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Oncogeriatrics

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With warm thanks to my colleague, Dr Héloïse Rouvière, oncogeriatrician

Oncogeriatrics

A PARADOX

60 % newly diagnosed cancer occur in 65+

BUT older people are still underrepresented in clinical trials

⇨ Lack of evidence in cancer treatment of older people

HETEROGENEITY of aged (frailty and G profile)

⇨ **CHALLENGE** to determine the intensity of the treatment fitting best with the patient's profile

⇨ What are the **TIPS AND TRICKS** based on actual scientific knowledge?

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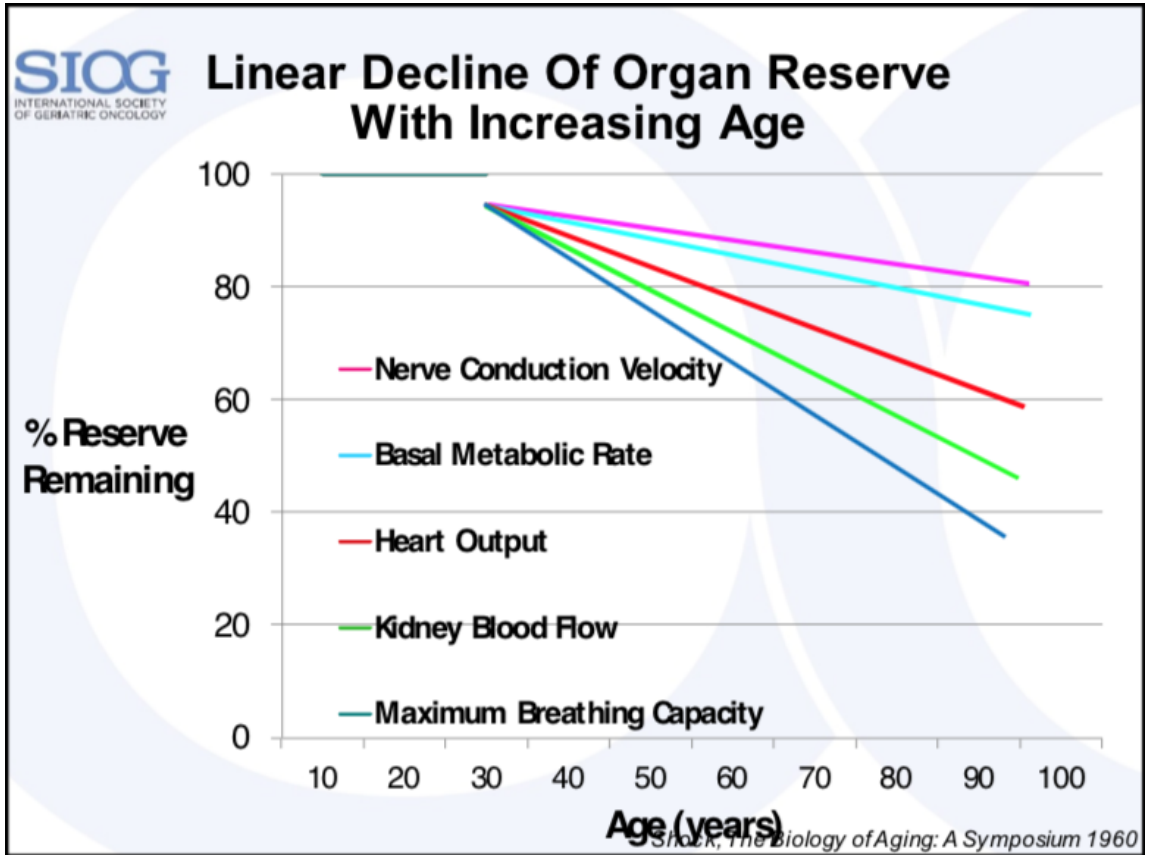
Should this patient be treated?

Some tips and tricks...

Frailty in oncogeriatrics



Neuropathy

PE malnutrition

Cardiac toxicity

Chemotoxicity

Dyspnea

Comprehensive Geriatric Assessment

All predictive of toxicity and mortality in old cancer patients
(9 studies)

