Chemotherapy for Elderly Patients with Advanced Gynecologic Cancer

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DECLARATION OF INTERESTS

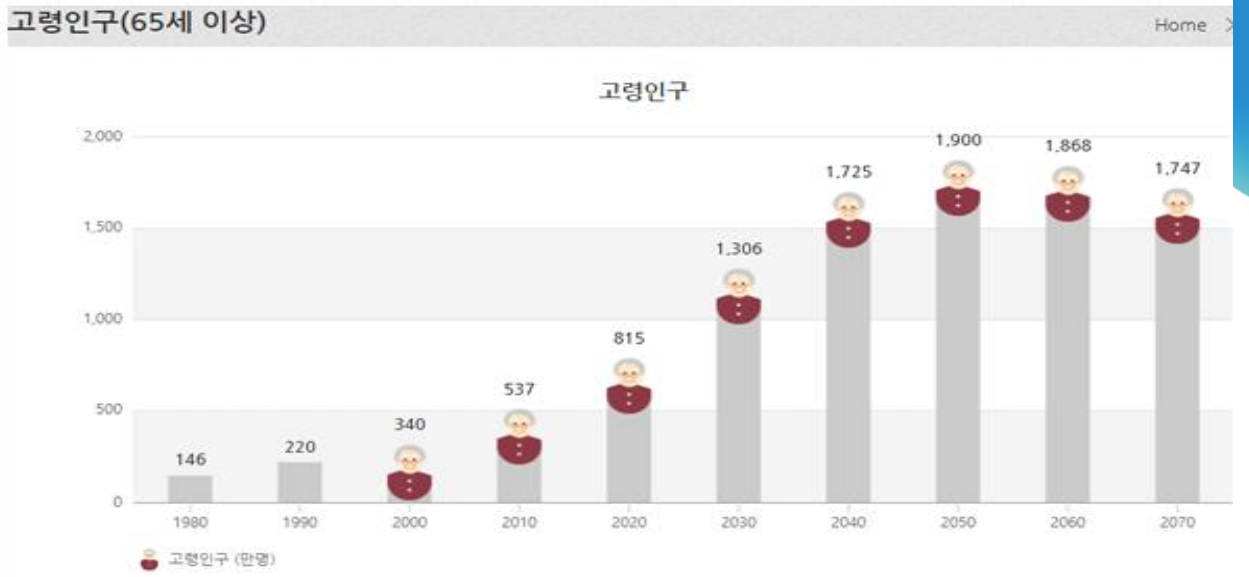
I have nothing to declare.

Why This Matters

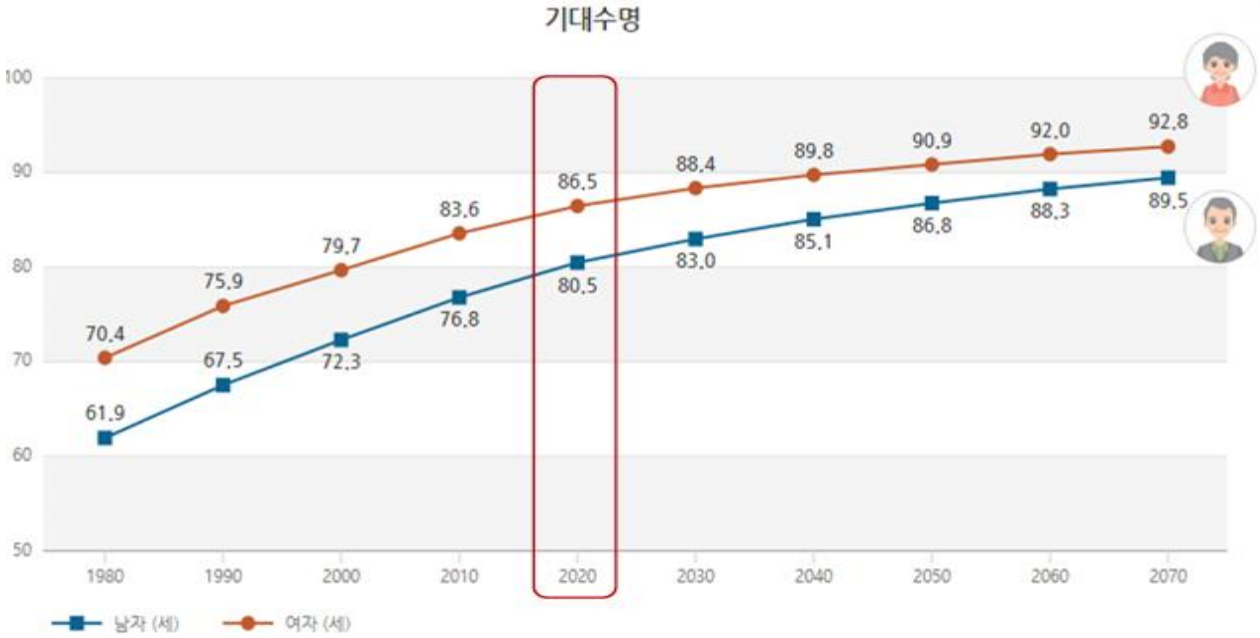
Rapidly aging population

- Majority of gynecologic cancers occur in older women
- Elderly patients underrepresented in clinical trials
- Risk of both over- and undertreatment

Elderly ≥ 65 years (WHO) = 'Geriatric'



- 65세 이상 고령인구는 2020년 815만명, 2024년에 1,000만명이 넘고, 2049년에 1,901만명까지 증가 후 감소할 전망입니다.
- 고령인구 구성비는 2020년 15.7%에서 빠르게 증가하여 2025년 20%, 2035년 30%, 2050년 40%를 초과할 전망입니다.



1983
The Cancer in the Elderly conference, organized by Rosemary Yancik and Paul Carbone

1990
International conference on Cancer in the Elderly in Tampa, FL, organized by the International Exchange Center in Gerontology

1991
American Geriatric Society (AGS) develops a special interest group on aging and cancer

AGS Geriatrics Healthcare Professionals

1992
- International conference on cancer in the elderly in Buenos Aires, sponsored by the International Exchange Center on Gerontology and the National Cancer Institute of Argentina
- 1st Geriatric oncology textbook: *Geriatric Oncology*, edited by Lodovico Balducci, Gary G. Lyman, and William B. Ershler

1994
International conference on cancer and aging in Genova Italy, sponsored by Exchange Center in Gerontology, the National Cancer Institute of Genova, and Moffitt Cancer Center

1996
International conference on cancer and aging in Tampa, FL sponsored by Moffitt Cancer Center and the National Cancer Institute of Genova

1998
International conference on Cancer and aging in Rome, Italy, sponsored by the Department of Radiation Oncology of the Catholic University of the Sacred Heart in Rome, The National Cancer Institute of Genova, and Moffitt Cancer Center

