GERIATRIC ONCOLOGY
IN DAILY PRACTICE

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1. Institut Jules Bordet, Brussels, Belgium
2. Hôpitaux Universitaires de Strasbourg, France
1. Introduction – Cancer and aging
2. Decision-making tools for practice in geriatric oncology
3. Organisation of geriatric oncology service
4. Clinical cases in breast cancer
5. Clinical cases in lung cancer
6. Conclusion
LEARNING OBJECTIVES

At the end of this module you are expected to:

1. To understand the particularity of older patients with cancer
2. To understand comprehensive geriatric assessment
3. To understand the structure of a geriatric oncology service
4. To understand how to implement geriatric assessment tools in shared decision making with regard to cancer treatment
INTRODUCTION

Cancer and aging
THE WORLD-WIDE POPULATION IS AGING 2015–2050

Reprinted from The Lancet Oncology, 19 (6), Soto-Perez-de-Celis E, et al. Functional versus chronological age: geriatric assessments to guide decision making in older patients with cancer, e305-e3016, Copyright 2018, with permission from Elsevier.
CANCER AND AGING
Clinical challenges geriatric oncology practice

Competing causes of morbidity and mortality

Functional heterogeneity in older adults

Lack of geriatric oncology services

Lack of data on older patients with cancer
CANCER AND AGING

Risk of over treatment

A sizeable proportion of older patients with operable breast cancer die of non cancer-related causes. Absolute benefit of surgery and adjuvant (chemo-/radio-therapy) is lower.

N=14,048 new early breast cancer, ≥50 years, follow-up 4.7 years

<table>
<thead>
<tr>
<th>Age Group</th>
<th>Total Deaths</th>
<th>Deaths from Breast Cancer</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>50–69</td>
<td>1334</td>
<td>933</td>
<td>70</td>
</tr>
<tr>
<td>70–74</td>
<td>514</td>
<td>293</td>
<td>57</td>
</tr>
<tr>
<td>75–79</td>
<td>696</td>
<td>329</td>
<td>47</td>
</tr>
<tr>
<td>≥80</td>
<td>1681</td>
<td>663</td>
<td>39</td>
</tr>
<tr>
<td>Total</td>
<td>4225</td>
<td>2218</td>
<td>53</td>
</tr>
</tbody>
</table>
CANCER AND AGING

Heterogeneity

Older patients with the same chronological age are different!

Genetics, lifestyle, socio-economic, mental and cultural issues all play a role!
CANCER AND AGING

Lack of clinical trials data on older patients with cancer

Clinical trials eligibility checklist

Exclusion criteria

- Comorbid conditions
- Organ dysfunction
- Prior malignancies

DECISION MAKING IN GERIATRIC ONCOLOGY
TOOLS FOR PRACTICE
Comprehensive Geriatric Assessment (CGA)

Factors other than chronological age that predict morbidity and mortality in older adults

- Functional status
- Comorbid medical conditions
- Nutritional status
- Cognition
- Psychological state
- Social support
- Potentially inappropriate prescriptions

Geriatric Assessment

Interventions (CGA)

Challenges: time consuming, human resources
## TOOLS FOR PRACTICE (G8)

Screening tools (not time consuming!)

<table>
<thead>
<tr>
<th>Items</th>
<th>Possible answers (score)</th>
</tr>
</thead>
</table>
| Has food intake declined over the past 3 months due to loss of appetite, digestive problems, chewing or swallowing difficulties? | 0: severe decrease in food intake  
1: moderate decrease in food intake  
2: no decrease in food intake |
| Weight loss during the last 3 months | 0: weight loss > 3 kg  
1: does not know  
2: weight loss between 1 and 3 kg  
3: no weight loss |
| Mobility | 0: bad or 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 (weight in kg) / (height in m²)) | 0: BMI < 19  
1: BMI = 19 to BMI < 21  
2: BMI = 21 to BMI < 23  
3: BMI = 23 and > 23 |
| Takes more than 3 medications per day | 0: yes  
1: no |
| In comparison with other people of the same age, how does the patient consider their health status? | 0: not as good  
0.5: does not know  
1: as good  
2: better |
| Age | 0: >85  
1: 80-85  
2: <85 |
| **TOTAL SCORE** | 0 - 17 |

**G8 score**

Appetite  
Weight loss  
Mobility  
Mood and cognition  
BMI  
Polymedication  
QoL  
Age

TOOLS FOR PRACTICE

Predicting mortality from other causes – Lee score

Four-year and 10-year mortality risk for older adults

4-year mortality index for older adults

<table>
<thead>
<tr>
<th>Question</th>
<th>Response</th>
<th>Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 AGE</td>
<td>60-64</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>65-69</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>70-74</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>75-79</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>80-84</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td>≥85</td>
<td>7</td>
</tr>
<tr>
<td>2 SEX (MALE/FEMALE)</td>
<td>MALE</td>
<td>2</td>
</tr>
<tr>
<td>3 a. WEIGHT</td>
<td>BMI &lt;25</td>
<td>1</td>
</tr>
<tr>
<td>b. HEIGHT</td>
<td>703 x (weight in pounds/height in inches)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>BMI =</td>
<td></td>
</tr>
<tr>
<td>4 Has a doctor ever told you that you have diabetes or high blood sugar? (Y/N)</td>
<td>Diabetes</td>
<td>1</td>
</tr>
<tr>
<td>5 Has a doctor told you that you have cancer or a malignant tumour, excluding minor skin cancers? (Y/N)</td>
<td>Cancer</td>
<td>2</td>
</tr>
<tr>
<td>6 Do you have a chronic lung disease that limits your usual activities or makes you need oxygen at home? (Y/N)</td>
<td>Lung disease</td>
<td>2</td>
</tr>
<tr>
<td>7 Has a doctor told you that you have congestive heart failure? (Y/N)</td>
<td>Heart Failure</td>
<td>2</td>
</tr>
<tr>
<td>8 Have you smoked cigarettes in the past week? (Y/N)</td>
<td>Smoke</td>
<td>2</td>
</tr>
<tr>
<td>9 Because of a health or memory problem, do you have any difficulty with bathing or showering? (Y/N)</td>
<td>Bathing</td>
<td>2</td>
</tr>
<tr>
<td>10 Because of a health or memory problem, do you have any difficulty with managing your money-such as paying your bills and keeping track of expenses? (Y/N)</td>
<td>Finances</td>
<td>2</td>
</tr>
<tr>
<td>11 Because of a health problem do you have any difficulty with walking several blocks? (Y/N)</td>
<td>Walking</td>
<td>2</td>
</tr>
<tr>
<td>12 Because of a health problem do you have any difficulty with pulling or pushing large objects like a living room chair? (Y/N)</td>
<td>Push or Pull</td>
<td>1</td>
</tr>
</tbody>
</table>