Caillet, Clin Interv in Aging, 2014

Comprehensive Geriatric Assessment

SIOG
INTERNATIONAL SOCIETY OF GERIATRIC ONCOLOGY

Comprehensive Geriatric Assessment CGA

Assessment	Instrument	Administration	Prognosis
Dependency, functional status	PS, Activity of Daily Living (ADL), Instrumental ADL	Self administered	+
Comorbidity	Charlson Comorbidity Index (CCI), Cumulative Illness rating Scale-Geriatric (CIRS-G)	Self- or interviewer-administered or chart-based	+
Economic / social support	Life conditions, relatives, care-givers	Interviewer-administered or chart-based	?
Cognition	Folstein Mini-mental State Examination (MMSE)	Interviewer-administered	+
Depression	Geriatric Depression Scale (GDS)	Self administered	+
Polypharmacy	List	Interviewer-administered or chart-based	?
Nutrition	Mini Nutritional Assessment (MNA), BMI	Interviewer-administered	+
Geriatric syndromes	Dementia, delirium, falls	interviewer-administered or chart-based	+
Mobility/falls	Timed-up-and-go test, Tinetti, gait speed	Performance-tests	+

Treatment decisions

CGA influences the oncologist decision in 21 to 49 %

The most predictive (mortality, toxicity) CGA problems are :

- Functional status (ADL, IADL, PS)
- Malnutrition
- Comorbidities

Oncogeriatrics aims to assess potentially reversible conditions before the treatment and to identify and follow at-risk patients

Aparicio, J Clin Oncol, 2013
Caillet, Clin Interv in Aging, 2014
Wildiers, JCO, 2014

Toolbox : Prognostic scales

ePrognosis

- Community-dwelling patients (15 months to 10 years)
- Institutionnalized patients (6 months to 1 year)
- Hospitalized patients (1 year after hospital stay, 2 years)
- Patient with advanced stages of cancer

→ http://eprognosis.ucsf.edu/index.php

Toolbox : Prognostic scales

Toolbox : Prognostic scales

Aide à l'estimation de la survie : Score de Lee

Permet d'estimer le risque de mortalité à 4 ans chez des sujets âgés par un auto-questionnaire

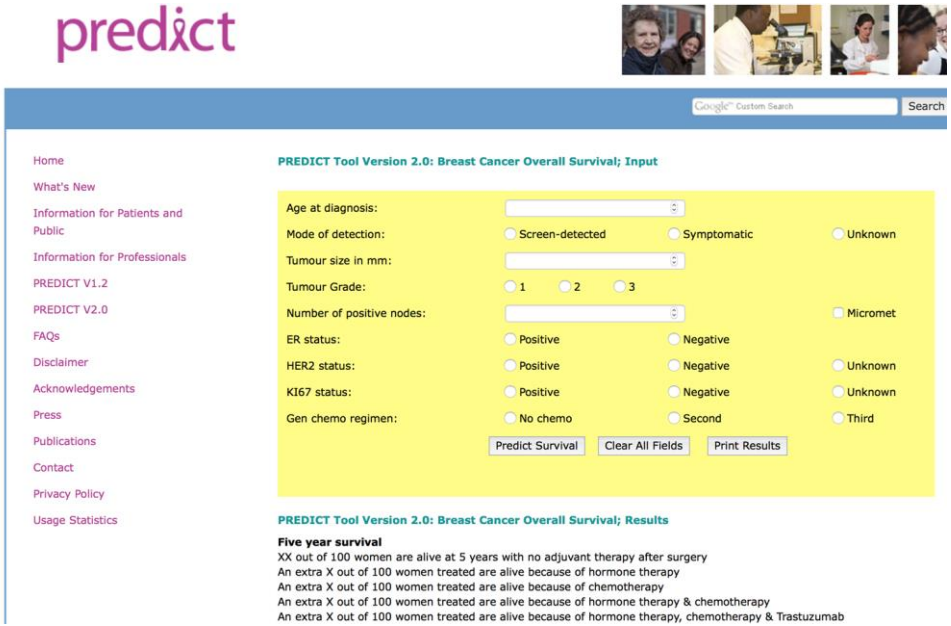
1. Age	60-64 : 1 point 65-69 : 2 points 70-74 : 3 points 75-79 : 4 points 80-84 : 5 points 85 : 7 points
2. Sexe	Male : 2 points
3. IMC	< 25 : 1 point
4. Est-ce qu'un docteur vous a déjà parlé de diabète ou d'un excès de sucre ?	Diabète : 2 points
5. Est-ce qu'un médecin vous a parlé de cancer ou de tumeur maligne, excepté les petits cancers de la peau ?	Cancer : 2 points
6. Avez-vous une maladie chronique du poumon qui limite vos activités habituelles ou nécessite de l'oxygène à la maison ?	Maladie pulmonaire : 2 points
7. Est qu'un docteur vous a parlé d'insuffisance cardiaque congestive ?	Insuffisance cardiaque : 2 points
8. Avez-vous fumé des cigarette durant la dernière semaine ?	Tabac récent : 2 points
9. Du fait de problèmes de santé ou de mémoire, avez-vous des difficultés à prendre un bain ou une douche ?	Bain : 2 points
10. Du fait de problèmes de santé ou de mémoire, avez-vous des difficultés à gérer votre argent- comme payer des factures ou faire vos comptes ?	Finances : 2 points
11. Du fait de problème de santé, avez-vous des difficultés à marcher quelques centaines de mètres ?	Marche : 2 points
12. fait de problème de santé, avez-vous des difficultés à tirer ou pousser de gros objets comme un fauteuil par exemple ?	Pousser ou tirer : 1 point
	Total des points :