2000
Foundation of the International Society of Geriatric Oncology (SIOG) by Paul Calabresi, Matti Aapro, Gilbert Zulian, Lazzaro Repetto, Martine Extermann, John Bennett, Riccardo Audisio, Lodovico Balducci. and Silvio Monfardini

SIOG INTERNATIONAL SOCIETY OF GERIATRIC ONCOLOGY

2001
American Society of Clinical Oncology (ASCO)-Hartford collaboration establishing geriatric oncology fellowships

The John A. Hartford Foundation ASCO AMERICAN SOCIETY OF CLINICAL ONCOLOGY

2004
- SIOG produced its 1st guideline on the surgical management of older patients
- Over time, SIOG has produced, 30+ guidelines on specific tumors, geriatric assessment, and supportive care

2006
Foundation of Cancer and Aging Research Group (CARG) by the late Arti Hurria, now co-led by Supriya Mohile, Heidi Klepin, and William Dale

2010
- The European Society for Medical Oncology (ESMO) and SIOG developed the ESMO Handbook of Cancer in the Senior Patient
- Launch of the *Journal of Geriatric Oncology*

JOURNAL OF GERIATRIC ONCOLOGY

2015
Foundation of the European Organisation for Research and Treatment of Cancer (EORTC) Cancer in the Elderly Task Force (ETF)

2020
4 randomized controlled trials on the use of Geriatric Assessment presented at ASCO Annual Meeting

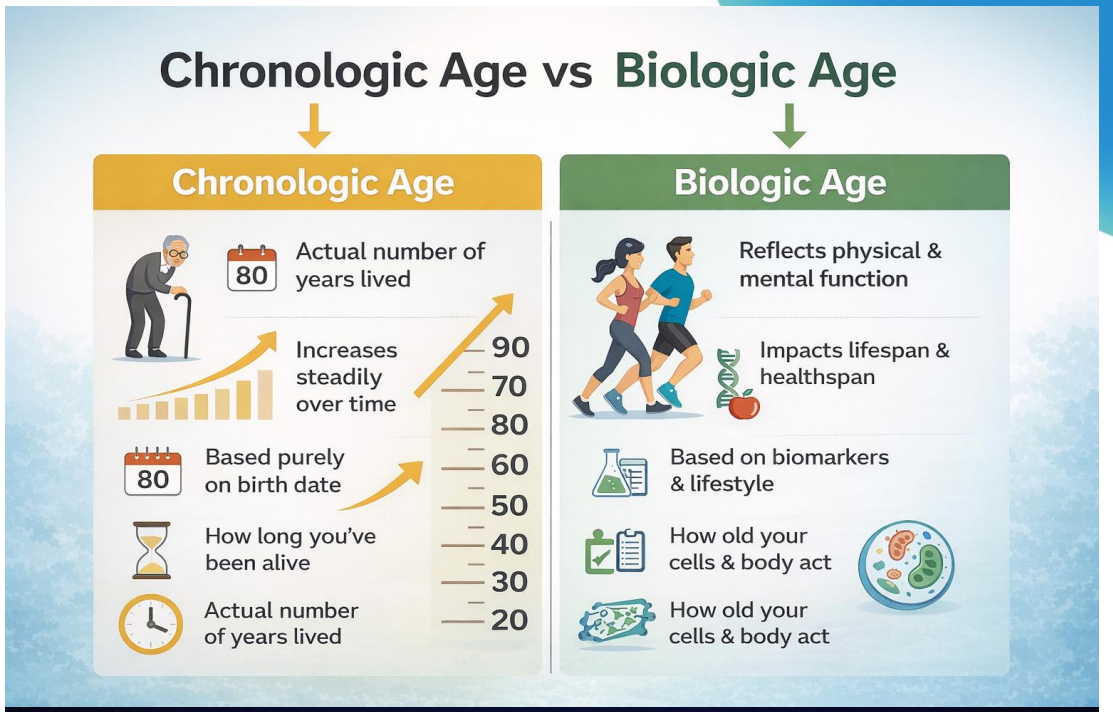
Chronologic Age ≠ Biologic Age

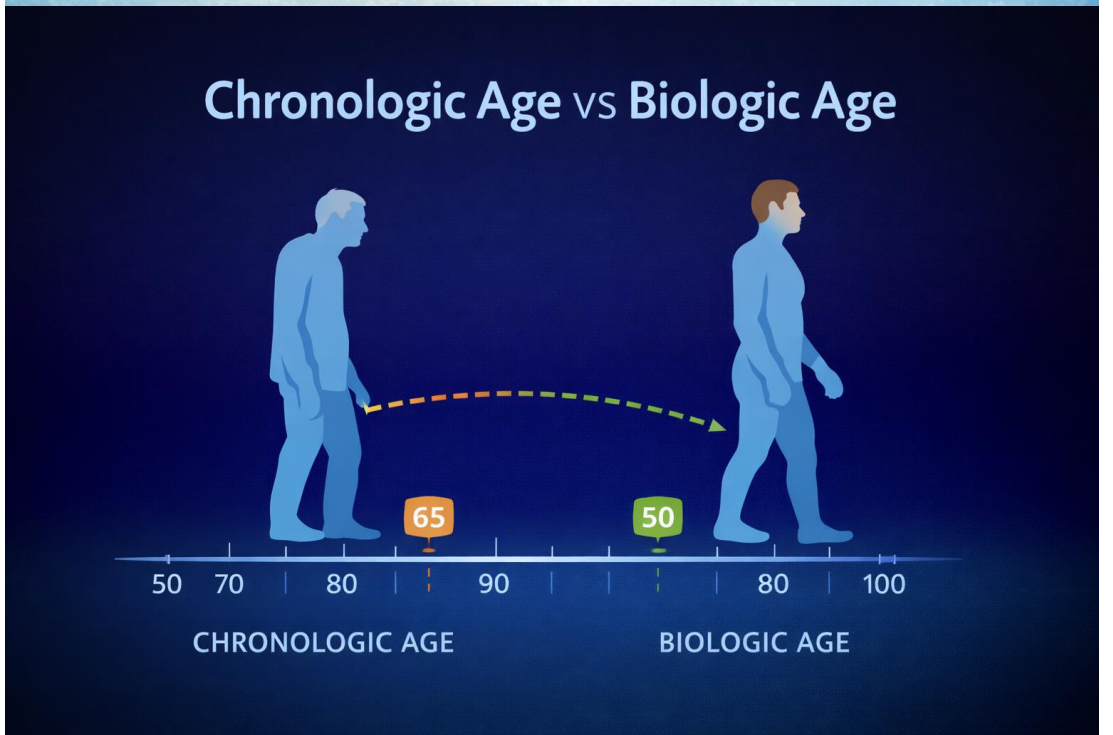
Chronologic age does not reflect physiologic reserve

- Large heterogeneity among elderly patients
- Treatment tolerance varies significantly

GOALS can vary widely in elderly

- Cure
- Prolongation of survival
- Prolongation of active life expectancy
- Effective symptom management
- To do ‘no’ harm
- Balance with QoL