TOTAL POINTS

TOOLS FOR PRACTICE
Predicting chemotherapy toxicity – CARG Score

- Age ≥72 years
- GI/GU cancer
- Standard dose
- Polychemotherapy
- Haemoglobin (male: <11, female: <10)
- Creatinine clearance (Jelliffe-ideal weight)
- Fall(s) in last 6 months
- Hearing impairment (fair or worse)
- Limited in walking 1 block
- Assistance required in medication intake (IADL)
- Decreased social activity

Geriatric assessment variables

Tumour/treatment variables

Labs

Age

### TOOLS FOR PRACTICE

Predicting chemotherapy toxicity – CRASH score

<table>
<thead>
<tr>
<th>Predictors</th>
<th>Points</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>0</td>
</tr>
<tr>
<td><strong>Haematologic score</strong></td>
<td></td>
</tr>
<tr>
<td>Diastolic BP</td>
<td>≤72</td>
</tr>
<tr>
<td>IADL</td>
<td>26–29</td>
</tr>
<tr>
<td>LDH (if ULN 618 U/L; otherwise, 0.74/L*ULN)</td>
<td>0–459</td>
</tr>
<tr>
<td>Chemotox</td>
<td>0–0.44</td>
</tr>
<tr>
<td><strong>Nonhaematologic score</strong></td>
<td></td>
</tr>
<tr>
<td>ECOG PS</td>
<td>0</td>
</tr>
<tr>
<td>MMS</td>
<td>30</td>
</tr>
<tr>
<td>MNA</td>
<td>28–30</td>
</tr>
<tr>
<td>Chemotox</td>
<td>0–0.44</td>
</tr>
</tbody>
</table>

TOOLS FOR PRACTICE
Steps in making treatment decisions for older patients

Four components to assessing capacity
1. Understands the relevant information
2. Appreciate their situation
3. Uses reason to make a decision
4. Communicates their choice

If not: patient’s proxy, Ethics Committee

If yes: assessment of patient’s goals and values regarding management of cancer
(are the patient’s goals and values consistent with wanting anticancer treatment?)

If yes: assessment of risk factors
(comorbidities and geriatric syndromes)

CGA, prognostic/predictive tools

Treatment choice
Risks and benefits

Disease-specific tools – molecular (gene expression signatures, mutations (NGS) or databases (Predict Breast)

MODELS OF CARE IN GERIATRIC ONCOLOGY
MODELS OF CARE
Lack of geriatricians

Oncologists should be trained in the basic principles of geriatrics

Geriatricians should be educated on cancer-specific considerations for GA

GERIATRIC ONCOLOGY

Multiple models of care

Just like geriatric patients, geriatric oncology models of care are heterogeneous and need to be adapted to specific situations – and many mix different models.

- Screen and referral
- Primary Care Provider
- Multidisciplinary consultative
- Geriatrics driven and embedded consultative model

GERIATRIC ONCOLOGY SERVICES

Example 1: Institut Jules Bordet, ULB

New diagnosis
or
New treatment
(medical oncologists, radiotherapists, surgeons)

Systematic G8
If G8 ≤14

Comprehensive Geriatric Assessment (CGA)

Online written report with
• Geriatric syndromes
• Comorbidities
• Prognosis scores (Lee)
• Surgical risk (Am Coll Surgeons-ACS)
• Chemotherapy risk (CARG)
• Stop/Start criteria

Recommendations
• Physical therapist
• Clinical nutritionist
• Geriatric consultation
• Social worker assistance
• Occupational therapist
• Psychologist, etc

Interdisciplinary discussion (weekly)
Oncologist
Geriatric nurse
Neuropsychologist
Geriatrician
Clinical pharmacist

+ Geriatric Oncology Unit for hospitalised patients
GERIATRIC ONCOLOGY SERVICES

Example 2: CARE Clinic – University of Ohio

Pre-clinic review of cancer diagnosis, treatment, toxicities
Hospitalization utilization audit
Chart audit of geriatric risk factors (polypharmacy, falls, etc.)

TEAM

RN

MD Room 1

Audiology Room 2

Pharmacy Room 3

PCRM Room 6

PT Room 5

Nutrition Room 4

= start here

Summary of Assessment: Educate and Implement Plan

<table>
<thead>
<tr>
<th>MD</th>
<th>Audiology</th>
<th>Pharmacy</th>
<th>Nutrition</th>
<th>Physical therapist</th>
<th>Case manager</th>
<th>Cognition</th>
</tr>
</thead>
</table>

Primary Hematologist/Oncologist

Patient & Caregiver

Primary Care Physician

CLINICAL CASES
Breast cancer
CLINICAL CASE 1

Triple-negative early breast cancer

76-year-old woman

Left breast lump of 4 cm by echography (4.5 on examination), with no axillary lymph nodes (T2N0)

Tumour biopsy: invasive ductal carcinoma, grade 2, Ki67 60%, HR neg, HER2 neg (TNBC)

Staging and Labs: thorax-abdomen CT and bone scan without evidence of distant metastasis, CA 15.3:19, lab results with slight anaemia (decreased folic acid), GFR 60 mL/min 1.73 m², normal hepatic function, slight hyponatremia

The surgeon would like to propose up-front mastectomy; surgeon is afraid that patient is not « fit » for neoadjuvant chemotherapy…
CLINICAL CASE 1
Comorbidities and medications

Hypertension
Osteoarthritis
Osteoporosis (no history of falls/fractures) → confirmed by DXA
Depression

Current treatment:
- Bisoprolol + HCZ
- Calcium occasionally
- Escitalopram 10 mg
- Aspirin

No alcohol consumption, passive smoking for 40 years; no familial history of cancer
CLINICAL CASE 1
Clinical case – Geriatric assessment

Widow, worked in a pub, secondary education

Frailty for:
- IADL (independent activities of daily living; Lawton): dependent for groceries, cleaning the house, preparation of meals/medications, payment of bills, going out
- Fatigue (visual scale: 8/10)

Vulnerability for:
- Nutrition: MNA (10/14 points) \(\rightarrow\) weight loss, psychological stress and decreased mobility in the last 3 months
- Cognition: MMSE 25/30 (memory, concentration, clock-drawing test)
- Anxiety/depression: abnormal HADS and GDS scores

Fit for:
- Activities of daily living (ADLs; self-care tasks)
- Social aspects: family support (living with her daughter), primary care physician

GDS, Geriatric Depression Scale; HADS, Hospital Anxiety and Depression Scale; MMSA, Mini Mental State Examination; MNA, Mini Nutritional Assessment.
CLINICAL CASE 1
CARG Score grade 3-5 standard poly-CT

Chemo-Toxicity Calculator Results

Patient Total Risk Score: 8
Patient Toxicity Risk: 59%

Using the predictive model for treatment-related toxicity in older adults (Hurria et al, Journal of Clinical Oncology, 2011), this patient has a 59% risk of grade 3-5 toxicity.

