weakness, fatigue
  - PMH
  - Organ reserves
  - SE profiles
  - Tumor markers

- CGA Domains
  - Function
  - Comorbidities
  - Cognition
  - Emotion
  - Geriatric Syndromes
  - Nutrition
  - Polypharmacy
  - Biopsychosocial status
  - (Inflammatory markers)


<table>
<thead>
<tr>
<th>CGA Domain</th>
<th>Value of this Domain</th>
</tr>
</thead>
<tbody>
<tr>
<td>Functional Status</td>
<td>Predicts greater risk of M&amp;M; identifies patients for whom additional interventions are needed</td>
</tr>
<tr>
<td>Comorbid Conditions</td>
<td>Identifies competing causes of M&amp;M and conditions that cancer TX may exacerbate</td>
</tr>
<tr>
<td>Cognitive Status</td>
<td>Assesses comprehension of DX &amp; TX options; identifies patients at risk of poor adherence to recommendations</td>
</tr>
<tr>
<td>Nutritional Status</td>
<td>Identifies at-risk patients and those who would benefit from consultation or intervention</td>
</tr>
<tr>
<td>Psychological Status</td>
<td>Identifies depression or anxiety for which evaluation and TX are warranted; identifies socially isolated patients in need of assistance.</td>
</tr>
<tr>
<td>Social Support</td>
<td>Identifies risk for RX redundancy, potential drug interactions and need for RX elimination/substitution</td>
</tr>
</tbody>
</table>

### Association of CGA Domains with Cancer Outcomes

<table>
<thead>
<tr>
<th>GCA domain</th>
<th>Toxicity</th>
<th>OS</th>
<th>DFS</th>
<th>QoL</th>
</tr>
</thead>
<tbody>
<tr>
<td>ADL/IADL</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Depression</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cognition</td>
<td></td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nutrition</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Polypharmacy</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Social Support</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Comorbidity</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>


### Multidisciplinary Team
- Oncologist
- Geriatrician
- Nurse Practitioner
- Oncology Nurse
- Clinical Pharmacist
- Social Worker
- Home Care
- Palliative Care
- Dietician
- Community Psychiatry
- Physical Therapist
- Occupational Therapist
- Pre-visit telephone screening questionnaire
- Geriatric assessment at initial visit
- Subspecialists available during appointment
- Additional Services:
  - Patient navigator
  - Serial geriatric re-evaluations
  - Development of a Geriatric Oncology database and registry
Assessment Tools

<table>
<thead>
<tr>
<th>Cognition</th>
<th>Mini-Mental State Exam</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mini-Cog</td>
</tr>
<tr>
<td></td>
<td>Clock Drawing</td>
</tr>
<tr>
<td>Function</td>
<td>Activities of Daily Living (ADL)</td>
</tr>
<tr>
<td></td>
<td>Instrumental Activities for Daily Living (IADL)</td>
</tr>
<tr>
<td></td>
<td>Performance Status</td>
</tr>
<tr>
<td></td>
<td>Timed Get Up &amp; Go</td>
</tr>
<tr>
<td>Nutrition</td>
<td>Mini-Nutritional Assessment (MNA)</td>
</tr>
<tr>
<td></td>
<td>Body Mass Index</td>
</tr>
<tr>
<td>Frailty</td>
<td>Frailty Phenotype</td>
</tr>
<tr>
<td></td>
<td>Vulnerable Elders Scale 13 (VES-13)</td>
</tr>
<tr>
<td>Polypharmacy</td>
<td>Medication List</td>
</tr>
<tr>
<td></td>
<td>Pharmacy Review</td>
</tr>
<tr>
<td>Depression</td>
<td>Centers for Epidemiologic Studies Depression Scale (CES-D)</td>
</tr>
<tr>
<td>Social</td>
<td>Social Support Survey</td>
</tr>
</tbody>
</table>

Vulnerable Elders Scale 13 (VES–13)

- **Age**
  - 75-84
  - 85+

- **Self-reported Health**
  - Good or excellent
  - Fair or poor

- **Activities**
  - Need help in:
    - Shopping
    - Managing money
    - Light housework
    - Transferring
    - Bathing
  - Needs help in:
    - Stooping, crouching, kneeling
    - Lifting or carrying 10 lbs
    - Writing or handling small objects
    - Reaching or extending arms above shoulders
    - Walking 1/4 mile
    - Doing heavy housework

