



The young side of
LYMPHOMA

gli under 40 a confronto

Pescara, Auditorium Petruzzi
11-12 ottobre 2024

**DLBCL dell'anziano: l'uso degli scores
geriatrici nella scelta terapeutica**

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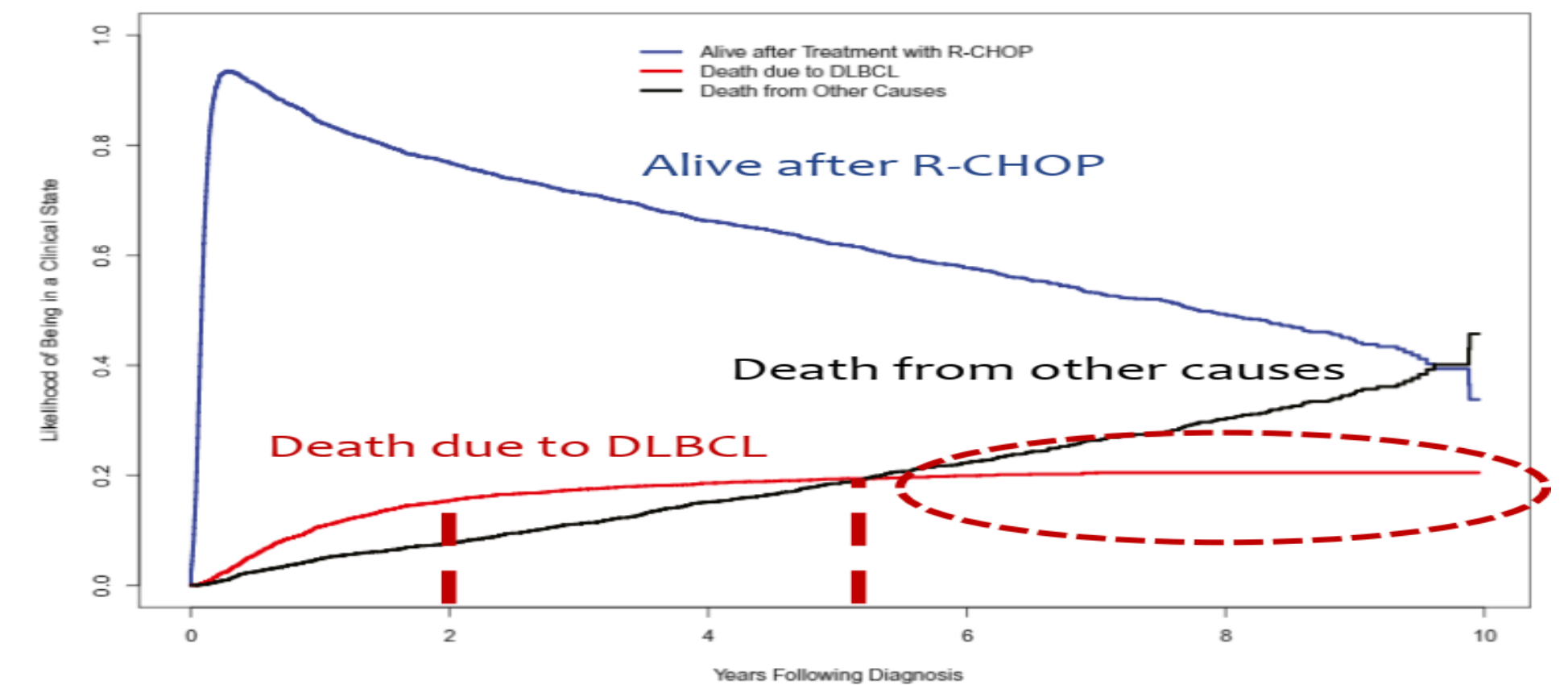
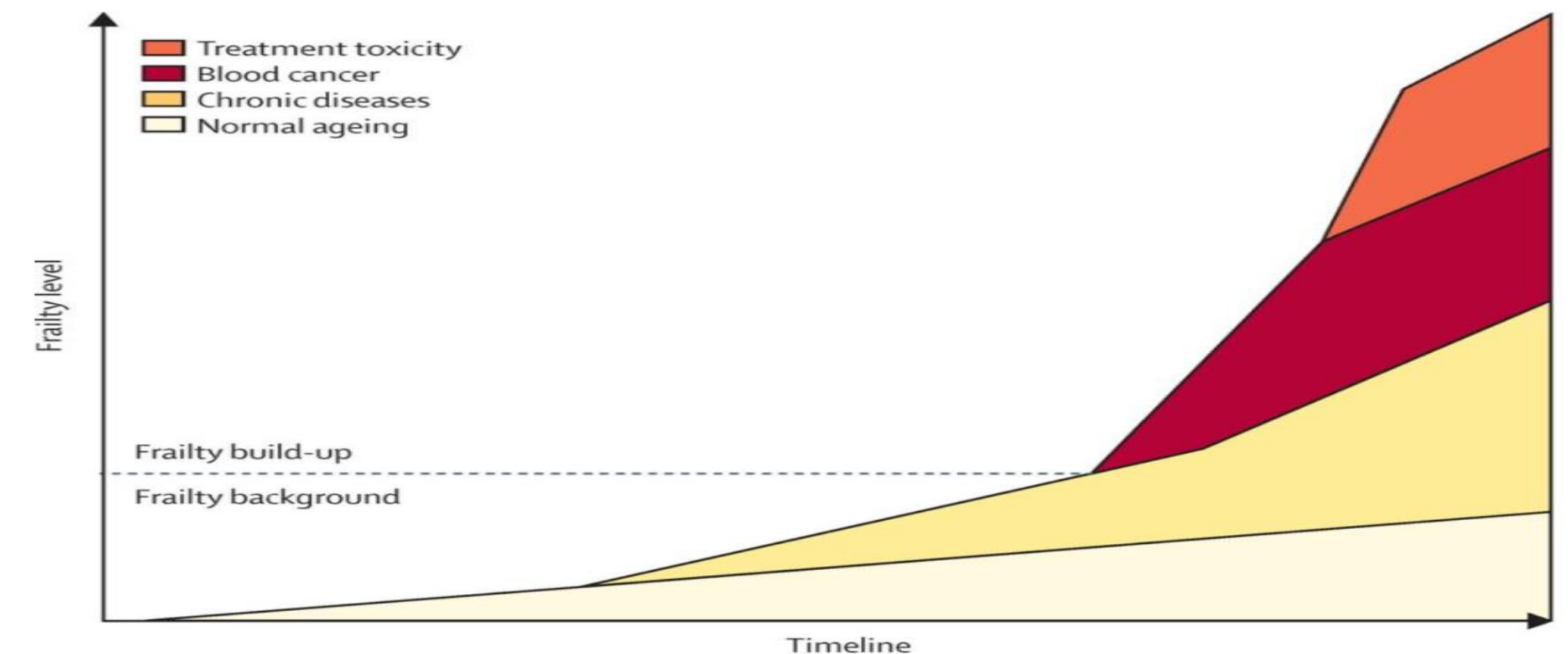