<table>
<thead>
<tr>
<th>Toxicity Factor/Question</th>
<th>Value/Response</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Patient's Age</td>
<td>Age &gt;= 72</td>
<td>2</td>
</tr>
<tr>
<td>Cancer Type</td>
<td>Other</td>
<td>0</td>
</tr>
<tr>
<td>Dosage</td>
<td>Standard dose</td>
<td>2</td>
</tr>
<tr>
<td>Number of chemotherapy agents</td>
<td>Poly-chemo therapy</td>
<td>2</td>
</tr>
<tr>
<td>Hemoglobin</td>
<td>≥10 gr/dL</td>
<td>0</td>
</tr>
<tr>
<td>How is your hearing (with a hearing aid, if needed)?</td>
<td>Excellent</td>
<td>0</td>
</tr>
<tr>
<td>Number of falls in the past 6 months?</td>
<td>None</td>
<td>0</td>
</tr>
<tr>
<td>Can you take your own medicines?</td>
<td>With some help (able to take medicine if someone prepares it for you and/or reminds you to take it)</td>
<td>1</td>
</tr>
<tr>
<td>Does your health limit you in walking one block?</td>
<td>Not limited at all</td>
<td>0</td>
</tr>
<tr>
<td>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.)?</td>
<td>Most of the time</td>
<td>1</td>
</tr>
<tr>
<td>Creatinine Clearance</td>
<td>53</td>
<td>0</td>
</tr>
</tbody>
</table>

CLINICAL CASE 1
CARG Score – Poly-CT dose reduced or Single Agent CT

Chemo-Toxicity Calculator Results

Patient Total Risk Score: 6
Patient Toxicity Risk: 44%

Using the predictive model for treatment-related toxicity in older adults (Hurria et al, Journal of Clinical Oncology, 2011), this patient has a 44% risk of grade 3-5 toxicity.

<table>
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<tr>
<th>Toxicity Factor/Question</th>
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<tbody>
<tr>
<td>Patient's Age</td>
<td>Age &gt;= 72</td>
<td>2</td>
</tr>
<tr>
<td>Cancer Type</td>
<td>Other</td>
<td>0</td>
</tr>
<tr>
<td>Dosage</td>
<td>Dose reduced</td>
<td>0</td>
</tr>
<tr>
<td>Number of chemotherapy agents</td>
<td>Poly-chemo therapy</td>
<td>2</td>
</tr>
<tr>
<td>Hemoglobin</td>
<td>≥10 g/dL</td>
<td>0</td>
</tr>
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<td>How is your hearing (with a hearing aid, if needed)?</td>
<td>Excellent</td>
<td>0</td>
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<td>Number of falls in the past 6 months?</td>
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<td>With some help (able to take medicine if someone prepares it for you and/or reminds you to take it)</td>
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<td>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.)?</td>
<td>Most of the time</td>
<td>1</td>
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<tr>
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<td>53</td>
<td>0</td>
</tr>
</tbody>
</table>

CARG-BC SCORE

More specificity → CARG-BC toxicity score in adjuvant setting

501 patients stages I-III (300 development and 201 validation cohort).

To develop and validate a CARG-BC-specific adjuvant CT tox score for older patients

Added variables: treatment duration (> or ≤3 mo), anthracyclines (yes/no), normal or abnormal liver function, ability to walk a mile, availability of someone to provide advice

KPS was not associated with grade 3–5 toxicities

A higher CARG-BC score was associated with dose delay/reduction, CT discontinuation, hospitalisation, and relative dose intensity

CARG-BC score for this case of early TNBC: 5 (low-risk)
PREDICT TOOL – 5-YEAR OS

Lee Score – 4-YEAR MORTALITY

Select number of years since surgery you wish to consider:

This chart shows the percentage of women who survive at least 5 years after surgery.

- Survival rate excluding deaths from breast cancer
- All of the below plus chemotherapy brings survival to 67% at 5 years.
- Surgery only survival is 62% at 5 years.

Points | Risk of 4 year mortality
---|---
0-3 | < 5%
4-6 | 6-9%
7-8 | 15-20%
9-10 | 20-28%
11-12 | 44-45%
13 | 59%
14+ | 64%

CLINICAL CASE 1

Summary of relevant information

CARG chemotherapy toxicity risk score G3-G5:
- 59% with polychemotherapy, standard dose (medium–high)
- 44% with reduced dose polychemotherapy, or standard dose single agent chemotherapy, (medium–low)

CARG-BC toxicity score:
- 5: low risk

Predict:
- OS BC: 62% 5 years, 42% 10 years
- CT benefit: 5% at 5 years and 4% at 10 years > OS 67% and 46%, respectively

Lee score overall mortality risk:
- 4-year: 20–28%
- 10-year: 52–58%
CLINICAL CASE 1
Shared decision making

Four components to assessing capacity
1. Understands the relevant information
2. Appreciate their situation
3. Uses reason to make a decision
4. Communicates their choice

If yes: assessment of patient’s goals and values regarding management of cancer (are the patient’s goals and values consistent with wanting anti-cancer treatment?)

CGA, prognostic/predictive tools
Risks and benefits of CT

Option of no CT and ttx mastectomy, LNS and RT and follow-up

Treatment choice: patient’s preference
No CT because of CT toxicity risks
CLINICAL CASE 1

Key Learning Points

Age alone should not be used for decision making

CGA and validated scores contribute substantially to decision-making process in older patients

Chemotherapy toxicity and competing causes of death vs small CT benefit in older patients should be well evaluated

Patient’s preference is an important element of the decision-making process
CLINICAL CASE 2

Diagnosis

73-year-old woman

Right breast lump of 35 mm by MRI, with a palpable lymph node (T2N1)

Tumour biopsy: invasive ductal carcinoma, grade 3, Ki67 50%, ER 8/8 PgR 4/8 , HER2 1+ (luminal B)

Lymph node positive on cytopathology

Staging: thorax-abdomen CT and bone scans without evidence of distant metastasis, CA 15-3: 15, lab results normal (no anaemia, creatinine clearance 83 mL/min)
CLINICAL CASE 2
Summary findings for decision neoadjuvant treatment vs surgery

