GERIATRIC ONCOLOGY COMES OF AGE

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MY GERIATRIC ONCOLOGY AWAKENING
AN AMERICAN AGING SNAPSHOT
POPULATION DISTRIBUTION BY AGE, 2017

- Children 0-18 24%
- Young adults 19-25 9%
- Early age adults 26-34 12%
- Adults 35-54 26%
- Young elderly 55-64 13%
- Elderly ≥65 16%

Source: Henry J. Kaiser Family Foundation; https://www.kff.org
% NEW CANCER CASES BY AGE GROUP: ALL SITES

AGEISM?
THE ELDER CANCER
MINORITY/MAJORITY

- Receive >50% of all new cancer diagnoses
- Represent 70% of all cancer deaths
- Constitute nearly 2/3 of cancer survivors
## Major Malignancies and Their Prominence in the Elderly

<table>
<thead>
<tr>
<th>Site</th>
<th>% Age &gt; 65 Years</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pancreas</td>
<td>69.2</td>
</tr>
<tr>
<td>Lung*</td>
<td>67.8</td>
</tr>
<tr>
<td>Colon/Rectum*</td>
<td>66.5</td>
</tr>
<tr>
<td>Multiple Myeloma</td>
<td>64.7</td>
</tr>
<tr>
<td>Prostate*</td>
<td>63.8</td>
</tr>
<tr>
<td>Leukemia</td>
<td>54.3</td>
</tr>
<tr>
<td>Non-Hodgkin Lymphoma</td>
<td>54.3</td>
</tr>
<tr>
<td>Breast*</td>
<td>42.0</td>
</tr>
</tbody>
</table>

* Account for >50% of all cancer diagnoses in the U.S.

CANCER TREATMENT

✓ Arbitrary dose reduction or regimen ‘down-sizing’
  ▪ Use of chronologic vs. physiologic age criteria

✓ Absence of pharmacokinetic/pharmacodynamic data to guide decision-making

✓ Polypharmacy R/T:
  ▪ Prominence of co-morbidity
  ▪ Multiple providers with its associated adherence implications

✓ Lack of geriatric assessment integration
AGING AND PHARMACOKINETICS

• Multidimensional decline of physiological processes associated with aging may detrimentally influence the synthesis of anticancer drugs

• Historical lack of pharmacokinetic data in older cancer patients; paucity of knowledge responsible for:
  • Lack of knowledge R/T toxicity prevalence, intensity
Decreased drug absorption:
  - Diminished blood flow
  - Mucosal atrophy
  - Reduced GI motility
  - Oral chemotherapy?

Impaired hepatic metabolism:
  - Reduced lean body mass
  - Decreased serum albumin
  - Decreased total body water
  - Increased adipose tissue
  - Highly lipophilic drugs (i.e., ifosfamide) increasingly distributed in elderly; additional impact of dehydration?

Modified drug distribution:
  - Decrease in liver volume, hepatic blood flow, albumin production
  - Drugs primarily eliminated by hepatic metabolism: vinca alkaloids, epirubicin

Diminished excretion:
  - Deterioration of renal structures & function
  - Platinum compounds & alkylating agents renal toxicity?
DRUG CATEGORY EXAMPLES FROM BEERS CRITERIA, 2019

- **CNS:**
  - **Antidepressants,** alone or in combination:
    - Amitriptyline (Elavil)
    - Paroxetine (Paxil)
      - Highly anti-cholinergic & sedating, cause orthostatic hypotension
  - **Benzodiazepines:** avoid prescribing >2 as CNS acting drugs increase risk of cognitive impairment, delirium, falls

- **GI:**
  - **Metoclopramide**
    - Can cause extrapyramidal effects including tardive dyskinesia; risk greater in frail older adults and with prolonged exposure
  - **Mineral oil**
    - Should be avoided due to risk for aspiration

THE ELDERLY & POLYPHARMACY

• Age is the single greatest risk factor for non-adherence
• 12% of the population consumes 35% of prescription medications and 70% of all OTC medications (+ are high users of CAM)
• 80% of elderly have at least one chronic disease and take at least 1 medication/day
• 30% of elderly have three or more chronic diseases
• Highest prevalence of medication use is among women ≥ 65 years, of whom:
  – 12% take at least ten medications
  – 23% take at least five prescription drugs

**Comparison of Baseline Assessment Endpoints Using Performance Status (PS) vs. Comprehensive Geriatric Assessment (CGA)**

**ECOG PS**

<table>
<thead>
<tr>
<th>Score</th>
<th>Description</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</td>
</tr>
<tr>
<td>2</td>
<td>Ambulatory and capable of all self-care, but unable to carry out any work activity; up and about &gt;50% of waking hours</td>
</tr>
<tr>
<td>3</td>
<td>Capable of only limited self-care; confined to bed or chair &gt; 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>
</tbody>
</table>

**CGA**

- **Physical status**
  - Co-morbidity
- **Functional impairment**
  - Activities of daily living
- **Nutrition**
  - Mini-Nutritional Status
- **Affect/mood**
  - Depression
- **Cognition**
  - Delirium, dementia
- **Polypharmacy**
  - Medication inventory
- **Socioeconomic**
  - Living environment, social support, financial issues

ACTIVITIES OF DAILY LIVING

❖ BASIC
• Toilet
• Feeding
• Dressing
• Grooming
• Ambulation
• Bathing

❖ INSTRUMENTAL
• Use telephone
• Shop
• Food preparation
• Housekeeping
• Laundry
• Mode of transportation
• Responsibility for medications
• Handle finances

What was your best day like in the last month?
COPING

**Patient**
- Dependence
- Depression
  - Futility

**Family**
- ‘Pivotal Person’
- ‘Sandwich Generation’
- Long distance families
- Concomitant care expectations

**Shared**
- Varied coping styles
- Disclosure issues
- Past experiences
- Dual diagnoses
- Burden
- Grief:
  - Anticipatory
  - Cumulative
- Financial concerns
- Sexuality/intimacy
ESTIMATED CANCER PREVALENCE BY AGE IN U.S. POPULATION
1975 (216 M) TO 2040 (380 M)

[Graph showing estimated cancer prevalence by age in the U.S. population from 1975 to 2040.]

GERO-ONCOLOGY
SURVIVORSHIP ISSUES

- Living with a history of cancer:
  - Symptoms of recurrence vs. co-morbidity?
  - Spouse dyads both living with cancer history
  - Long-term implications of polypharmacy
  - No data on long-term effects

- Increased risk for 2nd & 3rd primaries

- Who will monitor patients long-term?

- Questions about needed continued screening
PROJECTING AMERICA’S AGING FUTURE

- 2030 represents an important milestone for the U.S. population:
  - All ‘Baby Boomers’ will be over age 65
  - Older Americans will outnumber children for the first time in U.S. history
  - % of work age adults will decrease for every retiree

Source: www.census.gov
OUR CURRENT REALITY

Despite its sociologic, epidemiologic, and overall health care significance, geriatric oncology remains a critically under-recognized and under-studied component of contemporary cancer care.

- Ageism?
- Denial?
ADDRESS OUR OWN DENIAL

THEN

“I’ll be back!”

NOW

“Oh, my back!”