Disclosures of Name Surname

Company name	Research support	Employee	Consultant	Stockholder	Speakers bureau	Advisory board	Other
Takeda						X	
Doxapharma						X	

Come si definisce il paziente anziano e quali sono gli obiettivi da raggiungere?

- Assenza di una definizione univoca di paziente anziano (le coorti storiche e molti trials usano il cut-off di 65 anni ma l'ESMO suggerisce i 70 anni)
- Fondamentale definire la fragilità individuale oltre età anagrafica, legata alla malattia (aggressività biologica, sintomi B, anemia), al paziente (comorbidity) e alla possibile tossicità del trattamento
- Possibilità di cura anche nell'anziano, compreso il grande anziano



Gli anziani non sono tutti uguali: necessità di una caratterizzazione geriatrica

- La caratterizzazione geriatrica (GA) rappresenta una valutazione multidimensionale della salute dell'individuo e include lo stato nutrizionale, funzionale, cognitivo, le comorbidity, la presenza di un care-giver
- Un trattamento basato sulla GA può ridurre le tossicità e migliorare l'outcome (RCT nei tumori solidi)
- SIOG e ASCO raccomandano una GA, ma una GA completa eseguita dal Geriatra può necessitare 1-2 ore
- Uso di **SCORE GERIATRICI** semplificati che l'Ematologo possa direttamente somministrare al paziente



Guidelines statement	LoE	GoR
1. Assessing fitness in elderly patients with malignant lymphoma		
Recommendations:		
1.1 The panel suggests that <u>geriatric assessment should be included in the diagnostic process of clinical trials</u> in order to assess patient fitness	II	B
1.2 The panel suggests that <u>a geriatric assessment is included in the diagnostic process to assess patient fitness in routine clinical practise</u> . In cases when geriatric assessment is not possible, geriatric screening (e.g. G-8) can be carried out	II	B