G8: 14/17
CGA: no vulnerabilities, polymedication (7 drugs: for hypertension, hypothyroidism, insomnia, and hypercholesterolemia)

Lee score mortality risk:
- 4 years = 6–9%
- 10 years = 15–23% (at 10 years inferior to BC mortality risk)

CARG score: 44% (medium-risk score)
CARG-BC score: 5 (low-risk score)
CLINICAL CASE 2

Lee score\(^1\)

<table>
<thead>
<tr>
<th>Points</th>
<th>Risk of 4-year mortality</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-3</td>
<td>&lt; 1%</td>
</tr>
<tr>
<td>4-6</td>
<td>6-9%</td>
</tr>
<tr>
<td>7-8</td>
<td>15-20%</td>
</tr>
<tr>
<td>9-10</td>
<td>20-28%</td>
</tr>
<tr>
<td>11-12</td>
<td>44-49%</td>
</tr>
<tr>
<td>13</td>
<td>59%</td>
</tr>
<tr>
<td>14+</td>
<td>64%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Points</th>
<th>Risk of 10-year mortality</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-1</td>
<td>&lt; 3%</td>
</tr>
<tr>
<td>2-3</td>
<td>3-7%</td>
</tr>
<tr>
<td>4-6</td>
<td>13-22%</td>
</tr>
<tr>
<td>6-7</td>
<td>34-43%</td>
</tr>
<tr>
<td>0-9</td>
<td>52-68%</td>
</tr>
<tr>
<td>10-11</td>
<td>70-82%</td>
</tr>
<tr>
<td>12-13</td>
<td>83-91%</td>
</tr>
<tr>
<td>14+</td>
<td>92%</td>
</tr>
</tbody>
</table>

CARG score\(^2\)

Patient Total Risk Score: 6
Patient Toxicity Risk: 44%

Using the predictive model for treatment-related toxicity in older adults, Amin et al., Journal of Clinical Oncology, 2011’s, this patient has a 44% risk of grade 3-5 toxicity.

<table>
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<td>2</td>
</tr>
<tr>
<td>Cancer Type</td>
<td>Other</td>
<td>0</td>
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<tr>
<td>Dosage</td>
<td>Standard dose</td>
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</tr>
<tr>
<td>Hemoglobin</td>
<td>≥ 10 g/dL</td>
<td>0</td>
</tr>
<tr>
<td>How is your hearing (with or without a hearing aid, if needed)?</td>
<td>Good</td>
<td>0</td>
</tr>
<tr>
<td>Number of falls in the past 6 months?</td>
<td>None</td>
<td>0</td>
</tr>
<tr>
<td>Can you take your own medicines?</td>
<td>Without help (in the right doses at the right time)</td>
<td>0</td>
</tr>
<tr>
<td>Does your health limit you in walking one block?</td>
<td>Not limited at all</td>
<td>0</td>
</tr>
<tr>
<td>During the past 3 weeks, how much of the time has your physical health or emotional problems interfered with your social activities (like visiting with friends, relatives, HIV?)</td>
<td>None of the time</td>
<td>0</td>
</tr>
<tr>
<td>Creatinine Clearance</td>
<td>59</td>
<td>0</td>
</tr>
</tbody>
</table>
PREDICT SCORE

Select number of years since surgery you wish to consider:

This chart shows the percentage of women who survive at least 5 years after surgery.

- 80% survive at least 5 years
- 72% survival rate excluding deaths from breast cancer

- All of the below plus chemotherapy brings survival to 80% at 5 years.
- Hormone therapy brings survival to 77% at 5 years.
- Surgery only survival is 72% at 5 years

Press and hold for another decimal place to see how the numbers add up.

Select number of years since surgery you wish to consider:

This chart shows the percentage of women who survive at least 10 years after surgery.

- 54% survive at least 10 years
- 41% survival rate excluding deaths from breast cancer

- All of the below plus chemotherapy brings survival to 54% at 10 years.
- Hormone therapy brings survival to 50% at 10 years.
- Surgery only survival is 41% at 10 years

Press and hold for another decimal place to see how the numbers add up.

CLINICAL CASE 2
Genomic testing

RXPONDER Schema

**Key Entry Criteria**
- Women age ≥ 18 yrs
- ER and/or PR > 1%, HER2- breast cancer with 1*-3 LN+ without distant metastasis
- Able to receive adjuvant taxane and/or anthracycline-based chemotherapy
- Axillary staging by SLNB or ALND

**Stratification Factors**
- Recurrence Score: 0-13 vs. 14-25
- Menopausal Status: pre vs. post
- Axillary Surgery: ALND vs. SLNB

Arm 1: Chemotherapy Followed by Endocrine Therapy
Arm 2: Endocrine Therapy Alone

N = 5,000 pts

447 observed IDFS events (54% of expected at final analysis) at a median follow-up of 5.1 years.
CLINICAL CASE 2
Summary of relevant information

CARG chemotherapy toxicity risk score G3-G5:
- 44% with polychemotherapy, standard dose (medium-low)

CARG-BC toxicity score:
- 5: low risk; 10: high risk (if anthracyclines and >3 mo CT)

Predict:
- OS BC: 72% 5 years, 41% 10 years
- CT benefit: 2.6% at 5 years and 4.6% at 10 years → OS 90% and 74%, respectively

Lee score overall mortality risk:
- 4-year: 6–9%
- 10-year: 15–23%
CLINICAL CASE 2
A Phase 2 study of Adjuvant PALbociclib as an Alternative to CHemotherapy in Elderly patients with high-risk ER+/HER2- early breast cancer (APPALACHES): EORTC 1745

- Stage II-III ER+ HER2- early breast cancer
- Age ≥70 years
- Adjuvant chemotherapy indicated and feasible
- Combination of anthracycline and taxanes not indicated
- WHO PS ≤2
- Informed consent

Stratification by
- Stage (II vs III)
- Planned radiotherapy
- Frailty (G8 >14 vs ≤14 )

Adjuvant chemo choice:
- 4 TC + G-CSF
- 4 EC or AC + G-CSF
- 12 paclitaxel weekly

Primary endpoint
3-year DRFI (distant metastases or death from breast cancer) for experimental arm
- 3-year DRFI of <88% is unacceptable.
- 3-year DRFI of ≥93% is success

A. Standard adjuvant endocrine treatment for at least 5 years + palbociclib for up to 2 years
B. Adjuvant chemotherapy followed by standard adjuvant endocrine treatment for at least 5 years
CLINICAL CASE 2
Shared decision making

Four components to assessing capacity
1. Understands the relevant information
2. Appreciate their situation
3. Uses reason to make a decision
4. Communicates their choice

If yes: assessment of patient’s goals and values regarding management of cancer
(are the patient’s goals and values consistent with wanting anti-cancer treatment?)