Score	% de décès à 4 ans
0-5	< 4%
6-9	15%
10-13	42%
≥ 14	64%

Lee et al. JAMA 2006;295:801-

Toolbox : specific scales

Breast cancer : PREDICT : prognostic score at 5 and 10 years without neoadjuvant treatment et with different types of treatments (hormonal treatment; chemotherapy; targeted therapies)



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Treatment options

Some tips and tricks...

Surgery

More than 50% of old surgical patients are admitted for cancer surgery

Urgent surgery induces higher rates of complications

Perioperative management is crucial for elective surgery : geriatric follow-up is recommended

Screening of risk of delirium! Preventive measures

Korc- Grodzicki, JCO, 2014

Radiation therapy

Assess the feasability (don’t move!), the risks and benefits

High risk of adverse effects, but interruption of treatment lowers the benefit. Fraction

Concomitant RT and chemotherapy increases the toxicity level

Radiation mucositis : consider pain killers and nutritional support

Late toxicities are common

Chemotherapy

Same efficacy than younger patients, but higher levels of toxicity

Interruptions of treatments are common in old patients : loss of chance! Prefer *a lower dose* to interruption

Nauseas, vomitings, diarrheas are less frequent
Mucositis and hematological toxicity are more frequent
Renal toxicity (CisPt)
Cardiac toxicity (Anthracyclines)
Neurological toxicity (Thalidomid)
Fatigue +++

Toolbox : prediction tool for chemo toxicity

Prediction Tool for Chemotherapy Toxicity in Older Adults With Cancer : CARG

11 items : predicts grades 3, 4 & 5 of toxicity in solid cancers (65 – 94 years old) – external validation on 250 patients

Low risk
Moderate risk
High risk

Hurria, JCO, 2016

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CARG

Table 1. Prediction Model and Scoring Algorithm for Chemotherapy Toxicity

Variable	Value/Response	Score
Age of patient	≥ 72 years	2
	< 72 years	0
Cancer type	GI or GU cancer	2
	Other cancer types	0
Planned chemotherapy dose	Standard dose	2
	Dose reduced upfront	0
Planned No. of chemotherapy drugs	Polychemotherapy	2
	Monochemotherapy	0
Hemoglobin	< 11 g/dL (male), < 10 g/dL (female)	3
	≥ 11 g/dL (male), ≥ 10 g/dL (female)	0
Creatinine clearance (Jeliffe, ideal weight)	< 34 mL/min	3
	≥ 34 mL/min	0
How is your hearing (with a hearing aid, if needed)?	Fair, poor, or totally deaf	2
	Excellent or good	0
No. of falls in the past 6 months	≥ 1	3
	None	0
Can you take your own medicine?	With some help/unable	1
	Without help	0
Does your health limit you in walking one block?	Somewhat limited/limited a lot	2
	Not limited at all	0
During the past 4 weeks, how much of the time has your physical health or emotional problems interfered with your social activities (like visiting with friends, relatives, etc)?	Limited some of the time, most of the time, or all of the time	1
	Limited none of the time or a little of the time	0

Total Risk Score		%Risk
Low	0 to 3	25%
	4 to 5	32%
Mid	6 to 7	50%
	8 to 9	54%
High	10 to 11	77%
	12 to 19	89%

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CARG
CANCER & AGING RESEARCH GROUP

Meet the Researchers | U13 Meeting | CARG Studies | Grants/Job Opportunities | Educational Resources | Resources for the Older Adult | Geriatric Assessment Tools | Geriatric Oncology Events | R25 Nursing Grant