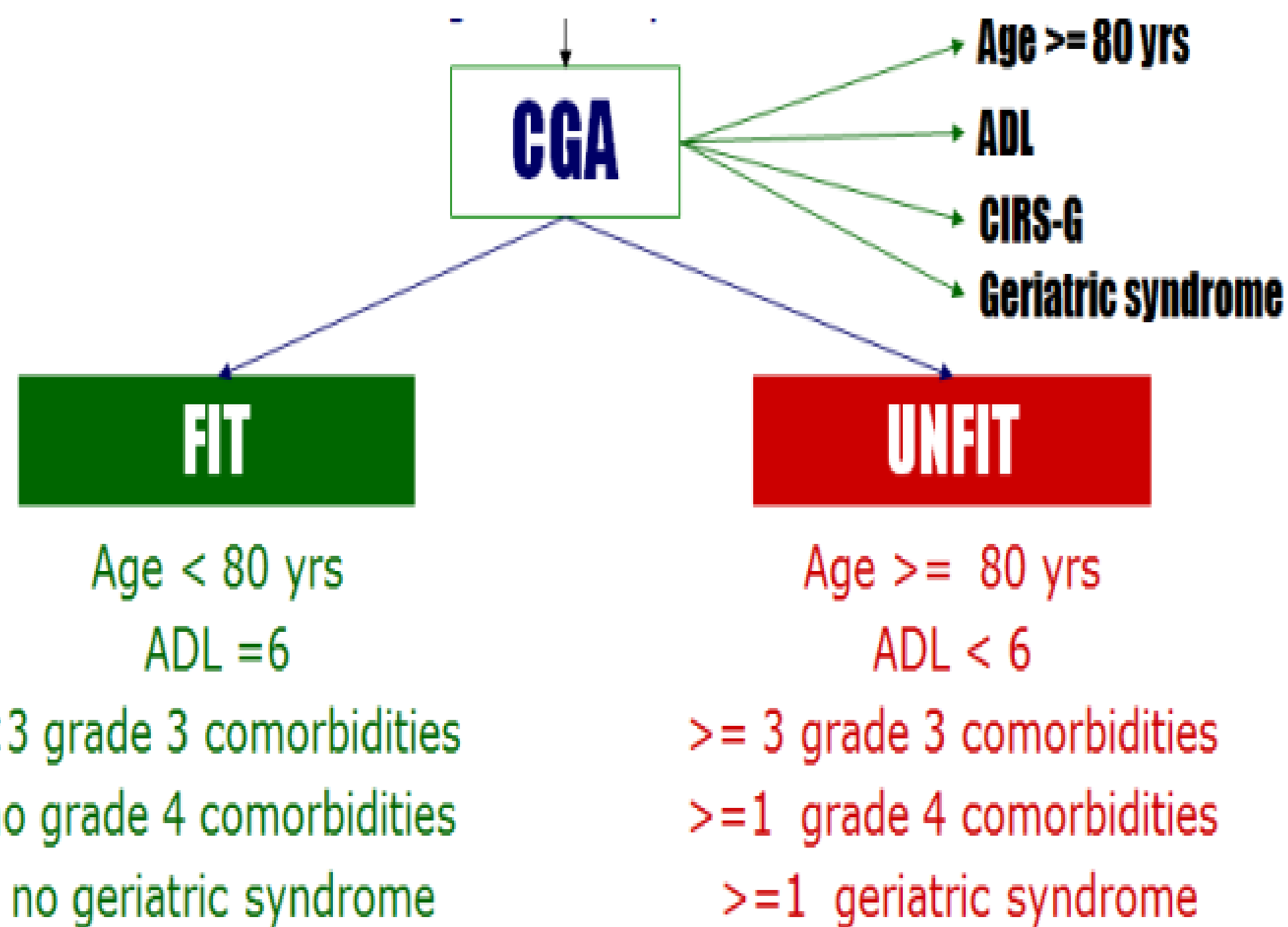
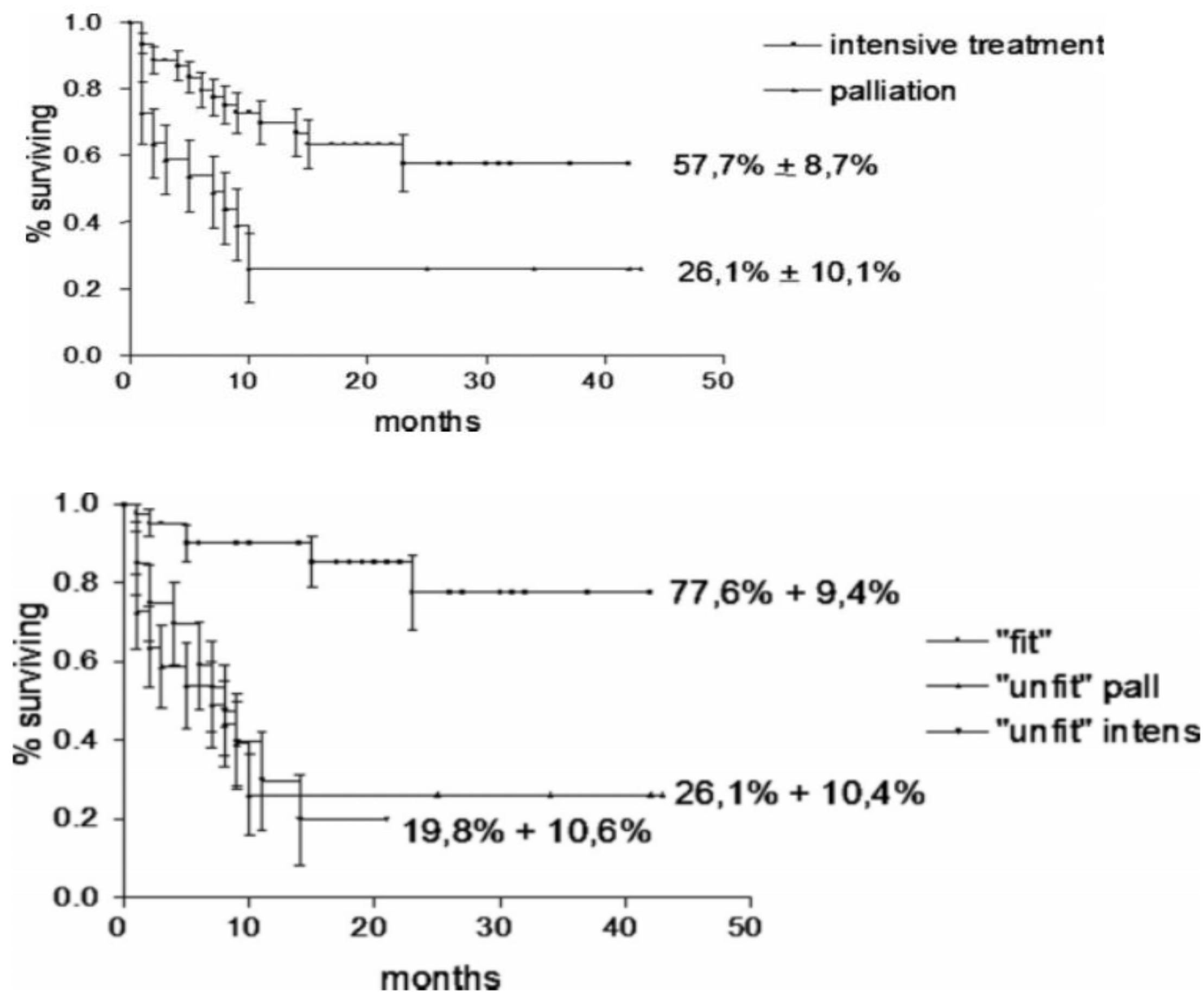
Buske C. et al., Ann Oncol 2018; Akhtar O et al., J Geriatr Oncol 2022; Fusco D et al., Eur J Clin Invest 2021