CGA, prognostic/predictive tools
Risks and benefits of CT

Decision: because limited benefit of CT and potential side-effects, patient’s preference was to perform BCS +SNB > ALND

Ductal invasive carcinoma, 35 mm, G3, Ki67 40%, HR+, HER2 neg > T2N1 (1 pos LN)
CLINICAL CASE 2

Key learning points

With more limited benefit of CT in this case of luminal BC, another treatment option was considered inside a clinical trial potentially avoiding CT toxicity.

Trials focused on older patients, testing strategies that are specific to this population are vital.
CLINICAL CASE 3

75-year-old woman

Right breast lump of 23 mm by MRI, no axillary lymph nodes, presence of lung and liver metastasis (cT2N0M1)

**Biopsy:** ductal invasive carcinoma, grade 2, Ki67 50%, HR neg, HER2 2+, FISH amplified

**Comorbidities:** hypertension, osteoarthrosis, oesophageal reflux disease

**ECOG PS = 2**

**G8: 12/17**

**CGA:** frail for falls (>1 last year), osteoporosis, mobility (Timed Up and Go: 18 s)

**Interventions:** Tinetti test, physiotherapy for resistance exercises and balance training, osteoporosis treatment (calcium, vitamin D and bisphosphonates)
**Chemo-Toxicity Calculator Results**

**Patient Total Risk Score: 12**  
**Patient Toxicity Risk: 82%**

Using the predictive model for treatment-related toxicity in older adults (Hurria et al, Journal of Clinical Oncology, 2011), this patient has a 82% risk of grade 3-5 toxicity.

<table>
<thead>
<tr>
<th>Toxicity Factor/Question</th>
<th>Value/Response</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Patient's Age</td>
<td>Age &gt;= 72</td>
<td>2</td>
</tr>
<tr>
<td>Cancer Type</td>
<td>Other</td>
<td>0</td>
</tr>
<tr>
<td>Dosage</td>
<td>Standard dose</td>
<td>2</td>
</tr>
<tr>
<td>Number of chemotherapy agents</td>
<td>Poly-chemo therapy</td>
<td>2</td>
</tr>
<tr>
<td>Hemoglobin</td>
<td>≥10 g/dL</td>
<td>0</td>
</tr>
<tr>
<td>How is your hearing (with a hearing aid, if needed)?</td>
<td>Good</td>
<td>0</td>
</tr>
<tr>
<td>Number of falls in the past 6 months?</td>
<td>1 or more</td>
<td>3</td>
</tr>
<tr>
<td>Can you take your own medicines?</td>
<td>Without help (in the right doses at the right time)</td>
<td>0</td>
</tr>
<tr>
<td>Does your health limit you in walking one block?</td>
<td>Limited a little</td>
<td>2</td>
</tr>
<tr>
<td>During the past 4 weeks, how much of the time has your</td>
<td>Some of the time</td>
<td>1</td>
</tr>
<tr>
<td>physical health or emotional problems interfered with your</td>
<td></td>
<td></td>
</tr>
<tr>
<td>social activities (like visiting with friends, relatives,</td>
<td></td>
<td></td>
</tr>
<tr>
<td>etc.)?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Creatinine Clearance</td>
<td>63</td>
<td>0</td>
</tr>
</tbody>
</table>
PERTUZUMAB + TRASTUZUMAB (PH) PLUS METRONOMIC CT (PHM)
In older HER2+ MBC with T-DM1 at progression (EORTC 75111-10114)

N= 80 (open-label, randomised, late Phase 2 study)
Patients ≥70 years or ≥60 years with functional restriction (IADL) or Charlson score >2
HER-2 (+) MBC
No previous CT for M+ disease

Primary end-point:
PFS at 6 months (null hypothesis: equal PFS between the 2 arms)

Secondary endpoints:
OS, BCFS, toxicity, RR, geriatric evaluation, QoL
EORTC 75111 TRIAL RESULTS

<table>
<thead>
<tr>
<th>Trastuzumab + Pertuzumab (TP)</th>
<th>Cyclophosphamide + Trastuzumab + Pertuzumab (CTP)</th>
<th>T-DM1 (following CTP)</th>
</tr>
</thead>
<tbody>
<tr>
<td>44%</td>
<td>53%</td>
<td>13%</td>
</tr>
<tr>
<td>5.6</td>
<td>12.7</td>
<td>5.0</td>
</tr>
</tbody>
</table>

ORR △ 11%

PFS △ 7.1 months

- Lower median PFS with CTP than in taxane + TP (12.7 vs 18.5 months)
- Adding cyclophosphamide to pertuzumab + trastuzumab is a valid alternative for older patients with contra-indication to taxanes

**Important:** In countries in which pertuzumab is not available, the use of trastuzumab only in combination with weekly paclitaxel is a valid option

CLINICAL CASE 3
Shared decision making

Four components to assessing capacity
1. Understands the relevant information
2. Appreciate their situation
3. Uses reason to make a decision
4. Communicates their choice

If yes: assessment of patient’s goals and values regarding management of cancer (are the patient’s goals and values consistent with wanting anti-cancer treatment?)

If yes: assessment of risk factors, CGA (comorbidities and geriatric syndromes: falls osteoporosis, sarcopenia)

Option of treatment without taxanes (CTP) to avoid neuropathy and keep a median-low CARG risk score
CLINICAL CASE 3

Key learning points

CGA and validated scores (CARG) contribute substantially to decision making in older patients

Less toxic treatment regimens emerging from randomised clinical trials that included older and frail patients
CLINICAL CASES

Lung cancer
SOME REMINDERS ABOUT LUNG CANCER

Median age at diagnosis: 70 years; 10% aged >84 years

~50% diagnosed at a metastatic stage

Key novelties: targetable mutations, immunotherapy, platin-based doublets

73-YEAR-OLD WOMAN WITH A RIGHT SUPRACLAVICULAR NODE

Supraclavicular biopsy on 19th June 2015
Never smoker; previous clothes seller
BMI: 20.6
Good condition (PS 1)
Loss of 6.5 kg in 1 year, attributed to the death of her mother (?)
Comorbidities: hypothyroidism with hormone replacement
No cognitive impairment, no appetite loss, no depression
No apparent vulnerabilities
However, G8 only 11/17
CT-SCAN 16TH JUNE 2015

Right supra-clavicular nodes

Nodule of right anterior segment of RUL

With permission from Prof Elisabeth Quoix
PET-SCAN 24\textsuperscript{TH} JULY 2015
(AFTER SUPRACLAVICULAR NODE RESECTION)