Limitations of previous tools

- Does not assess cognition or nutrition
  - Misses social support and polypharmacy
  - Poor predictor of chemotherapy toxicity

ECOG Performance Status

Grade	ECOG
0	Fully active, able to carry on all pre-disease performance without restriction
1	Restricted in physically strenuous activity but ambulatory and able to carry out work of a light or sedentary nature, e.g., light house work, office work
2	Ambulatory and capable of all selfcare but unable to carry out any work activities. Up and about more than 50% of waking hours
3	Capable of only limited selfcare, confined to bed or chair more than 50% of waking hours
4	Completely disabled. Cannot carry on any selfcare. Totally confined to bed or chair
5	Dead

Age-Adjusted Charlson Comorbidity Index

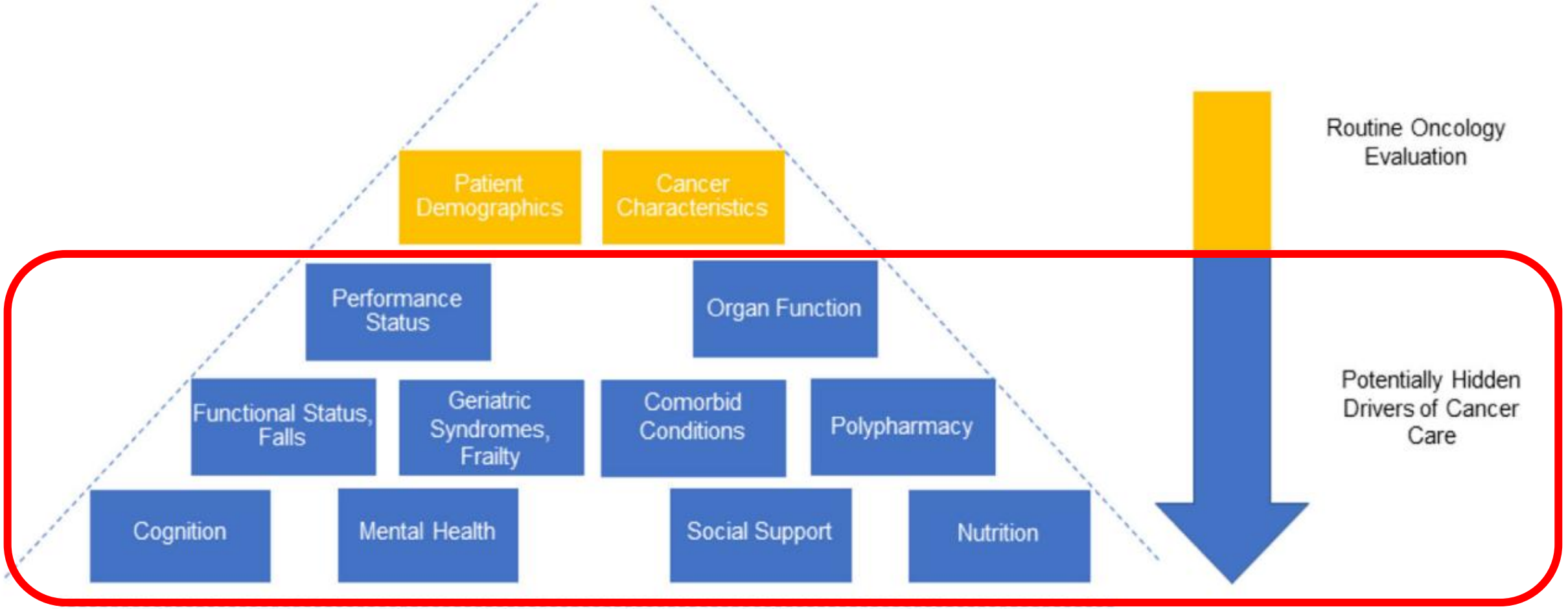
Score	Comorbid condition
1	Myocardial infarction (MI) Congestive heart failure (CHF) Cerebral vascular disease Peripheral vascular disease Dementia Chronic obstructive pulmonary disease (COPD) Connective tissue disease Peptic ulcer disease (PUD) Mild liver disease Age[a]
2	Diabetes Hemiplegia Moderate/severe renal disease Diabetes with end-organ damage Any solid tumor Leukemia Lymphoma
3	Moderate/severe liver disease
6	Metastatic solid tumor Acquired immunodeficiency syndrome (AIDS)

[a] For each decade after 40 years, a point is added (1 point for age group 41–50, 2 points for age group 51–60, 3 points for 61–70, 4 points for 71 or older).

Geriatric Assessment

Multidimensional evaluation tool

- Assesses functional, cognitive, nutritional status
- Predicts chemotherapy toxicity and survival



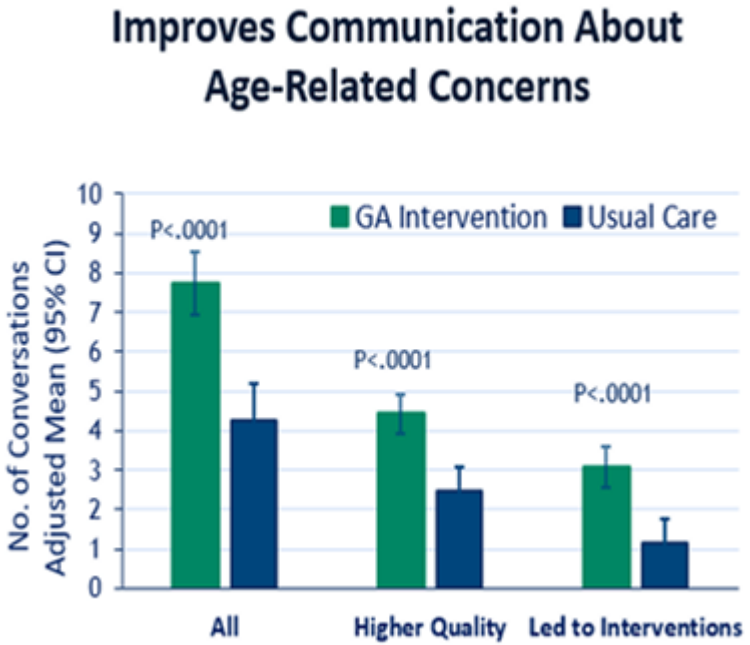
Comprehensive Geriatric Assessment (CGA)

Table 1 – Domains of geriatric assessment resources.