Scores geriatrici nel paziente anziano con DLBCL

Screening tool	Items	Time to administer	Correlation with outcomes
→ Simplified Geriatric Assessment (S-GA)	ADL; IADL; Age; CIRS-G; IPI (EPI); Hemoglobin (EPI)	<10 min	<u>Overall survival</u>
→ ACA index and IADL-ACA	Age, Albumin (<3.7 g/dL), CCI IADL (IADL-ACA)	<10 min	Overall survival; Mean chemotherapy dose; Treatment toxicity and treatment-related mortality
→ Geriatric-8 (G8)	Nutritional Status; Polypharmacy; Age; Psychological Status; Health perception	<5 min	<u>Overall Survival; Treatment toxicity</u>
→ Vulnerable Elders Survey (VES-13)	Age; Self-rated health; Physical function; functional disabilities	<5 min	<u>Overall Survival; Response rate</u>
→ fTRST	Cognition; Living situation; Physical function; Polypharmacy	<5 min	Overall Survival; Treatment-related mortality
→ CRASH	Diastolic blood pressure; LDH; Functional status (IADL, Performance status); Nutritional status (MNA); Chemotherapy; Cognition (MMS)	<20 min	<u>Treatment toxicity</u>
→ CARG-TT	Age, Cancer type, Treatment, Hemoglobin, Kidney function, Physical function, IADL (medications), Falls, Hearing, Social activity	<5 min	Treatment toxicity*

- Simplified frailty score
- Geriatric prognostic index (GPI)
- Sarcopenia

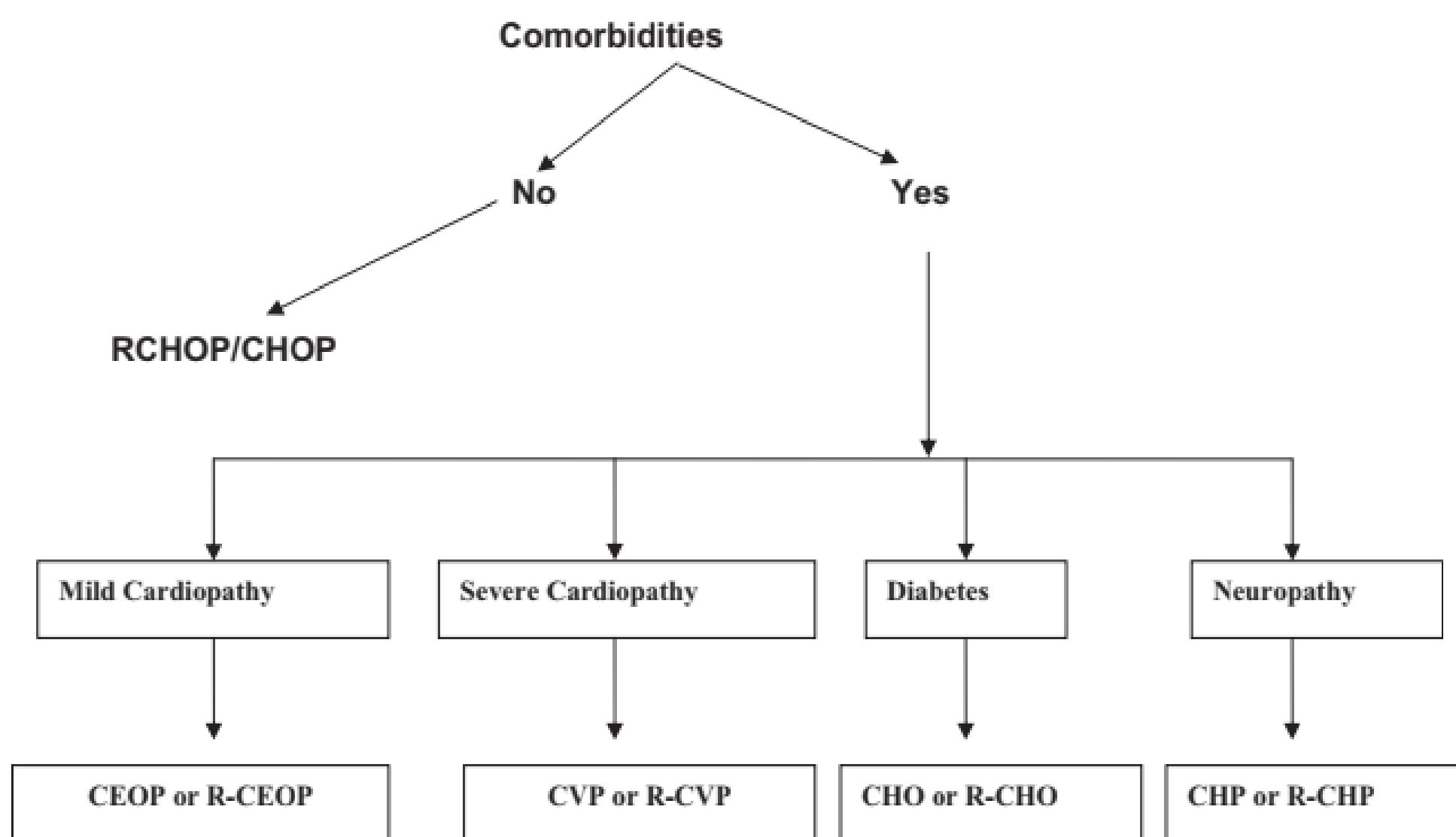
A Comprehensive Geriatric Assessment Is More Effective Than Clinical Judgment to Identify Elderly Diffuse Large Cell Lymphoma Patients Who Benefit From Aggressive Therapy