Hyperfixation of:
the nodule,
the right laterotrachal and subcarinal nodes,
a liver nodule,
T11, L2 and 3\textsuperscript{rd} left rib

Supraclavicular lymph node biopsy:
Adenocarcinoma
No \textit{EGFR, KRAS, BRAF} mutation
ALK rearrangement (IHC + FISH)
TREATMENT WITH CRIZOTINIB
2 X 250 MG/D STARTED ON 1ST AUGUST 2015

24th July 2015

29th Oct 2015

With permission from Prof Elisabeth Quoix
HOSPITALISATION ON 30<sup>TH</sup> JANUARY 2016
FOR FEVER AND LEFT PSOITIS

Renal cysts:
- Reported incidence: From 4% to 22% in clinical trials<sup>1</sup>
- 16% in another study with either development or growth of pre-existing cysts after a median length of treatment of 9.9 months<sup>2</sup>
- Female sex, pre-existing renal cysts associated with incidence or growth of renal cysts<sup>2</sup>
- Mostly incidental radiologic finding but may invade extrarenal spaces and be symptomatic<sup>1,2</sup>

No pre-existing renal cyst in our patient
Drainage of the psoas abscess under CT scan
Stop crizotinib. Introduction of ceritinib 5 x 150 mg/d
Liver perturbations and severe diarrhoea, weight loss of 6 kg (45 kg)
Stop ceritinib for a few days and then schedule reduced to 3 x 150 mg/d permanently
The patient developed hypertension and renal insufficiency (creatinine clearance 39 mL/min)

Image: With permission from Prof E. Quoix.
PET-SCAN 19TH JUNE 2020

Still in very good partial remission
Under ceritinib, 3 x 150 mg/d (modification of treatment after occurrence of renal and perirenal cysts as a complication of crizotinib):
Last news: March 2021 (6 years' survival)
Weight 50 kg
PS 1
No cognitive impairment, perfectly autonomous
Has occasional diarrhoea related to ceritinib
NSCLC WITH ALK REARRANGEMENT

Younger patients than usual, but not rare in elderly patients, especially women, never smokers (55 to 100%)

Slight female predominance

Majority of adenocarcinomas (82 to 97%)

Frequency of 4 to 5% NSCLC, 13% in enriched populations with above criteria

Barlesi F. Routine molecular profiling of patients with advanced non-small-cell lung cancer: results of a 1-year nationwide programme of the IFCT. Lancet 2016;
ALK TRANSLOCATIONS: EPIDEMIOLOGY

114 patients with ALK translocation in Alsace (north-eastern region of France)
Diagnosis between Jan 2012 and Dec 2016
Median age at diagnosis: 60.4 years (19–89)
49 men, 65 women

Gschwend A. Medical thesis 251, Faculty of Medicine, University of Strasbourg (Strasbourg); 2017, 108 p.

Female predominance after 65 years

Important message: even if median age is lower than usual with lung cancer, do not forget to look for ALK rearrangements in older patients, especially females!
MR REB... EMILE, 81 YEARS

Lumbar pain worsening since October 2017 despite oral morphine
CT scan on 19th January 2018 showing osteolysis of L2 and partially L3, T11
Tumoural mass of RUL with numerous pulmonary micronodules

Previously a metal engraver in textile industry, then a policeman
No asbestos exposure but was to chromic acid
Ex-smoker: 4 cigarettes/day for 5 years (1 pack-year) from the age of 18 to 23
Comorbidities: hypertension, hypercholesterolemia. Previous prostatectomy for adenocarcinoma (no relapse)
Widowed, one daughter taking care of him. Totally autonomous and very active until October 2017 (beekeeper since retirement)
Weight loss: 8 kg. BMI: 22.4
PS 3 on admission. G8 score: 9.5/17
FIRST CT-SCAN 19TH JAN 2018

Right upper lobe mass and multiple micronodules in both lungs osteolytic L2 metastasis

With permission from Prof Elisabeth Quoix.
MR REB… EMILE, 80 YEARS
Dorso-lumbar RMI 15th Feb 2018

Radiofrequency and cimentoplasty of L2
Biopsy of the RUL mass: adenocarcinoma
L858R mutation in exon 21 of EGFR
Further weight loss from 61 kg on 15th Feb to 56 kg on 7th March

No need to take into account PS and G8 score for patients with EGFR mutations because of Lazare’s syndrome often observed
Start of gefitinib on 7th March 2018

With permission from Prof Elisabeth Quoix.
AFTER START OF GEFITINIB 7TH MARCH 2018

With permission from Prof Elisabeth Quoix.
EVOLUTION UNDER GEFITINIB
MARCH 2018 – JUNE 2019

Rapid improvement in general condition
Moderate facial rash and papular eruption on torso (grade 1)
Nausea that persisted after discontinuation of oral morphine, replaced by paracetamol + Fentanyl patches 25 µg/72 h and then 12 µg/72 h
No liver perturbation
CT scan improvement in June 2018 and further improvement in December 2018
Relapse in June 2019 with weight loss (~3 kg), PS 2, more pulmonary micronodules on CT scan, appearance of multiple liver metastases, worsening of bone metastases
Stable RUL mass, many more micronodules, new bone lesions, numerous liver metastases

With permission from Prof Elisabeth Quoix.
FURTHER EVOLUTION

Liquid biopsy: T790M mutation on exon 20 of EGFR
Stop gefitinib and treatment with osimertinib 80 mg/day
In October 2019: very good partial response (liver and bones)
Pulmonary micronodules and tumoural mass stable
PS 1 but no weight gain (56 kg)
Treatment well tolerated clinically and biologically

Relapse in Feb 2020 with new bone lesions (T12) with anterior epiduritis, numerous liver metastases, more pain, although PS 1
Multidisciplinary team decision: stop osimertinib, cimentoplasty of T12 then RT T11-L1 (8 Gys, 1 fraction, 11th March 2020)
Liver biopsy to rule out any histological change towards small-cell lung cancer: adenocarcinoma with L858R EGFR mutation, no T790M mutation
FURTHER EVOLUTION

Sudden diplopia in April 2020: left clivus metastasis
RT (23 Gys, 3 fractions 7.7 Gys end of May)
3rd line therapy: carboplatin + weekly paclitaxel (D1: 16th April)
Anaemia, weight loss (50 kg), fall at home: switch to a single-agent therapy
4th-line therapy: Pemetrexed (500 mg/m²): C1 on 16th June 2020
Febrile neutropenia (110 neutrophils/µL)
Hospitalisation for 10 days, anaemia 8 g/dL requiring blood transfusion
4 more cycles until end of September with dose reduction 20%
Partial response
8th October 2020: progression of liver metastases, adrenal metastasis, osteocondensation of the clivus lesion with no more leptomeningeal involvement
PS 4, weight loss (45 kg). Death on 24th November 2020 after 33 months

With permission from Prof Elisabeth Quoix.
**Chemo-Toxicity Calculator Results**

Patient Total Risk Score: 13  
Patient Toxicity Risk: 86%

Using the predictive model for treatment-related toxicity in older adults (Hurria et al, Journal of Clinical Oncology, 2011), this patient has a 86% risk of grade 3-5 toxicity.