Geriatric assessment domain	Measuring instruments and guidelines [a]
Demographic data, and social support	Medical Outcomes Social Support Survey (MOS-SS)[11]
	Modified Caregiver Strain Index (MCSI)[106]
Comorbidity	Charlson Comorbidity Index (CCI)[14]
	Cumulative Illness Rating Scale for Geriatrics (CIRS-G)[107]
Functional status	Lawton scale for instrumental activities of daily living (IADL)[30]
	Katz Index of Independence in Activities of Daily Living (ADL)[29]
Cognition	Mini-COG[36]
	Mini Mental State Examination (MMSE)[37]
	Montreal Cognitive Assessment (MOCA)[108]
Depression	Geriatric Depression Scale (GDS)[42]
Nutrition	Malnutrition Screening Tool (MSTC)[109]
	Mini Nutritional Assessment (MNA)[110]
	Patient-generated Subjective Global Assessment (PG-SGA)[111] administered by dietitian if screening is positive
Fatigue	Functional Assessment of Cancer Therapy: Fatigue (FACT-F)[59]
	EORTC QLQ C30 (Fatigue subscale)[60]
	Visual Analogue Scale[112]
Polypharmacy	Brown bag method of medication reconciliation
	Beers Criteria[67,74]
	Screening Tool of Older Person's Prescriptions (STOPP)[68,69,71]
	Medication Appropriateness Index (MAI)[70,72]
Geriatric syndromes	SPICES tool[113]
Delirium	Confusion Assessment Method (CAM)[90]
	Memorial Delirium Assessment Scale (MDAS)[91]
	Delirium Rating Scale-Revised 98 (DRS-R-98)[92]
	Delirium Observation Screening Scale (DOS)[114]
Falls	American Geriatrics Society guideline[100]
	National Institute of Health and Care Excellence (NICE) guideline[101]
Quality of life	EORTC-QLQ-ELD 14[105]

[a] More information about measuring instruments can be found at 'Try This® Assessment Tools' on the website of the Hartford Institute for Geriatric Nursing: www.ConsultGeriRN.org.

- ✓ **Predicts toxicity and mortality**
- ✓ **Guide decisions and care management**
- ✓ **Fosters communication**
- ✓ **Improves clinical outcomes**



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Screening tools for multidimensional health problems warranting a geriatric assessment in older cancer patients: an update on SIOG recommendations†

L. Decoster [1] · K. Van Puyvelde [2] · S. Mohile [3] · ... · C. Kenis [16] · R. Audisio [17] · M. Extermann [18] ... Show more

44 studies on the use of 17 different screening tools

The tools most studied in older cancer patients are G8, Flemish version of the Triage Risk Screening Tool (fTRST) and Vulnerable Elders Survey-13 (VES-13).

Across all studies, the highest sensitivity was observed for: G8, fTRST, Oncogeriatric screen, Study of Osteoporotic Fractures, Eastern Cooperative Oncology Group-Performance Status, Senior Adult Oncology Program (SAOP) 2 screening and Gerhematolim

In 11 direct comparisons for *detecting problems on a full GA, the G8 was more or equally sensitive.*

Tool	Developed for	Items	Abnormal	Time (min)
G8	Oncology pts	8	≤ 14	5
VES-13	General older pop	13	≥ 3	5
fTRST	Older pts at ED	5	≥ 2	2
GFI	General older pop	15	≥ 4	NR
SOF	General older pop	3	≥ 2	NR
Karnofsky PS	Oncology pts	1	≤ 80	1
ECOG PS	Oncology pts	1	≥ 1	1
Fried	General older population	5	≥ 3	NR
Barber	General older population	9	≥ 1	NR
ISAR	Older pts at ED	6	≥ 3	NR
OGS	Oncology pts	10	≥ 1	NR
aCGA	Oncology pts	15	≥ 1	5
Gerhematolim	Hematology pts	27	NR	NR
SAOP2	Oncology pts	15	≥ 1	NR
PPT	General older population	7	≤ 20	5
Handgrip	General older population	NA	NA	NA
Timed up and Go	General older population	NA	NA	NA

G8 Screening Tool

Simple and rapid screening tool

- Score range: 0–17
- ≤14 indicates vulnerable or frail elderly

High sensitivity
for functional decline in ADL and IAD

Predictive for chemotherapy toxicity

Prognostic for survival

Abnormal G8 prognostic for 6months survival

Items	Possible answers
Food intake in the last 3 months	**0**: severe reduction in food intake **1**: moderate reduction in food intake **2**: normal food intake
Weight loss during the last 3 months	**0**: weight loss >3kg **1**: does not know **2**: weight loss between 1 and 3 kg **3**: no weight loss
Mobility	**0**: bed/chair bound **1**: able to get out of bed/chair but does not go out **2**: goes out
Neuropsychological problems	**0**: severe dementia or depression **1**: mild dementia or depression **2**: no psychological problems
Body Mass Index (BMI)	**0**: BMI <19 **1**: BMI 19 to <21 **2**: BMI 21 to <23 **3**: BMI 23 or greater
Takes more than 3 medications per day	**0**: yes **1**: no
Self-rated health status (compared to other people of the same age)	**0**: not as good **0.5**: does not know **1**: as good **2**: better
Age	**0**: >85 **1**: 80-85 **2**: <80
Total score (0-17) [Cut-off ≤ 14 indicating impairment]	

CARG Toxicity Score

Developed specifically for older adults receiving chemotherapy

- Predicts grade 3–5 toxicity
- Superior to age or ECOG PS alone
- Low risk (0–5): standard approach
- Intermediate risk (6–9): dose modification
- High risk (≥10): consider alternative strategies

References:

1. Magnuson A, Sedrak MS, Gross CP, et al. Development and Validation of a Risk Tool for Predicting Severe Toxicity in Older Adults Receiving Chemotherapy for Early-Stage Breast Cancer. J Clin Oncol Off J Am Soc Clin Oncol. 2021;39(6):608-618. doi:10.1200/JCO.20.02063

CARG-BC score: Predicting chemotherapy toxicity risk in older adults with early breast cancer

Interpretation

Predicting toxicity risk to chemotherapy in older adults is challenging due to the heterogeneous nature of this population. The CARG-BC tool was developed to predict risk of severe (grade 3-5) chemotherapy toxicity in patients aged over 65 with early stage breast cancer (1).

The tool originates from the previously published CARG tool which looked at toxicity in multiple cancer subtypes, stages and treatment regimens. The CARG-BC tool has been specifically developed for patients with early-stage breast cancer and aims to provide more accurate risk estimation.

The score was developed using a population of 473 patients (283 in the development and 190 in the validation cohorts). Patients were aged ≥65 years, with stage I-III breast cancer and had received neoadjuvant or adjuvant chemotherapy. 8 independent predictor variables were identified and the risk of G3-5 chemotherapy toxicity was divided into one of 3 categories as detailed in the table below.

Risk category	CARG-BC Score	G3-5 toxicity risk (%)
Low	0-5	27
Medium	6-11	45
High	>12	76

The model performance measured by receiver operator characteristic area under the curve (ROC-AUC) analysis, was 0.69 (95% CI, 0.62 to 0.77) in the validation cohort. The tool was found to outperform the original CARG tool and also Karnofsky performance status in patients with early stage breast cancer.

Chemotherapy Risk Assessment Scale for High-Age Patients (CRASH) Score

Assesses the individual risk of severe toxicity from chemotherapy in older patients.