- **Weight Loss**: “In the past year, have you lost > 10 pounds?”
- **Exhaustion**: How often in the last week have you felt like (a) You could not get going and that (b) Everything you did was an effort?
- **Physical Activity**: Minnesota Leisure Time Activity Questionnaire
- **15-ft Walk Time**: Cutoffs by height and gender
- **Grip Strength**: Cutoffs by BMI

Score: 0 Fit; 1-2 Vulnerable; ≥ 3 Frail
Prevalence of Risk Factors for Frailty in Newly Diagnosed Cancer Patients

Geriatric Oncology

The fusion of the disease-oriented approach of medical oncology with the patient-oriented approach of geriatric medicine


Evolution of Geriatric Oncology in US

1948 ACS Nursing Advisory Committee
1966 1st Geriatric Fellowship
1971 National Cancer Act
1975 1st Gerontological Nursing Certification Exam - ONS
1972 1st Oncology Fellowship
1983 ASCO, AGS, Hartford Foundation Geriatric Oncology grant
2000 Geriatric Oncology Clinical forum (ASCO)
2009 ABIM Geriatric Oncology Fellowship
2009 National Cancer Act
1971

1972

1966

1948

1971

1975

1983

2000

2009

1971

1972

1966

1948

1971

1975

1983

2000

2009

1971

1972

1966

1948

1971

1975

1983

2000

2009

1971

1972

1966

1948

1971

1975

1983

2000

2009

1971
Geriatric Oncology Program at Bayview

Patient Characteristics (n=365)

<table>
<thead>
<tr>
<th>Age (y)</th>
<th>%</th>
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<tbody>
<tr>
<td>65-74</td>
<td>30</td>
</tr>
<tr>
<td>75-84</td>
<td>10.9</td>
</tr>
<tr>
<td>85-94</td>
<td>17.7</td>
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<tr>
<td>&gt; 94</td>
<td>1.4</td>
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<table>
<thead>
<tr>
<th>Race</th>
<th>%</th>
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<tbody>
<tr>
<td>Caucasian</td>
<td>78.4</td>
</tr>
<tr>
<td>African American</td>
<td>17.7</td>
</tr>
<tr>
<td>Other</td>
<td>3.9</td>
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<table>
<thead>
<tr>
<th>Gender</th>
<th>%</th>
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<tbody>
<tr>
<td>Female</td>
<td>59.6</td>
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<table>
<thead>
<tr>
<th>Marital Status</th>
<th>%</th>
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</thead>
<tbody>
<tr>
<td>Married</td>
<td>36.7</td>
</tr>
<tr>
<td>Widowed</td>
<td>46.7</td>
</tr>
<tr>
<td>Other</td>
<td>16.7</td>
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<table>
<thead>
<tr>
<th>Education</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt; 8th Grade</td>
<td>8.0</td>
</tr>
<tr>
<td>8th-12/GED</td>
<td>47.3</td>
</tr>
<tr>
<td>&gt;12th Grade</td>
<td>44.7</td>
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</table>

<table>
<thead>
<tr>
<th>Self Reported Health</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Excellent/Very Good</td>
<td>31.1</td>
</tr>
<tr>
<td>Good</td>
<td>35.1</td>
</tr>
<tr>
<td>Fair/Poor</td>
<td>33.5</td>
</tr>
</tbody>
</table>

Cancer Diagnosis

- Breast: 34%
- Colorectal: 25%
- Lung: 9%
- Prostate: 15%
- Other: 17%
Stage at Diagnosis

GORP Assessment Domains

<table>
<thead>
<tr>
<th>Domains</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cognition Impairment</td>
<td></td>
</tr>
<tr>
<td>MMSE</td>
<td>18.1</td>
</tr>
<tr>
<td>MiniCog</td>
<td>18.3</td>
</tr>
<tr>
<td>Depression</td>
<td>27.8</td>
</tr>
<tr>
<td>Nutrition</td>
<td></td>
</tr>
<tr>
<td>Weight loss</td>
<td>61.9</td>
</tr>
<tr>
<td>MNA</td>
<td>71.2</td>
</tr>
<tr>
<td>BMI (avg)</td>
<td>27.1</td>
</tr>
<tr>
<td>Polypharmacy</td>
<td></td>
</tr>
<tr>
<td>RX &gt;/= 5</td>
<td>79.3</td>
</tr>
<tr>
<td>Comorbidity</td>
<td>98</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Domains</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Depression</td>
<td></td>
</tr>
<tr>
<td>CESD &gt;16</td>
<td>27.8</td>
</tr>
<tr>
<td>Fatigue</td>
<td>41.3</td>
</tr>
<tr>
<td>Function</td>
<td></td>
</tr>
<tr>
<td>ADL ≤ 1</td>
<td>37.3</td>
</tr>
<tr>
<td>IADL ≥ 1</td>
<td>64.9</td>
</tr>
<tr>
<td>Falls</td>
<td>32</td>
</tr>
<tr>
<td>TUG &gt;20</td>
<td>22.9</td>
</tr>
<tr>
<td>Grip Strength (avg)</td>
<td>19.5</td>
</tr>
</tbody>
</table>