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<td>Poly-chemo therapy</td>
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<td>Hemoglobin</td>
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<td>How is your hearing (with a hearing aid, if needed)?</td>
<td>Good</td>
<td>0</td>
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<td>Number of falls in the past 6 months?</td>
<td>1 or more</td>
<td>3</td>
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<tr>
<td>Can you take your own medicines?</td>
<td>With some help (able to take medicine if someone prepares it for you and/or reminds you to take it)</td>
<td>1</td>
</tr>
<tr>
<td>Does your health limit you in walking one block?</td>
<td>Limited a lot</td>
<td>2</td>
</tr>
<tr>
<td>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.)?</td>
<td>Most of the time</td>
<td>1</td>
</tr>
<tr>
<td>Creatinine Clearance</td>
<td>63</td>
<td>0</td>
</tr>
</tbody>
</table>

OCTOMUT: USE OF EGFR TKIS IN OCTOGENARIANS

A real-life multicentric study

<table>
<thead>
<tr>
<th>N = 114</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Age (years), mean (SD)</strong></td>
</tr>
<tr>
<td>83.9 (3.9)</td>
</tr>
<tr>
<td><strong>Women, n (%)</strong></td>
</tr>
<tr>
<td>88 (77.2)</td>
</tr>
<tr>
<td><strong>Body mass index (kg/m²)</strong></td>
</tr>
<tr>
<td><strong>Mean (SD)</strong></td>
</tr>
<tr>
<td>24.5 (3.9)</td>
</tr>
<tr>
<td><strong>Leanness</strong></td>
</tr>
<tr>
<td>2 (2.4)</td>
</tr>
<tr>
<td><strong>Normal</strong></td>
</tr>
<tr>
<td>66 (55.4)</td>
</tr>
<tr>
<td><strong>Overweight</strong></td>
</tr>
<tr>
<td>27 (22.5)</td>
</tr>
<tr>
<td><strong>Obesity</strong></td>
</tr>
<tr>
<td>8 (9.0)</td>
</tr>
<tr>
<td><strong>MD</strong></td>
</tr>
<tr>
<td>31</td>
</tr>
<tr>
<td><strong>Caucasians, n (%)</strong></td>
</tr>
<tr>
<td>112 (98.3)</td>
</tr>
<tr>
<td><strong>Non-smokers, n (%)</strong></td>
</tr>
<tr>
<td>87 (76.3)</td>
</tr>
<tr>
<td><strong>Performance status, n (%)</strong></td>
</tr>
<tr>
<td><strong>0–1</strong></td>
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<tr>
<td>73 (65.6)</td>
</tr>
<tr>
<td><strong>2–3</strong></td>
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<td>29 (28.4)</td>
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<tr>
<td><strong>MD</strong></td>
</tr>
<tr>
<td>12</td>
</tr>
<tr>
<td><strong>Number of medications, n (%)</strong></td>
</tr>
<tr>
<td><strong>0–2</strong></td>
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<tr>
<td>25 (23.6)</td>
</tr>
<tr>
<td><strong>3–5</strong></td>
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<tr>
<td>41 (38.7)</td>
</tr>
<tr>
<td><strong>≥6</strong></td>
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<tr>
<td>40 (37.8)</td>
</tr>
<tr>
<td><strong>MD</strong></td>
</tr>
<tr>
<td>8</td>
</tr>
<tr>
<td><strong>Way of life, n (%)</strong></td>
</tr>
<tr>
<td><strong>Alone at home</strong></td>
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<tr>
<td>94 (80.4)</td>
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<tr>
<td><strong>Retirement home</strong></td>
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<tr>
<td>19 (16.0)</td>
</tr>
<tr>
<td><strong>MD</strong></td>
</tr>
<tr>
<td>10</td>
</tr>
<tr>
<td><strong>Charlson comorbidity index performed, n (%)</strong></td>
</tr>
<tr>
<td>16 (14.0)</td>
</tr>
<tr>
<td><strong>Geriatric assessment performed, n (%)</strong></td>
</tr>
<tr>
<td>40 (55.5)</td>
</tr>
</tbody>
</table>

Similar outcomes to what is observed in younger counterparts

Response rate: 63.3% (69/109)
Median PFS: 11.9 months (8.6–14.7)
Median survival: 20.9 months (14.3–27.1)

3<sup>RD</sup> CLINICAL CASE
MR GAN... BERNARD, 80-YEARS-OLD

Former Company Director
Former smoker (30 pack-years)
Dry cough for 1 month
89 kg; 184 cm; BMI: 26.3; PS 1

CT-scan: left upper lobe mass (7x9x9 cm with parietal pleura involvement and pericardiac involvement
Bronchial biopsy: adenocarcinoma
KRAS mutation
Stadification T4N2M1a
12 medications/day for hypertension, diabetes, auricular flutter and age-related macular degeneration

With permission from Prof Elisabeth Quoix.
MULTIDISCIPLINARY TEAM PROPOSITION

CT with carboplatin + weekly paclitaxel
C1 D1: 25th October 2017
C2 D1: 28th November 2017

Brain, thoracic and abdominal CT-scan on 21st December 2017: partial response
Improved general condition
Grade 1 paresthesias of fingers (due to paclitaxel in a diabetic patient)
C3D1: 27th December 2017
C4 D1: 23rd January 2018

Pet-Scan 7th March 2018: persistence of a partial response
Left upper lobectomy 14th March 2018
Adenocarcinoma with 70% expression of PDL1
Staging ypT4N2M1a

With permission from Prof Elisabeth Quoix.
CHEMOTHERAPY FOR ELDERLY PATIENTS WITH ADVANCED NSLC FROM NIHILISM TO REASONABLE HOPE

Vinorelbine vs best supportive care: an historical trial¹

191 patients ≥70 years old
Vinorelbine
30 mg/m² D1–D8 q3w, max 6 cycles
Improved QoL

MST 28 vs 21 weeks
1-year survival: 32 vs 14%

IS A PLATIN-BASED DOUBLET FEASIBLE IN ELDERLY PATIENTS?