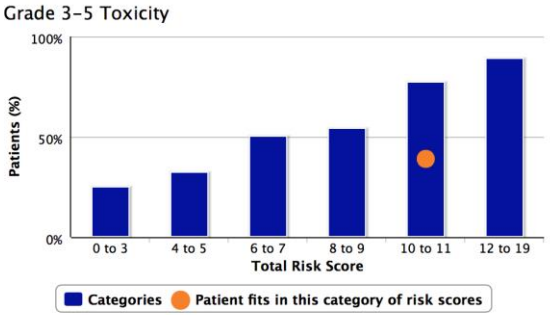
PREDICTION TOOL

Gender: Select
Patient's Age:
Patient's Height: Select Select
Patient's Weight: Select Select
Cancer Type: Choose
Dosage: Choose *
Number of chemotherapy agents: Choose
Hemoglobin: Select a value
How is your hearing (with a hearing aid, if needed)?: Choose
Number of falls in the past 6 months: Choose
Can you take your own medicines?: Choose
Does your health limit you in walking one block?: Choose
During the past 4 weeks, how much of the time has your physical health or emotional problems interfered with your social activities (like visiting with friends, relatives, etc.)?: Choose
Select Serum Creatinine: Choose
Creatinine Clearance: **

Submit

Toxicity Score:
Risk of Chemotherapy Toxicity:

What does this mean?



Patient Total Risk Score: 10

Patient Toxicity Risk: 7

http://www.mycarg.org/Chemo_Toxicity_Calculator

Toolbox : prediction tool for chemo toxicity

- Chemotherapy Risk Assessment Scale for High-Age Patients
  = CRASH score

  Predicts grades 3, 4 non hematological toxicity and grade 4 hematological toxicity in solid cancers (70-94 years old) – No external validation

  Low risk
  Low to moderate risk
  Moderate to high risk
  High risk

Extermann, Cancer, 2012

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CRASH (Chemotherapy Risk Age Scale for High Risk Patients) Scoring Analysis

Chemotherapy risk (see table)		
Hematologic risk factors		
Diastolic blood pressure (greater than 72 = 1)		
IADL (less than 26 = 1)		
LDH (greater than 459 = 2)*		
Non-hematologic risk factors		
ECOG PS (1-2 = 1; 3-4 = 2)		
MMS (less than 30 = 2)		
MNA (less than 28 = 2)		
Heme score (incl. chemo risk)		
Non-heme score (incl. chemo risk)		
Combined score (count chemo risk only once)		

Individual risk

	CRASH score (points / % with severe toxicity)			
Sample	Heme subscore	Non-Heme subscore	Combined score	Risk Category
Derivation (n=347)	0-1: 7% 2-3: 23% 4-5: 54% Greater than 5: 100%	0-2: 33% 3-4: 46% 5-6: 67% Greater than 6: 93%	0-3: 50% 4-6: 58% 7-9: 77% Greater than 9: 79%	Low Int-Low Int-High High
Validation	0-1: 12% 2-3: 35% 4-5: 45% Greater than 5: 50%	0-2: 42% 3-4: 59% 5-6: 66% Greater than 6: 100%	0-3: 61% 4-6: 72% 7-9: 77% Greater than 9: 100%	

Ref: Extermann et al., ASCO 2010

Warning: This score is for use by oncologists familiar with chemotherapy administration. It is aimed at supporting clinical decision making and should in no way supersede it. It is to be used in addition to drug-specific dose adaptations. Further individual or treatment plan characteristics might lead the oncologist to depart from these risk estimates.

Table 6. Example of Toxicity of the Chemotherapy Regimen (Chemotox) Values for Various Chemotherapy Regimens[a]

CRASH Points[b]		
0	1	2
Capecitabine 2g	Capecitabine 2.5 g	5-FU/LV (Roswell-Park)
Cisplatin/pemetrexed	Carboplatin/gemcitabine AUC 4-6/1 g d1,d8	5-FU/LV (Mayo)
Dacarbazine	Carboplatin/pemetrexed	5-FU/LV and bevacizumab
Docetaxel weekly	Carboplatin/paclitaxel q3w	CAF
FOLFIRI	Cisplatin/gemcitabine d1,d8	Carboplatin/docetaxel q3w
Gemcitabine 1 g 3/4 wk	ECF	CHOP
Gemcitabine 1.25 g 3/4 wk	Fludarabine	Cisplatin/docetaxel 75/75
Paclitaxel weekly	FOLFOX 85 mg	Cisplatin/etoposide
Pemetrexed	Gemcitabine 7/8 wk then 3/4 wk	Cisplatin/gemcitabine d1,d8,d15
	Gemcitabine/irinotecan	Cisplatin/paclitaxel 135-24 h q3w
	PEG doxorubicin 50 mg q4w	CMF classic
	Topotecan weekly	Doxorubicin q3w
	XELOX	FOLFOX 100-130 mg
		Gemcitabine/pemetrexed d8
		Irinotecan q3w
		Paclitaxel q3w
		Docetaxel q3w
		Topotecan monthly