When to Use | Pearls/Pitfalls | Why Use

Chemotherapy risk See chemotox table in Evidence for examples.	0	0	1	+1	2	+2
Hematologic Score					
Diastolic blood pressure, mmHg	≤72 mmHg	0			
	>72 mmHg	+1			
Instrumental Activities of Daily Living score (IADL)	26-29	0	10-25	+1	
Lactate dehydrogenase, U/L	0-459 U/L	0			
	>459 U/L	+2			
Nonhematologic Score					
Eastern Cooperative Oncology Group (ECOG) Performance Status	0	0	1-2	+1	3-4	+2
Mini Mental Health Status	30	0	<30	+2		
Mini Nutritional Assessment For scoring information, click here.	28-30	0	<28	+2		

CRASH Points		
0	1	2
Docetaxel weekly	Carboplatin/gemcitabine AUC 4-6/1 g d1,d8	Carboplatin/docetaxel q3w
Paclitaxel weekly	Carboplatin/paclitaxel q3w	Cisplatin/docetaxel 75/75
Gemcitabine 1 g 3/4 wk	Cisplatin/gemcitabine d1,d8	Cisplatin/gemcitabine d1,d8,d15
Gemcitabine 1.25 g 3/4 wk	Gemcitabine 7/8 wk then 3/4 wk	Cisplatin/paclitaxel 135-24 h q3w
Dacarbazine	Gemcitabine/irinotecan	Paclitaxel q3w
	PEG doxorubicin 50 mg q4w	Docetaxel q3w
	Topotecan weekly	Doxorubicin q3w
		Irinotecan q3w
		Topotecan monthly

0 points

Combined score
Hematologic score: 0 points
Nonhematologic score: 0 points

Low risk

Risk of severe toxicity

Copy Results | Next Steps

National Comprehensive Cancer Network®

NCCN Clinical Practice Guidelines in Oncology (NCCN Guidelines®)