- Risultato della CGA assessment era «blinded»
- Trattamento era scelto dall'investigatore

Modulated Chemotherapy According to Modified Comprehensive Geriatric Assessment in 100 Consecutive Elderly Patients with Diffuse Large B-Cell Lymphoma

Step 1: Choice of regimen



Step 2: Dosage of chemotherapy

ADL	6	5	<5
or			
IADL	7-8	5-6	<5
	100%	75%	50%

B Overall survival according to Geriatric Status

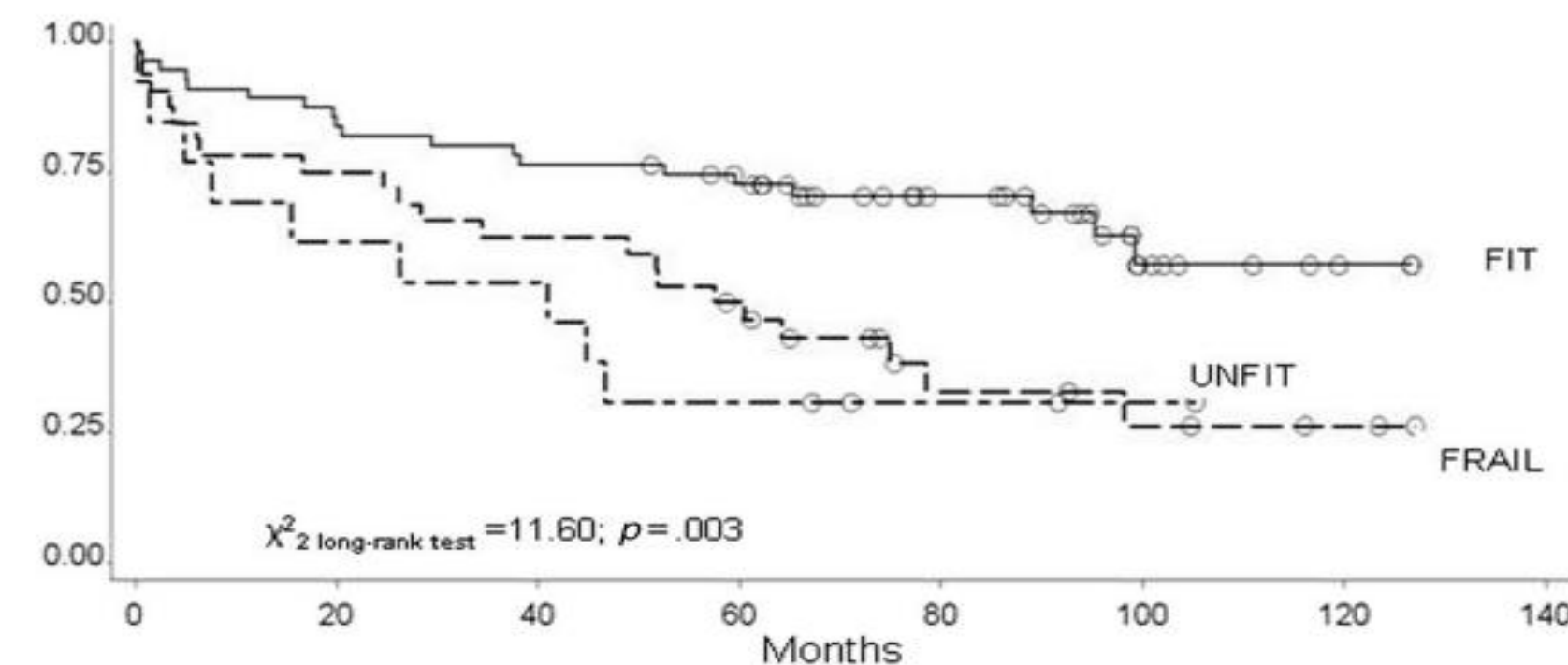


Table 4. Comparison of outcome between patients aged >80 years and patients aged 70–80 years

Outcome	>80 yrs	70–80 yrs	p-value
Complete response rate	83%	80%	.96
Relapse rate	39%	30%	.49
5-yr overall survival rate	54%	61%	.24
5-yr disease-free survival rate	67%	84%	.11
5-yr event-free survival rate	46%	67%	.06
5-yr cause-specific survival rate	68%	75%	.91

Simplified Geriatric Assessment in Older Patients With Diffuse Large B-Cell Lymphoma: The Prospective Elderly Project of the Fondazione Italiana Linfomi

- Elderly project il primo trial prospettico che valuta le implicazioni prognostiche della frailty e delle comorbidità
- Il trattamento era indipendente dalla sGA
- Elderly Prognostic Index (EPI) è stato validato come fattore predittivo di OS,
- EPI si basa sulla fitness del paziente e sulle caratteristiche di malattia, include sGA, Hb e score IPI

	FIT	UNFIT	FRAIL
ADL	≥5*	< 5*	6*
IADL	≥6*	<6*	8*
CIRS-G	0 score =3-4, ≤8 score =2	≥1 score =3-4, > 8 score =2	0 score =3-4, <5 score =2
Age	<80	<80	≥80

FIT	636 (43%)
UNFIT	323 (25%)
FRAIL	204 (32%)