Description	Score	Risk
Heme Score	2	Med Low
Non Heme Score	6	Med High
Combined Score	7	Med High

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Chemotherapy risk

Chemotherapy risk

0

Hematologic Risk Factors

Diastolic blood pressure

0

IADL

0

LDH

0

Non-Hematologic Risk Factors

ECOG PS

0

MMS

0

MNA

0

Submit

CRASH points (Regimens not listed should be scored by analogy)

0	1	2
Capecitabine 2g	Bendamustine +/- rituximab	5-FU/LV (Roswell-Park)
Cisplatin/pemetrexed	Capecitabine 2.5g	5-FU/LV (Mayo)
Dacarbazine	Carboplatin/gemcitabine AUC 4-6/1g d1,d8	5-FU/LV + bevacizumab
Docetaxel weekly	Carboplatin/pemetrexed	AC
FOLFIRI	Cisplatin/gemcitabine d1,8	CAF
Gemcitabine 1g 3/4 weeks	ECF	Carboplatin/docetaxel q3w Carboplatin/paclitaxel q3w
Gemcitabine 1.25g 3/4 weeks	Fludarabine	CHOP +/- rituximab
Paclitaxel weekly +/- trastuzumab	FOLFOX 85mg(e.g. FOLFOX4 or mFOLFOX6)	Cisplatin/docetaxel 75/75
Pemetrexed	Gemcitabine 7/8 weeks then 3/4	Cisplatin/etoposide
	Gemcitabine/irinotecan	Cisplatin/gemcitabine d1,8,15
	PEG doxorubicin 50mg q4w	Cisplatin/irinotecan q3w
	Topotecan weekly	Cisplatin/paclitaxel 135-24h q3w
	XELOX	CMF classic
		Docetaxel q3w
		Doxorubicin q3w
		Eribulin
		FCR
		FOLFOX 100-130 mg
		Gemcitabine/pemetrexed d8
		Irinotecan q3w
		Ixabepilone q3w

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Geriatric interventions

Some tips and tricks...

Validated geriatric interventions

Functional status	Physiotherapy @ home Occupational therapy @ home Home nursing care Home security Assessment of risk of falling Promote physical exercise Screening and assessment of osteoporosis
Cognition	Involve the proxy caregivers Reduce potentially inappropriate medications Preventive measures of delirium Assess the ability to understand and acknowledge the treatment Identify the relatives / collaborative decisions Perform neuropsychological testing

NCCN Guidelines version 2.2017

Validated geriatric interventions

Social support/ Caregiver burden	Transportation assistance to the hospital Home care Support groups Psychological support Spiritual assistance
Psychological status	Non pharmacological care : meditation, relaxation, acupuncture Exercise program Psychological support Medication for anxiety, depression Support programs, stress management Spiritual assistance

NCCN Guidelines version 2.2017

Validated geriatric interventions

Nutrition	Dietician advice + follow up Dietetic recommendations Oral care Nutritional support (oral, enteral) If functional impairment : occupational therapist, physiotherapy, home care, meals on wheels, caregiver involvement, vitamin D