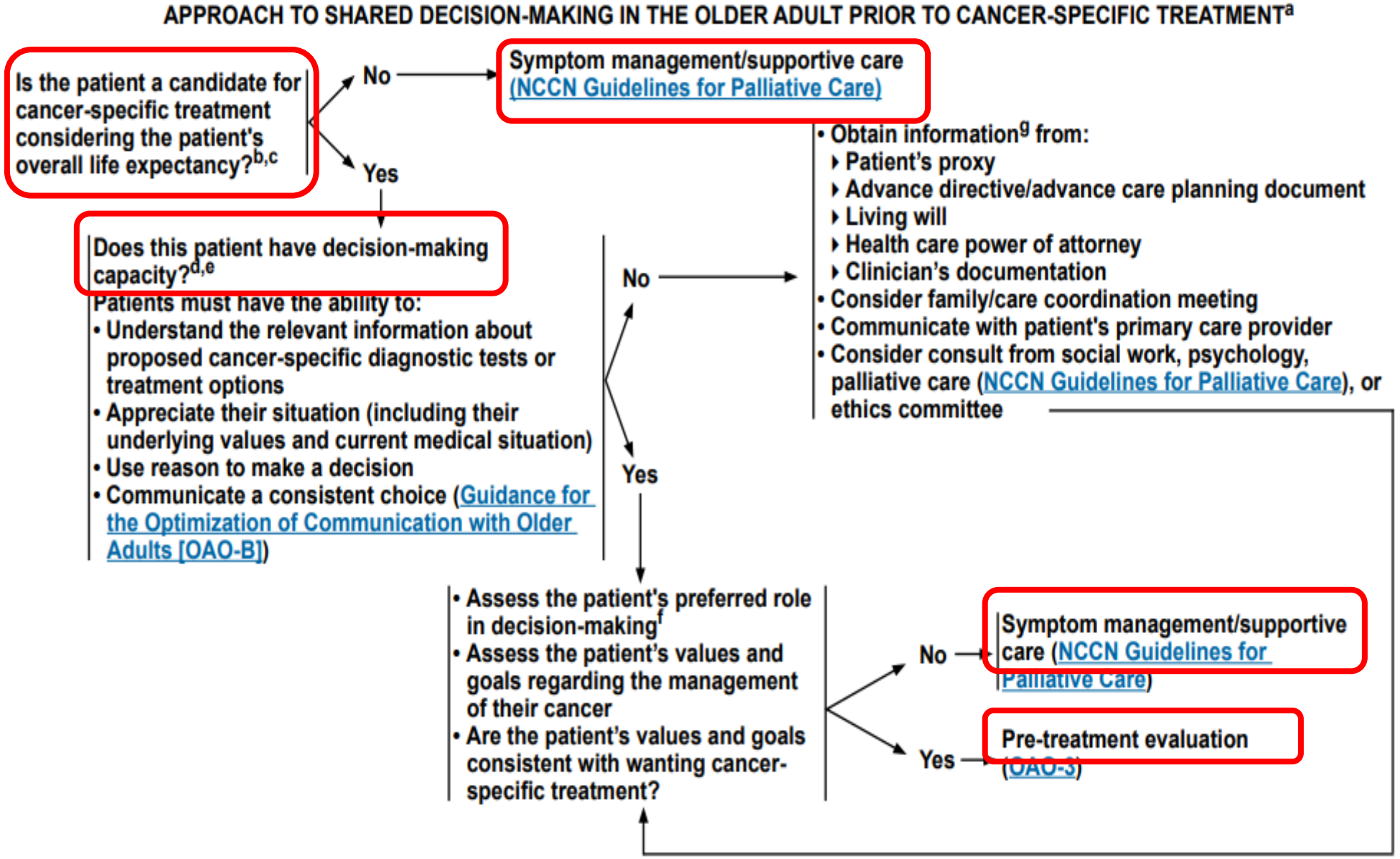
Older Adult Oncology

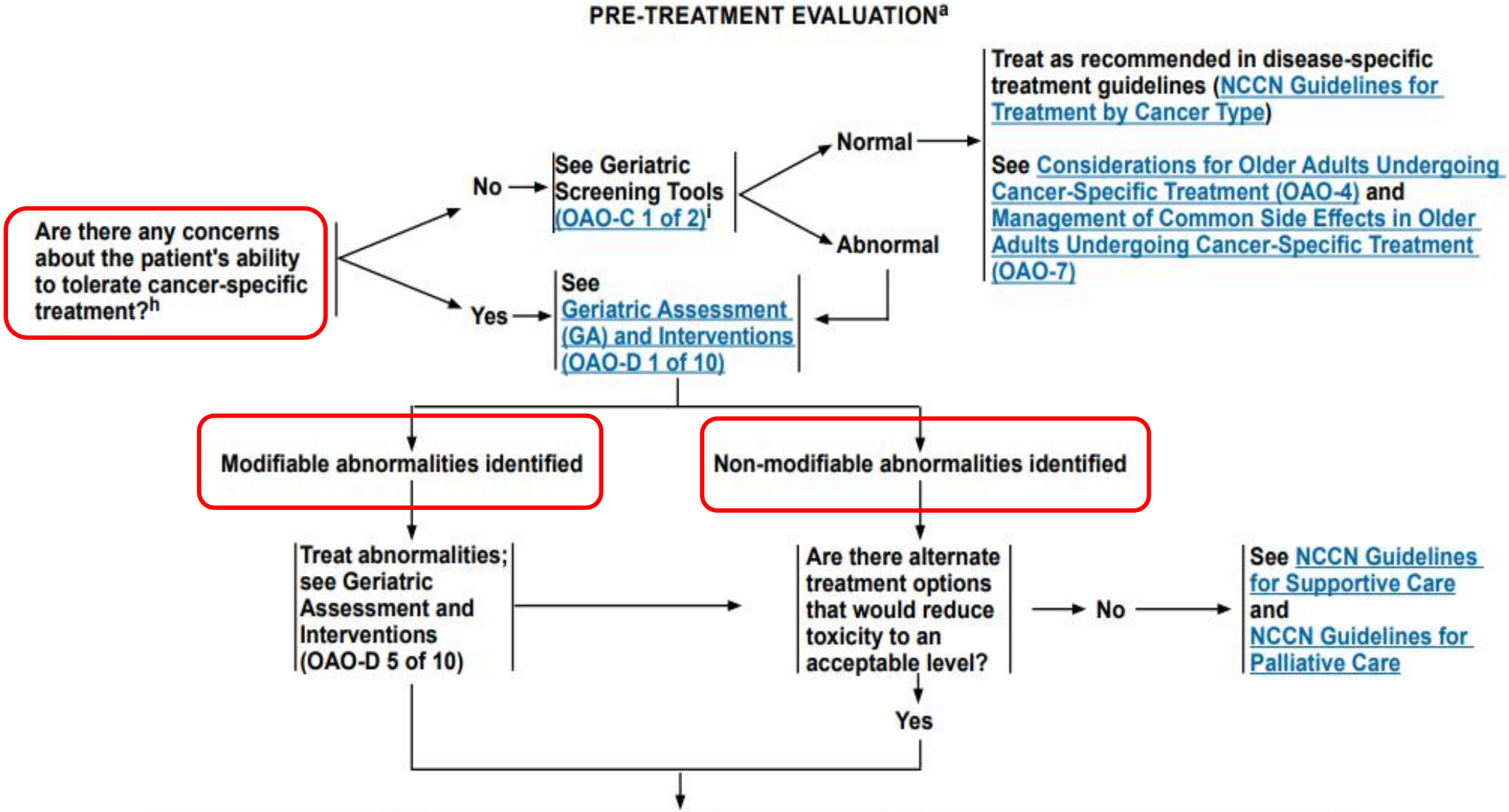
Version 2.2025 — May 13, 2025

NCCN.org

NCCN recognizes the importance of clinical trials and encourages participation when applicable and available. Trials should be designed to maximize inclusiveness and broad representative enrollment.

Continue


APPROACH TO SHARED DECISION-MAKING IN THE OLDER ADULT PRIOR TO CANCER-SPECIFIC TREATMENT[a]
Is the patient a candidate for cancer-specific treatment considering the patient's overall life expectancy?[b,c]
No
Symptom management/supportive care (NCCN Guidelines for Palliative Care)
Yes
Does this patient have decision-making capacity?[d,e]
Patients must have the ability to:
• Understand the relevant information about proposed cancer-specific diagnostic tests or treatment options
• Appreciate their situation (including their underlying values and current medical situation)
• Use reason to make a decision
• Communicate a consistent choice (Guidance for the Optimization of Communication with Older Adults [OAO-B])
No
• Obtain information[g] from:
▸ Patient's proxy
▸ Advance directive/advance care planning document
▸ Living will
▸ Health care power of attorney
▸ Clinician's documentation
• Consider family/care coordination meeting
• Communicate with patient's primary care provider
• Consider consult from social work, psychology, palliative care (NCCN Guidelines for Palliative Care), or ethics committee
Yes
• Assess the patient's preferred role in decision-making[f]
• Assess the patient's values and goals regarding the management of their cancer
• Are the patient's values and goals consistent with wanting cancer-specific treatment?
No
Symptom management/supportive care (NCCN Guidelines for Palliative Care)
Yes
Pre-treatment evaluation (OAO-3)


PRE-TREATMENT EVALUATION[a]
Are there any concerns about the patient's ability to tolerate cancer-specific treatment?[h]
No
See Geriatric Screening Tools (OAO-C 1 of 2)[i]
Normal
Abnormal
Treat as recommended in disease-specific treatment guidelines (NCCN Guidelines for Treatment by Cancer Type)
See Considerations for Older Adults Undergoing Cancer-Specific Treatment (OAO-4) and Management of Common Side Effects in Older Adults Undergoing Cancer-Specific Treatment (OAO-7)
Yes
See Geriatric Assessment (GA) and Interventions (OAO-D 1 of 10)
Modifiable abnormalities identified
Non-modifiable abnormalities identified
Treat abnormalities; see Geriatric Assessment and Interventions (OAO-D 5 of 10)
Are there alternate treatment options that would reduce toxicity to an acceptable level?
No
See NCCN Guidelines for Supportive Care and NCCN Guidelines for Palliative Care
Yes
See Considerations for Older Adults Undergoing Cancer-Specific Treatment (OAO-4), Management of Common Side Effects in Older Adults Undergoing Cancer-Specific Treatment (OAO-7), and NCCN Guidelines for Supportive Care

CONSIDERATIONS FOR OLDER ADULTS UNDERGOING CANCER-SPECIFIC TREATMENT[a]

General Considerations

- Patient's values and goals should be assessed in context with life expectancy; comorbidities; cognitive, functional, psychologic/psychosocial, and nutritional status; aggressiveness of the disease; and treatment approach (OAO-3).
- There are data to suggest correlation between low social support and a higher risk for mortality. In patients with low levels of social support, consider referral to social work and/or case management to explore home supports and community resources.
- Offer a shared decision-making tool/framework to guide treatment decisions.
- Multidisciplinary team management, patient-specific treatment approach with shared decision-making, and palliative/supportive care for symptom management should be an integral part of cancer care in older adults. See NCCN Guidelines for Supportive Care and NCCN Guidelines for Palliative Care.
- Older adult cancer care is complex; thus, use of multidisciplinary care teams and testing of different models of care delivery can be strategies for efficient care delivery.
- Observation may be an appropriate approach in particular clinical scenarios, and may align with patient's preference.
- *Age-Friendly Health Systems* provides a set of four evidence-based elements of high-quality care to all older adults known as the 4Ms.[1]
  - What Matters: Care is aligned with individual values and goals
  - Mobility: Move safely and maintain function
  - Medication: Treatment is necessary and non-redundant
  - Mentation: Prevent, identify, treat, and manage dementia, depression, and delirium

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CONSIDERATIONS FOR OLDER ADULTS UNDERGOING CANCER-SPECIFIC TREATMENT[a]

Radiation therapy (RT)[7-15]

- Improvements in RT techniques including intensity-modulated RT (IMRT), image-guided RT (IGRT), and stereotactic ablative radiotherapy (SABR) have improved the tolerability and therapeutic ratio of RT in older adults.
- Considerations of older patients undergoing RT should be informed by the benefits versus risks based on the anatomic site being radiated and the dose/fractionation chosen. Chronologic age by itself should not exclude patients from evaluation for curative RT.
- Use caution with concurrent chemoradiation therapy. Dose or sequence modification of chemotherapy or chemoradiation, additional supportive services, and more frequent monitoring may be necessary. See disease-specific NCCN Guidelines for Treatment by Cancer Type.
- Hypofractionation and SABR may be considered to decrease the number of treatments, especially in patients who are frail and/or less mobile.
- Local ablative RT should be considered as an adjunct or alternative therapy in older adults.