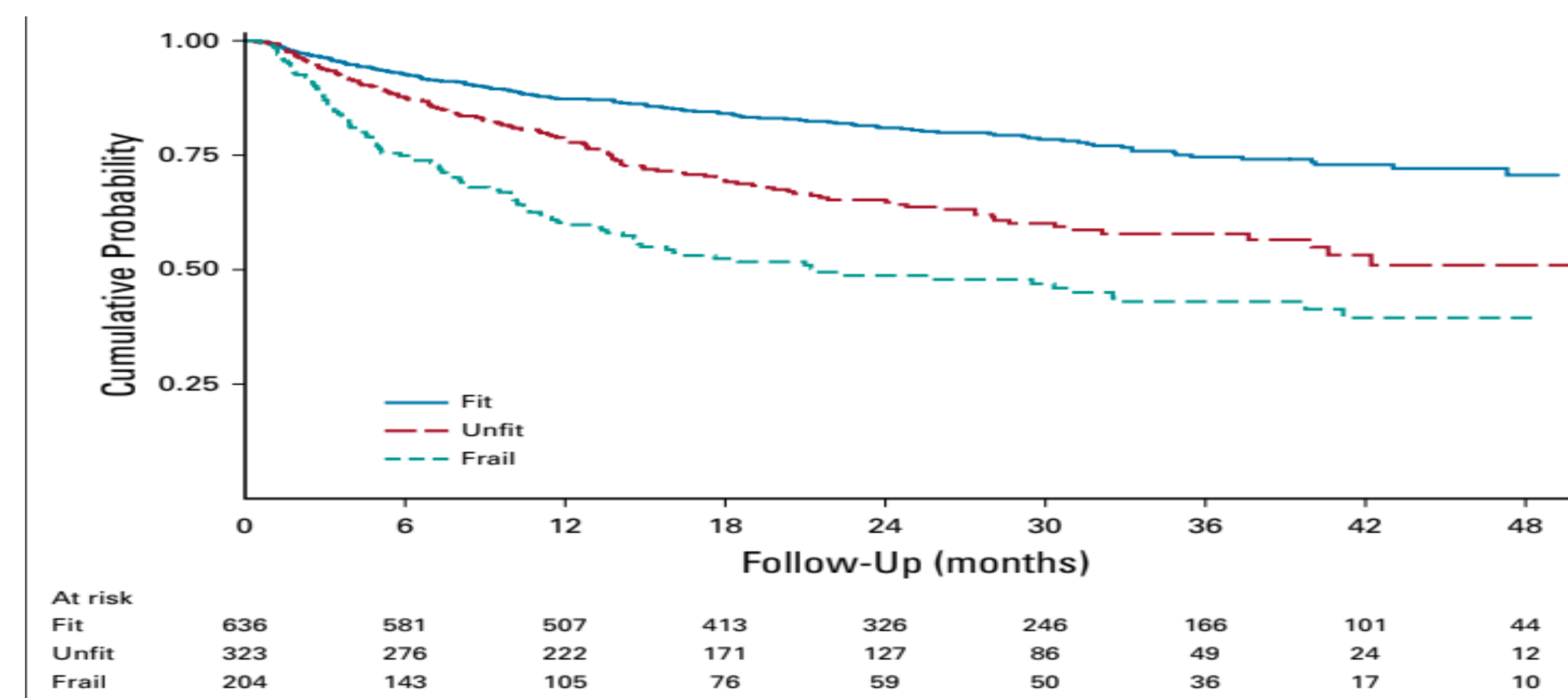


FIG 1. Overall survival by sGA in all patients with treatment details (N = 1,163). sGA, simplified geriatric assessment.

Treatment	sGA, n (%)			Total, n (%)
	FIT	UNFIT	FRAIL	
Full dose*	548 (86)	156 (48)	33 (16)	737 (63)
Reduced dose^	85 (13)	115 (36)	76 (37)	276 (24)
Palliative°	3 (<1)	52 (16)	95 (47)	150 (13)
Total	636	323	204	1163 (100)

Merli F. et al, JCO 2021

EPI model parameters	
Factors	Weight
FIT	0
UNFIT	3
FRAIL	4
IPI 1	0
IPI 2	1
IPI 3-5	3
Hb <12 g/dL	1
EPI Risk Groups Score	
Low	0-1
Intermediate	2-5
High	6-8