NCCN Guidelines version 2.2017

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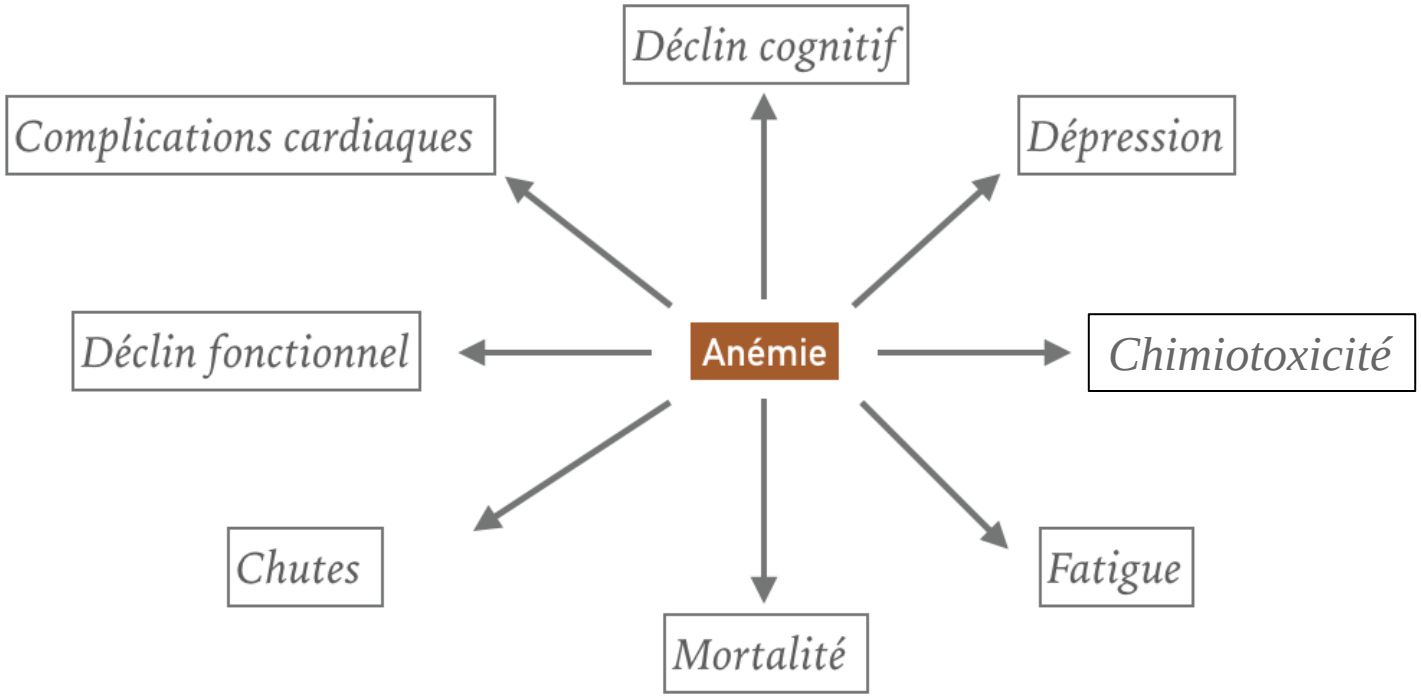
Medical interventions

Some tips and tricks...

ANEMIA



Beghé, Am J Med, 2004
NCCN Guidelines, 2017

▶▶▶Anemia - workup

Etiological assessment

Transfusion according to Hb level, tolerance and comorbidities

The use of erythropoietin is controversed

NCCN Guidelines, 2018

▶▶▶ Anemia - workup

National Comprehensive Cancer Network®

Hb level ≤11g/dL

- Asymptomatic – no significant comorbidity → Observe → Periodical assessment
- High risk patient (progressive loss of Hb and recent chemo or radiotherapy
  Or
  Asymptomatic with comorbidities :
  - cardiac
  - pulmonary
  - cerebrovascular
  → Transfusion
- Symptomatic :
  Tachycardia, tachypnea, chest pain, dyspnea, dizziness, syncope, fatigue limiting the achievement of ADLs → Transfusion

NCCN Guidelines, 2018

►►► FEBRILE NEUTROPENIA

NEUTROPENIA = PMN <500 /mm^3

or WBC <1000/mm^3

(or waited in the next 48h)

→ Higher risk of major infection when PMN < 100/mm^3

FEBRILE = oral T° ≥ 38,3°C or ≥ 38°C for >1h

►►EMERGENCY

▶▶▶ FEBRILE NEUTROPENIA

LOW RISK : chemo for solid tumors, myeloma, lymhoma

INTERMEDIATE : stem cell autograft

HIGH RISK :

Induction and consolidation of acute leukemia

Allograft of marrow and stem cells

Myelosuppression

▶▶▶ FEBRILE NEUTROPENIA

Worrying signs:

Presence of infection on a "major" site :

LUNG Pneumonia
PERINEAL Cellulitis
SKIN Cellulitis

Or
Hemodynamic instability

▶▶▶ LOW RISK FEBRILE NEUTROPENIA

CHARACTERISTIC	WEIGHT
Burden of febrile neutropenia with no or mild Symptoms[1]	5
No hypotension (systolic BP > 90 mm Hg)	5
No chronic obstructive pulmonary disease[2]	4
Solid tumor or hematological malignancy with no previous fungal infection[3]	4
No dehydration requiring parenteral fluids	3
Burden of febrile neutropenia with moderate Symptoms[4]	3
Outpatient status	3
Age <60 years	2

Score > 20 : low risk

Eun Ha Y, et al. Support Care Cancer 2011;19:1761–1767.