Cancer Treatments

<table>
<thead>
<tr>
<th>Treatments</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hormonal</td>
<td>28.2</td>
</tr>
<tr>
<td>Surgery</td>
<td>17</td>
</tr>
<tr>
<td>Radiation</td>
<td>10.7</td>
</tr>
<tr>
<td>Hospital</td>
<td>20.3</td>
</tr>
<tr>
<td>Hospice</td>
<td>8.2</td>
</tr>
</tbody>
</table>
Most oncology nurses do not consider themselves geriatric specialists, but cancer *is* typically a disease of older adults

Brenda Nevidjon RN, MSN, FAAN

- **Assess** for age related changes at the onset of treatment & throughout the survivor continuum
- **Identify** patients at risk for treatment related complications
- **Collaborate** with members of the Interdisciplinary team
- **Refer** patients to other professionals and community resources

- **Coordinate** care and ensure timely delivery of services
- **Educate** patients and caregivers, provide duplication & reinforcement
- Serve as an **advocate**, protect autonomy and decision-making
- **Navigate** through the complex healthcare system & **Eliminate** barriers to care
Survivorship

- Approximately 12 million cancer survivors in the U.S.
- Care focused on restoring health, preventing recurrence & managing late effects of therapy
- Shortage of oncologists + improved survival rates = PCPs playing major role in caring for cancer survivors

Survivorship Care Plans

Serve as an effective communication tool between oncology providers & PCPs

Includes:
- Cancer type & stage
- Treatment received
- Frequency of f/u visits & diagnostic tests
- Short-term & long-term side effects

CASE STUDY
AK is a 74 yo woman diagnosed with stage IIIB colon cancer s/p resection, currently on chemo, presents today for transfer of care

PMH: HTN, recurrent pneumonia, history of PBC s/p liver transplant 1992, GERD, diverticulosis, total R hip replacement 2007

Social History: Married, lives with spouse in their own home. Retired cafeteria worker. Raising great grandson who is 9 years old and has ADHD.

Medications: Tacrolimus, nexium, procardia, multi-vitamin, vitamin D

Allergies: NKDA

Physical Exam:
VS: 139/75, pulse 76, temp 36.3, weight 135 lbs., height 5’2”
Heart regular rate & rhythm. Lungs CTA.
Abdomen soft, nontender, nondistended. No distress but appears a bit fatigued and pale.
Labs: wbc 2.7, hgb 8.4, hct 23.3, plts 179k, bun 15, creat 1.1, alk phos 648, ast 69, alt 75, tacrolimus level 6.3
Recent Cancer Treatment:

- R hemicolectomy: post op complications of pneumonia & SBO requiring hospitalization
- Roswell Park regimen: side effects included neutropenia, abdominal distress, diarrhea, dehydration, colitis requiring hospitalization
- Now unsure if she wishes to receive further treatment

Geriatric Assessment:

- SRH poor
- 3 hospitalizations past year
- MMSE 29/30, clock 5/5
- ADLS: Independent
- IADLS: requires some assist w/housework
- TGUG: 14 s, needed arm rails, steady
- MNA: 8/14, 10 lbs wt loss, BMI 24.8
- Frailty: (+) wt loss, (+) exhaustion, grip 20, walk 5 s, 0 PAS
- CESD 31/60

Concerns:

- Good social support from husband but significant social stressors
- Depression
- Weight loss
- Leukopenia and anemia
Plans:
- Meet with geriatric psychologist
- Nutrition consult
- Involve social worker

Repeat Geriatric Assessment:
- SRH good
- MMSE 28/30, clock 5/5
- ADLs & IADLs: Independent
- TGUG: 11 s, no arm rails, steady
- MNA: 12/14, no wt loss, BMI 25.5
- Frailty: (+) wt loss, (-) exhaustion, grip 20.7, walk 5 s, (+) PAS
- CESD 2/60

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