The IFCT-0501 Study: Design

- NSCLC Stage III-IV
- Age 70–89 years
- PS 0-2
- n=451

Vinorelbine 30 mg/m² or Gemcitabine*
1150 mg/m²
D1,8 q3w. 5 cycles

Carboplatin AUC 6 +
Paclitaxel 90 mg/m² D1,8,15 q4w
4 cycles

Erlotinib**
150 mg/d

Stratification: centre, PS 0-1 vs. 2, age ≤80 vs. >80, stage III vs. IV

*Choice of the treatment facility at the beginning of the study. **In case of PD or excessive toxicity.
OVERALL SURVIVAL (ITT)

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>All Patients (N=451)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>333 (73.8)</td>
</tr>
<tr>
<td>Median age, y</td>
<td>77.1</td>
</tr>
<tr>
<td>PS 0-1</td>
<td>327 (72.7)</td>
</tr>
<tr>
<td>Histology: ADC</td>
<td>229 (50.8)</td>
</tr>
<tr>
<td>Never smoker</td>
<td>94 (20.9)</td>
</tr>
</tbody>
</table>

Data are n (%), unless otherwise stated

No difference between the groups

<table>
<thead>
<tr>
<th>OS</th>
<th>Single arm (n=226)</th>
<th>Doublet arm (n=225)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Median</td>
<td>6.2 mo. (5.3; 7.4)</td>
<td>10.3 mo. (8.3; 12.6)</td>
</tr>
<tr>
<td>1-year (95% CI)</td>
<td>25.4% (19.9, 31.3)</td>
<td>44.5% (37.9, 50.9)</td>
</tr>
</tbody>
</table>

HR: 0.64 (95% CI: 0.52, 0.78; p<0.0001)

GERIATRIC INDEXES: PROGNOSTIC BUT NOT PREDICTIVE

<table>
<thead>
<tr>
<th>Variable</th>
<th>No. of patients</th>
<th>Univariate Hazard Ratio (95% CI)</th>
<th>p-value</th>
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</thead>
<tbody>
<tr>
<td>Performance status</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>0-1</td>
<td>327</td>
<td>0.631 (0.494-0.806)</td>
<td>0.0002</td>
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<tr>
<td>2-3</td>
<td>123</td>
<td>0.626 (0.431-0.910)</td>
<td>0.0141</td>
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<tr>
<td>Age</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>≤80 yr</td>
<td>337</td>
<td>0.676 (0.533-0.857)</td>
<td>0.0012</td>
</tr>
<tr>
<td>&gt;80 yr</td>
<td>114</td>
<td>0.534 (0.357-0.799)</td>
<td>0.0022</td>
</tr>
<tr>
<td>Histology</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ADC</td>
<td>229</td>
<td>0.734 (0.546-0.986)</td>
<td>0.0397</td>
</tr>
<tr>
<td>Squamous-Other</td>
<td>222</td>
<td>0.517 (0.387-0.692)</td>
<td>0.00009</td>
</tr>
<tr>
<td>Smoking status</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Never smoker</td>
<td>94</td>
<td>0.650 (0.400-1.056)</td>
<td>0.0818</td>
</tr>
<tr>
<td>Smoker</td>
<td>356</td>
<td>0.621 (0.495-0.778)</td>
<td>0.00036</td>
</tr>
<tr>
<td>Weight loss ≤5%</td>
<td>203</td>
<td>0.610 (0.443-0.839)</td>
<td>0.0023</td>
</tr>
<tr>
<td>&gt;5%</td>
<td>241</td>
<td>0.726 (0.553-0.953)</td>
<td>0.0209</td>
</tr>
<tr>
<td>Mini Mental score</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>&lt;23</td>
<td>88</td>
<td>0.650 (0.419-1.008)</td>
<td>0.0541</td>
</tr>
<tr>
<td>≥23</td>
<td>350</td>
<td>0.597 (0.471-0.755)</td>
<td>0.000017</td>
</tr>
</tbody>
</table>

THE CHOICE FOR CHEMOTHERAPY IN ELDERLY PATIENTS WITH ADVANCED NSCLC: A ROLE FOR CGA?

The ESOGIA trial: Comprehensive Geriatric Assessment (CGA) is of no predictive value in non-small cell lung cancer

*4 cycles maximum.
TREATMENT FAILURE-FREE SURVIVAL: NO DIFFERENCE CGA

Prognostic value not predictive

Significant differences in the reasons for treatment failure:
Toxicity:
- More frequent in the standard arm 11.8% vs 4.8%; p=0.007

POST-OPERATIVE EVOLUTION
81 YEARS OLD

Loss of appetite
Weight loss 5 kg (79 kg vs 84 kg before surgery)
Walk 1 h/day with his dog
CT-scan 30th May 2018: right adrenal metastasis
Pet scan: multiple pulmonary nodules, lymph nodes besides the adrenal metastasis
Pembrolizumab (200 mg q3w) started on July 24th (70% expression PDL1)
CT-scan 25th Sept 2018: necrosis of the adrenal mass

With permission from Prof Elisabeth Quoix.
EVOLUTION UNDER PEMBROLIZUMAB 200 MG Q3W

CT scan 13th Nov 2019: partial response of adrenal metastasis
19th Nov 2019: 24th cycle
Weight: 82 kg, PS 1

Pet-scan 11th March 2020
Complete response on all sites
Multidisciplinary discussion: stop immunotherapy after 20 months’ pembrolizumab
28th April 2021: persistence of a complete response on CT-scan
PS 1. Weight: 90 kg
IMMUNOTHERAPY: A REAL REVOLUTION ALSO AS 2ND-LINE THERAPY (BETTER THAN THE STANDARD DOCETAXEL) AND AS 1ST-LINE

What about elderly patients?

Phase 3 Pembrolizumab versus docetaxel as second-line therapy

1ST-LINE: PEMBROLIZUMAB VS CT IN PATIENTS WITH ADVANCED NSCLC AND PD-L1 EXPRESSION ≥50%

CONCLUSIONS

More investment in the organisation of geriatric oncology education and models of care is key to improve management and outcomes for older cancer patients

Blueprints for the organisation of geriatric oncology care are available worldwide

Validated tools for life expectancy, treatment benefit and chemotherapy toxicity risk in older patients are available

Evidence-based data on the impact of CGA in chemotherapy toxicity is available

Specific, older-age clinical trials are needed to improve the participation of older patients with cancer in Phase 3 trials
CLINICAL CASE 1
THERAPEUTIC DECISION:

TUMOUR

Tumour biology

Predicted benefit of therapy

HOST

Patient’s preference

Geriatric assessment

Therapy choice depends on...
THANK YOU!