▶▶▶ LOW RISK FEBRILE NEUTROPENIA

MASCC ≥ 21

Hospital supervision from 2 to 24 hours

Cipro + Amoxi / clav. or Cipro + Clindamycin if allergy during 7 jours

If not better after 48h or worrying signs : hospitalization

▶▶▶ NAUSEAS - VOMITINGS

Impact majeur sur la qualité de vie

Impact sur l'adhérence

Déshydratation

Troubles ioniques

▶▶▶ NAUSEAS - VOMITINGS

! Risk of toxicity of anti-emetic drugs

Ex. 5HT3 Antagonists : prolonged QT, constipation, headache

Dexamethasone : insomnia, hyperglycemia

No specific guidelines for older people

Metoclopramide well tolerated

Jakobsen, Crit Rev Oncol Hematol. 2009

▶▶▶ DIARRHEA

SECRETORY	OSMOTIC	MOTILITY	IMMUNE-MEDIATED
Perturbation of secretory pumps Of enterocytes	Osmotic effects Water retention	Faster intestinal motility	
IRINOTECAN 5 - FU		IRINOTECAN	IMMUNO--THERAPY

▶▶▶ DIARRHEA - WORKUP

- Stop food containing lactose
- Stop alcohol
- Stop hyperosmolar supplements (ONS)
- Rehydration treatment
- Small multiple meals
- Discuss interruption of chemotherapy

- Loperamide (NB : clostridium) 4mg then 2mg/4h
- Octreotide if oral treatment not effective after 24/48h

Benson, JCO, 2004
Andreyev, Lancet Oncol. 2014
NCCN guidelines, 2017

▶▶▶ MUCOSITIS

Higher risk with age

Oral healthcare

Oral bath care (bicarbonate + antiseptic solution)

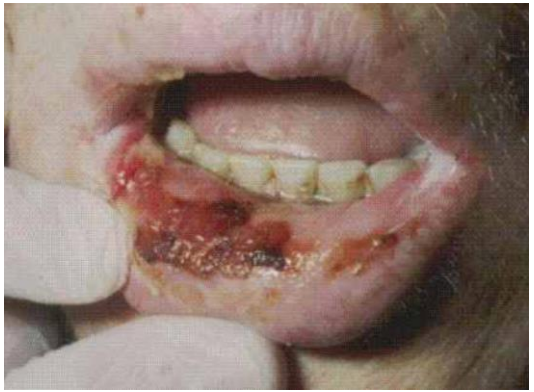
Pain killers

Ice blocks

Antifungal treatment

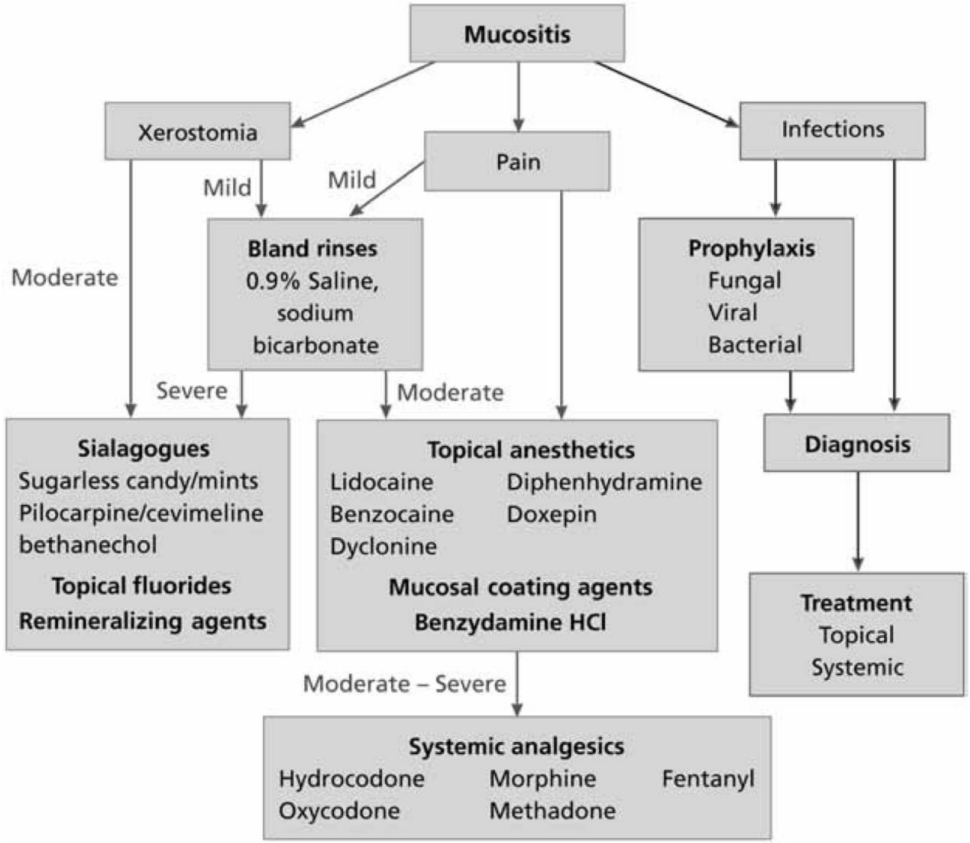
IV hydration

Follow up of nutrition



Hospitalization if mucositis associated with dysphagia or diarrhea

▶▶▶ MUCOSITIS



NCCN,Task force report, 2008

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Follow-up in oncogeriatrics

Some tips and tricks...