Analisi sull'intera coorte dello studio e sulla coorte di validazione

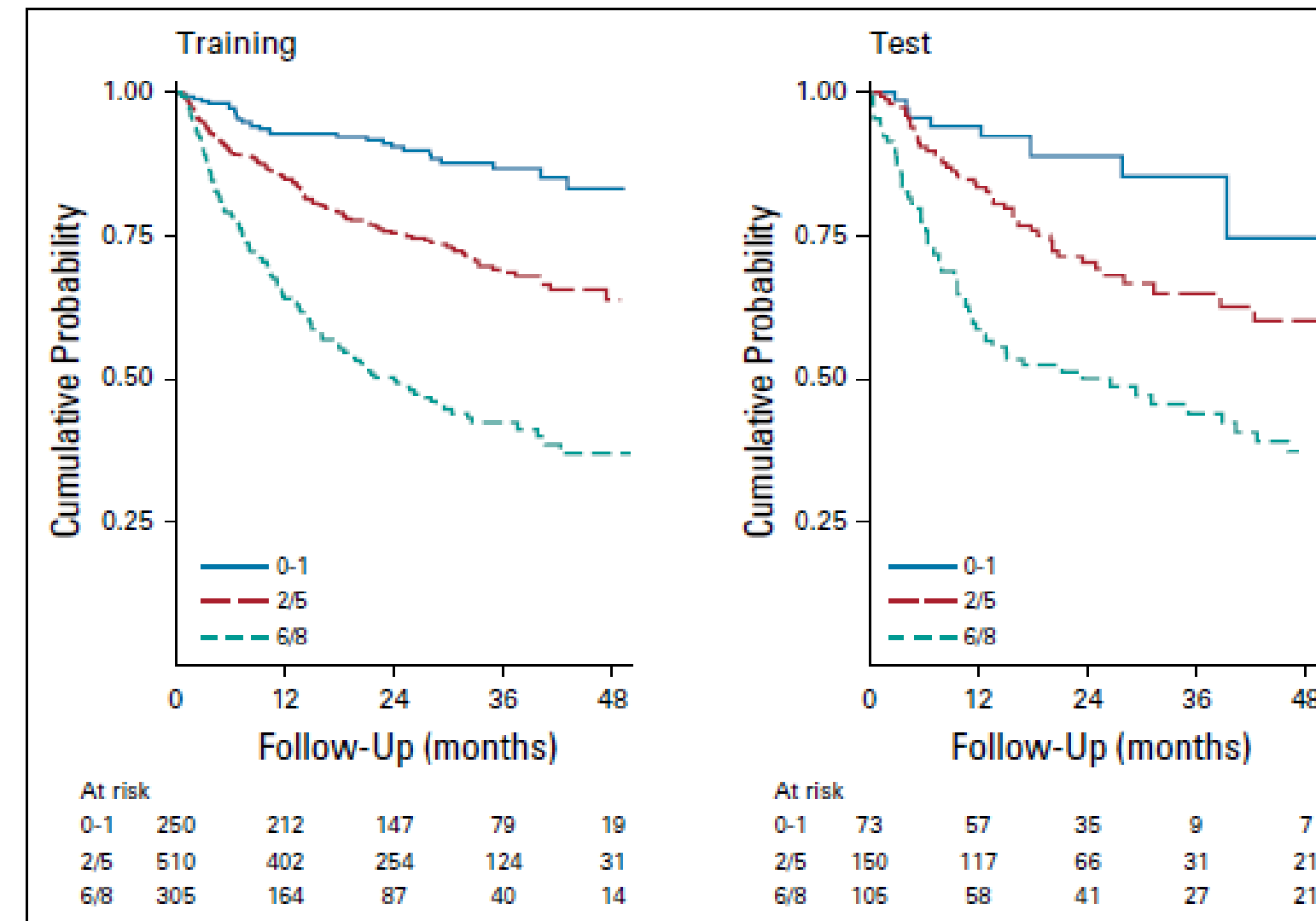
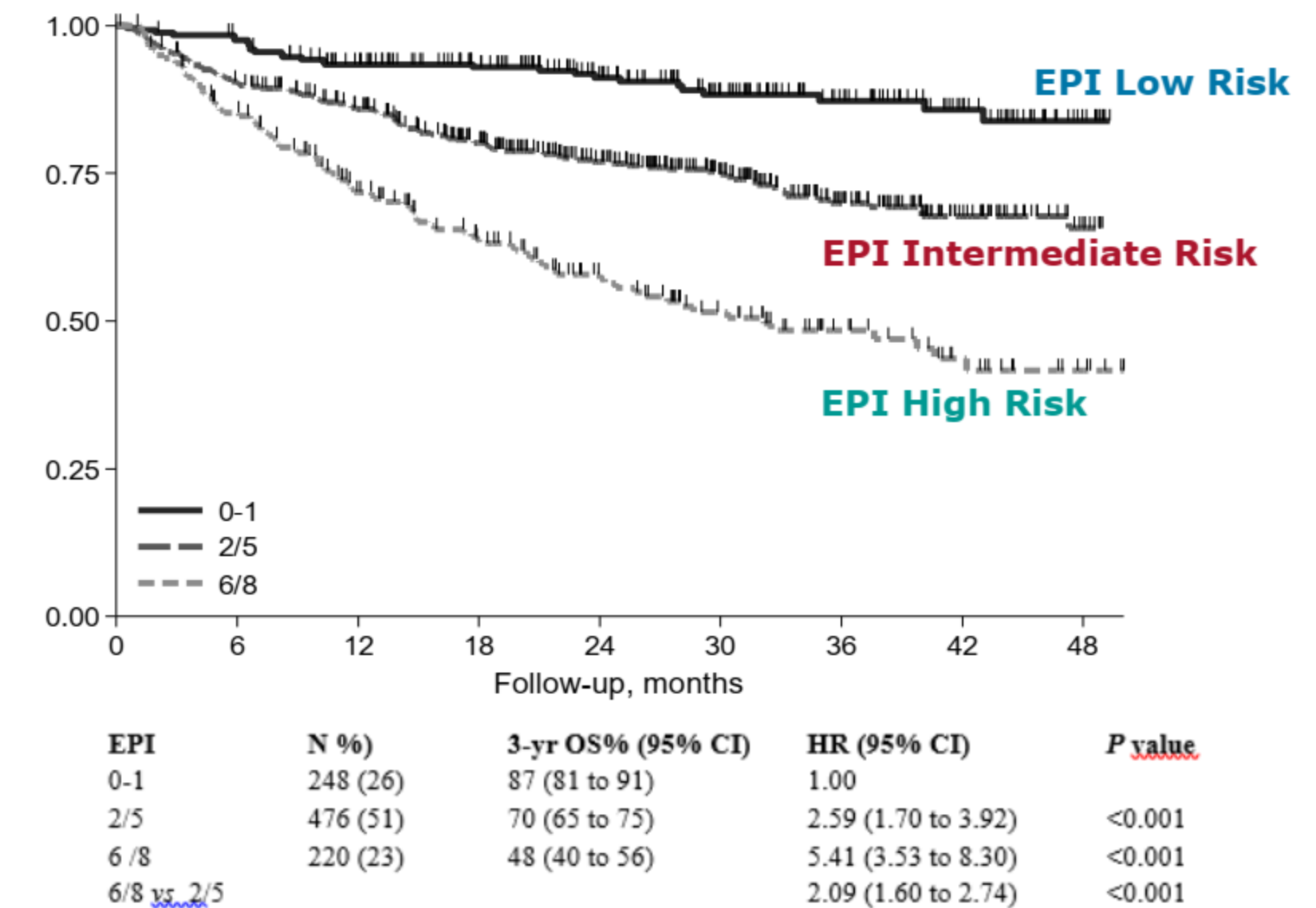