Chemotherapy

- Consider use of chemotherapy toxicity risk calculators where validated[16,17] to estimate toxicity and determine dose adjustments, additional supportive services, more frequent monitoring, and geriatric assessment as necessary.
  - Cancer and Aging Research Group (CARG) Chemo Toxicity Calculator (http://www.mycarg.org/Chemo_Toxicity_Calculator)
  - Chemotherapy Risk Assessment Scale for High-Age Patients (CRASH) score (https://www.mdcalc.com/calc/10425/chemotherapy-risk-assessment-scale-high-age-patients-crash-score)[18]
  - Cancer and Aging Research Group-Breast Cancer (CARG-BC) score for older adults (for adjuvant/neoadjuvant therapy only) (https://www.cancercalc.com/carg_bc.php)[19]

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  - Cancer and Aging Research Group-Breast Cancer (CARG-BC) score for older adults (for adjuvant/neoadjuvant therapy only) (https://www.cancercalc.com/carg_bc.php)[19]

IDENTIFICATION OF PATIENTS REQUIRING GERIATRIC ASSESSMENT[a]

Geriatric screening tools are used to identify older adults with cancer who would benefit from a geriatric assessment (GA) (OAO-D 1 of 10). All are self-reported and any of these tools can be used. Choose one.[b]

- Abbreviated Comprehensive Geriatric Assessment (aCGA)[1,2]
- Barber Questionnaire[3]
- Fried Frailty Criteria[4,5]
- Geriatric 8 (G-8) Questionnaire[6,7]
- Groningen Frailty Index[2]
- Senior Adult Oncology Program (SAOP) 2[8,9]
- Triage Risk Screening Tool (TRST)[10]
- Vulnerable Elders Survey-13 (VES-13)[11,12,13]
- Self-Rated Health (SRH)[14]

ASCO Special Articles

Geriatric Assessment: ASCO Global Guideline

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TABLE 1. Summary of All Recommendations

Clinical Question	Recommendation
General Note. The following recommendations (strong or weak) and terminology (Data Supplement) represent reasonable options for patients depending on clinical circumstances and in the context of individual patient preferences. Recommended care should be accessible to patients whenever possible	
1. What is the role of GA in older adults with cancer to inform specific interventions to improve clinical outcomes in resource-constrained settings?	Recommendation 1.1. Basic, Limited, Enhanced: All patients with cancer aged 65 and over receiving systemic therapy and with GA-identified impairments should have GAM included in their care plan. GAM includes using GA results to (1) inform cancer treatment decision-making and (2) address impairments through appropriate interventions, counseling, telemedicine, and/or referrals. (Evidence quality: Moderate-High; Strength of recommendation: Strong)
2. For older patients who are considering undergoing antineoplastic therapy and other systemic treatments, which GA tools and component elements should clinicians use to predict adverse outcomes (including antineoplastic therapy toxicity and mortality) and guide management in resource-constrained settings?	Recommendation 2.1. Basic: A geriatric evaluation should include at a minimum the use of a brief geriatric screening tool (G8 tool with a cutoff of ≤14 points is recommended). (Evidence quality: Moderate; Strength of recommendation: Strong) Recommendation 2.1. Limited, Enhanced: A GA should include high-priority aging-related domains known to be associated with outcomes in older patients with cancer to include assessment of physical and cognitive function, emotional health, comorbid conditions, polypharmacy, nutrition, and social support. (Evidence quality: High; Strength of recommendation: Strong)
	Recommendation 2.2. Basic: For patients who are identified as potentially vulnerable using a screening tool, the Panel recommends the PGA as one option for conducting a GA. See the PGA tool [https://cdn.bfldr.com/KOIHB2Q3/as/fr5tbfs65q37wzkqhnn3fn7/2023Practical-Geriatric-Assessment][16] and associated videos (How to Do A GA [https://youtu.be/jnaQIjOz2Dw],[17] What to do with the Results of a GA [https://youtu.be/nZXtwaGh0Z0][18]). (Evidence quality: Moderate; Strength of recommendation: Weak) Recommendation 2.2. Limited and Enhanced: The Panel recommends the PGA as one option for this purpose. See the PGA tool [https://cdn.bfldr.com/KOIHB2Q3/as/fr5tbfs65q37wzkqhnn3fn7/2023Practical-Geriatric-Assessment][16] and associated videos (How to Do a GA [https://youtu.be/jnaQIjOz2Dw],[17] What to do with the Results of a GA [https://youtu.be/nZXtwaGh0Z0][18]). (Evidence quality: Moderate; Strength of recommendation: Weak)
	Recommendation 2.3. (all levels): Although the tools available in the PGA are

Physiologic Changes Affecting Chemotherapy

Decline in renal function despite normal creatinine
Reduced bone marrow reserve
Altered pharmacokinetics
Increased polypharmacy
Myelosuppression
- Neutropenia: prophylactic use of G-CSF
- Anemia: significantly associated with multi-dimentional loss of function in >65yrs.

Nausea and vomiting
- High risk d/t dehydration, physiologic changes in drug absorption, distribution

Increased risk for mucositis, insomnia (gynecologic 33-68%)

Pre-chemotherapy assessment

VOLUME 34 · NUMBER 20 · JULY 10, 2016
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ORIGINAL REPORT

Validation of a Prediction Tool for Chemotherapy Toxicity in Older Adults With Cancer