How to organize the follow-up?

►►► A REAL CHALLENGE!

A good level of communication between the stakeholders

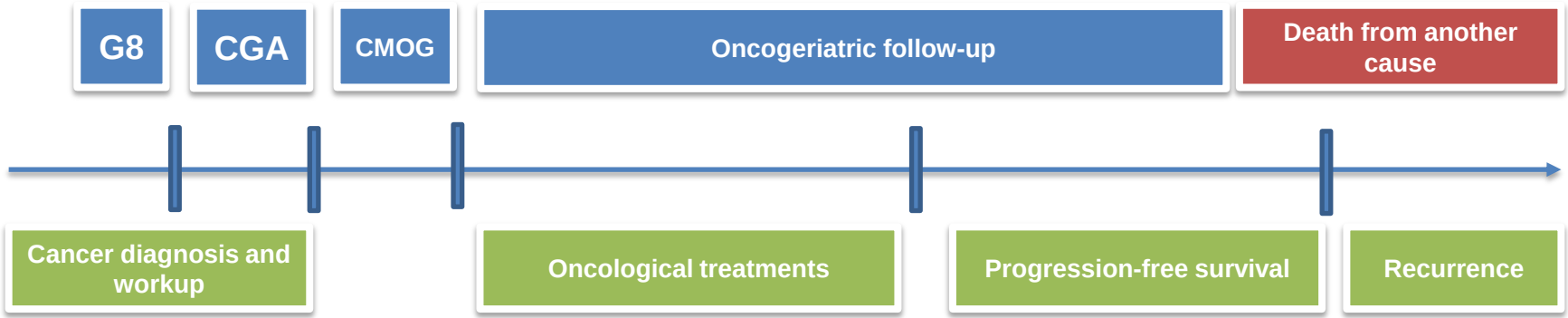
Table 2. Healthcare professionals[a] who should be part of an elderly oncology patient, QoL-focused, MDT, with team make-up tailored according to patient needs

- Medical oncologist
- Geriatrician
- Palliative medicine specialist
- Oncology nurse practitioner (in countries were available; oncology nurse for other countries)
- Pain specialist
- General practitioner
- Nutritionist
- Psycho-oncologist
- Social worker [financial, family needs, disability expenses (e.g. wheelchairs etc.)]
- Physiotherapist
- Pharmacist

- Important consultants to the oncology team such as:
  - Dermatologist
  - Cardiologist (trained in cardiotoxicity of oncological treatments)
  - Neurologist
  - Pneumologist
  - Endocrinologist
  - Surgeon
  - Radio oncologist
  - Nephrologist
  - Psychiatrist
  - Ear, nose and throat specialist (ENT)
  - Rheumatologist
  - Ophthalmologist
  - Sexual health specialist
- Allied health professionals in the community and in hospitals
- Care-home staff
- Self-help and support groups, patient advocacy associations
- Clerics (or spiritual helper)
- Volunteers

ESMO, 2018

How to organize the follow-up?



How to organize the follow-up?

ONCOGERIATRIC FOLLOW-UP IN OUR HOSPITAL

- Combined consultation with the oncologist (1x/w)
- Multidisciplinary oncogeriatric meetings (1x/w) : treatment plan
- Involvement of all oncological coordinating nurses (G8)
- Continuing education for nurses
- Implication in Young SIOG courses and SIOG congresses :

  Very dynamic working group in Belgium : join them!

How to organize the follow-up?

DIFFERENT MODELS OF FOLLOW-UP

- Consultative model : CGA + recommendations
- Shared model : collaboration between geriatricians and oncologists
- Full care model : geriatric oncologist and oncological geriatrician

Monfardini, SIOG Advanced course 2018

How to organize the follow-up?

FOLLOW-UP OF OLD CANCER PATIENTS IN THE WORLD?

- Belgium, Netherlands, France, Norway, Switzerland : good cooperation between oncologists and geriatricians

- Italy: central funding for oncologists, a dozen of geriatric oncology units, less cooperation with geriatricians

- Other countries of UE : no collaboration with geriatricians

How to organize the follow-up?

Oncogeriatric follow-up in Belgium

Cancer plan

But … still a great heterogeneity

No more funding for oncogeriatric nurses