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CARG SCORE

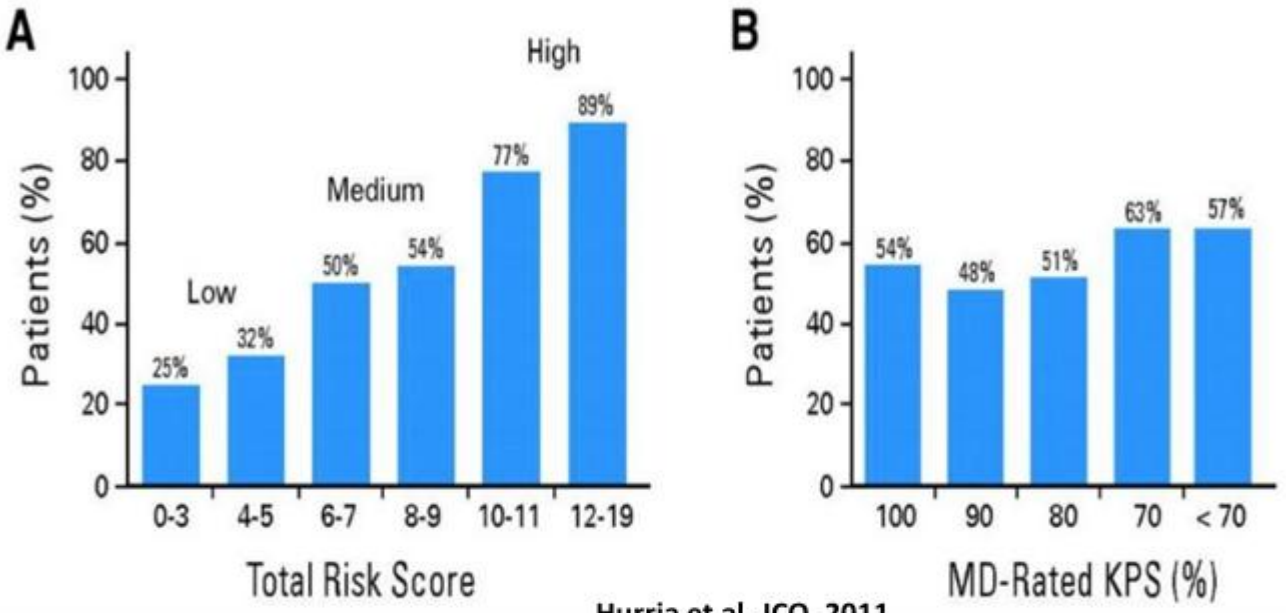
TOTAL RISK SCORE		% RISK OF GRADE 3-5 AES
LOW	0-3	25 %
	4-5	32 %
MEDIUM	6-7	50 %
	8-9	54 %
HIGH	10-11	77 %
	12-19	89 %

Risk factor for chemo toxicity:
≥72yrs, tumor type (GI and/or GU), polychemotherapy, standard Tx intensity, GA variables (hearing loss, falls, etc)

PREDICTORS OF GRADE 3-5 toxicity

250 patients, age 65-94 (mean 73)
Ovarian cancer: 50 pts (10%)
58% had ≥G3 toxicity

Ability of (A) risk score versus (B) physician-rated Karnofsky performance status (KPS) to predict grade 3-5 chemotherapy toxicity



Hurria et al. JCO, 2011

Annals of Oncology 24: 2808–2813, 2013

Development of a geriatric vulnerability score in elderly patients with advanced ovarian cancer treated with first-line carboplatin: a GINECO prospective trial

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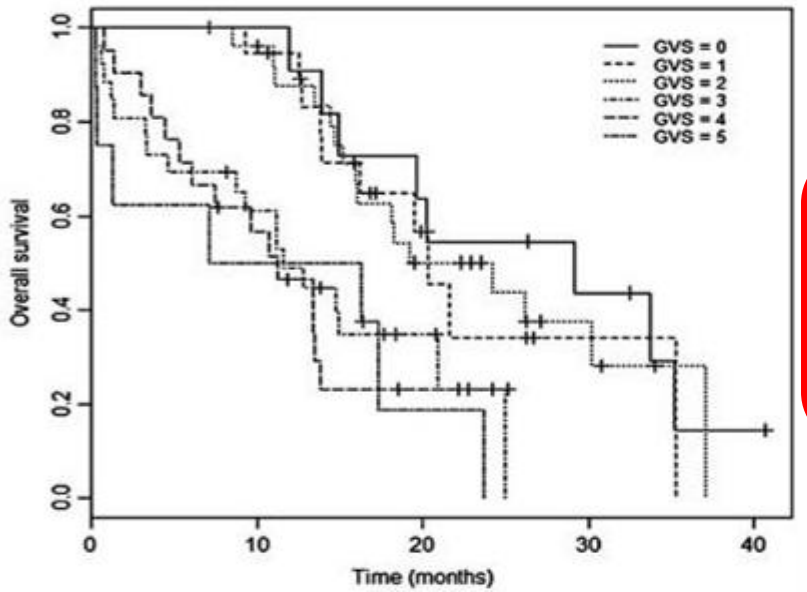
Age >70

High score: Low albumin, functional dependency, lymphopenia, anxiety/depression

	Percentage of patients (n = 111)
Median age in years (range)	79 (71–93)
≥80 years	41
Performance status (PS, ECOG) ≥2	47



GVS ≥3 :
Delineated significantly decreased OS ([HR] 2·94, 95% CI 1·79–4·84, p<0·0001)

Table 3. Association between patient characteristics and overall survival (OS)

	Univariate (log-rank)	
	Hazard ratio	*P* value
Oncologic covariates		
FIGO stage IV	2.39	0.002
Performance status (PS) ≥2	1.86	0.02
Optimal cytoreduction	0.32	0.026
Geriatric covariates		
Age ≥80	1.62	0.07
Functional assessment		
ADL score <6	2.16	0.006
IADL score <25	2.00	0.003
Three or more comorbidities	1.79	0.041
Nutritional assessment		
Albuminaemia <35 g/l	2.36	0.003
PINI ≥10	3.04	<0.001
BMI <21 kg/m²	0.90	0.72
Lymphocyte count <1 G/l	2.12	0.004
Psychocognitive assessment		
Emotional disorders (investigator's assessment)	1.67	0.12
HADS score >14	1.44	0.13
MMS score >24	1.08	0.79

ADL, activities of daily living; IADL, instrumental activities of daily living; BMI, body mass index; HADS, Hospital Anxiety and Depression Scale; MMS, Mini Mental Scale; PINI, prognostic inflammatory and nutritional index;

Putting It Together — Practical Algorithm

- Screening (for example: G8 screening tool)
- CGA (Comprehensive Geriatric Assessment)
  → identify modifiable vs non-modifiable risks
- Optimize reversible problems before treatment
- Choose least toxic effective option
- Reassess regularly during treatment

ASCO guidelines

1) 환자: IADL, Falls, Geriatric Depression Scale,
CARG self- questionnaires

2) 의료진(간호사): Comorbidity, 복용약,
BMI/체중변화 확인
Mini-cognitive test,
CARG toxicity score

3) 환자/가족 + 의료진: Shared decision making
치료의 목적 설정,
치료 결정,
서포트 계획 마련

Take Home Message

Decisions (screening, treatment) should never be based on chronological age alone.

ASCO, NCCN, SIOG recommends CGA for all elderly cancer patients over 65 years.

Quick and easy tools should be used for geriatric screening. (G8, CARG, CRASH..)

Systematic geriatric screening leads to appropriate interventions with improved QoL and potentially improve their survival and decrease toxicity.

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Thank you for your attention!

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Korean Society of Gynecologic Oncology