FIG 2. Overall survival stratified by the EPI in the training (A: 1,065 patients) and validation (B: 328 patients) samples. EPI, Elderly Prognostic Index.

Analisi limitata ai 944 pazienti che hanno ricevuto antracicline



- sGA rappresenta uno strumento riproducibile per l'Ematologo
 - Tempo di somministrazione 10 minuti
 - sGA pre-terapia di aiuto per decidere il trattamento
- I pazienti con EPI elevato rappresentano un sottogruppo a prognosi peggiore

The elderly prognostic index predicts early mortality in older patients with diffuse large B-cell lymphoma. An ad hoc analysis of the elderly project by the Fondazione Italiana Linfomi

- 69/1150 pazienti (6%) deceduti entro 90 giorni
- Rispetto al totale dei decessi, aumento di incidenza dei decessi dovuti a tossicità o infezioni rispetto a quelli legati a PD
- EPI elevato è predittivo di mortalità precoce e rappresenta un unmet need

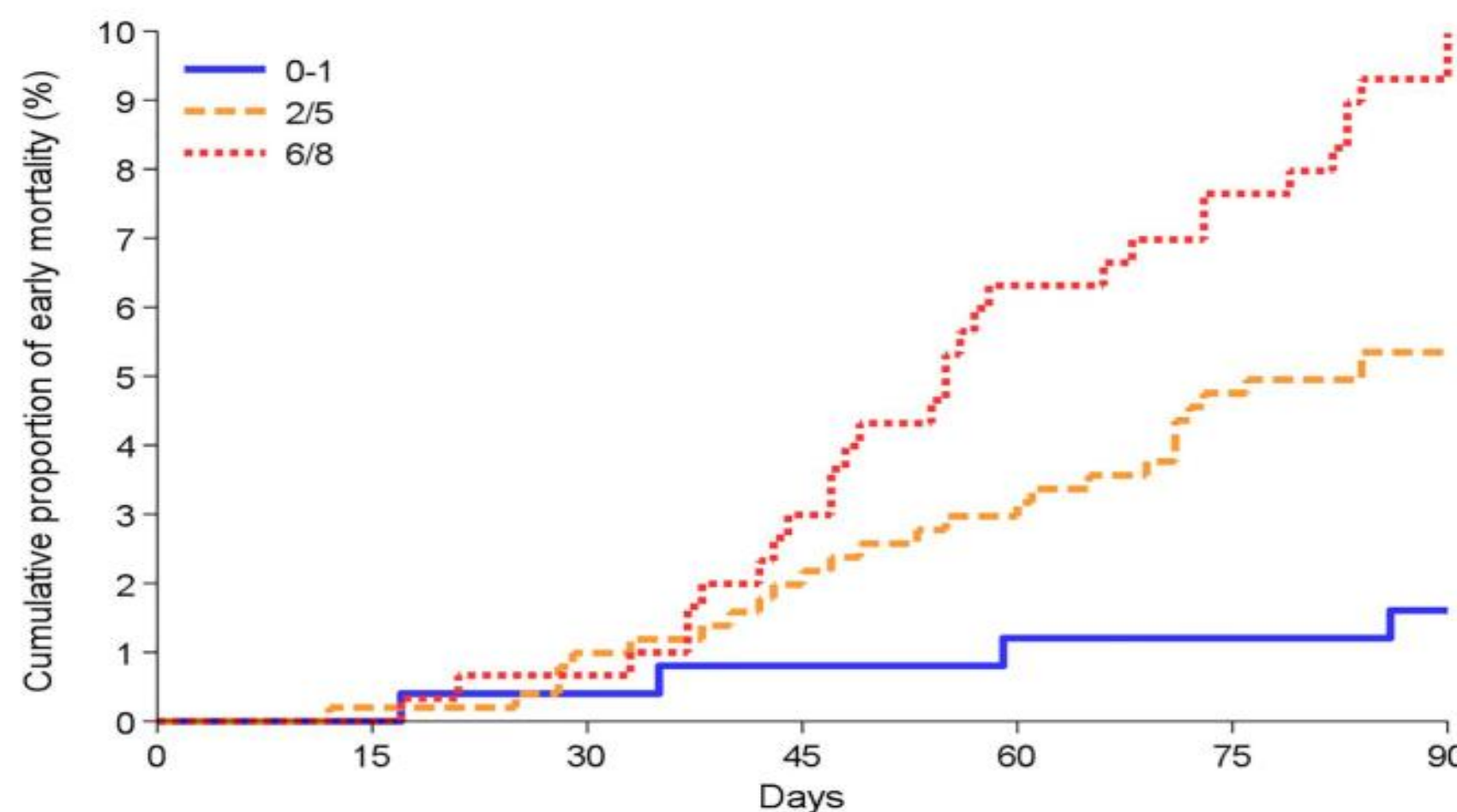
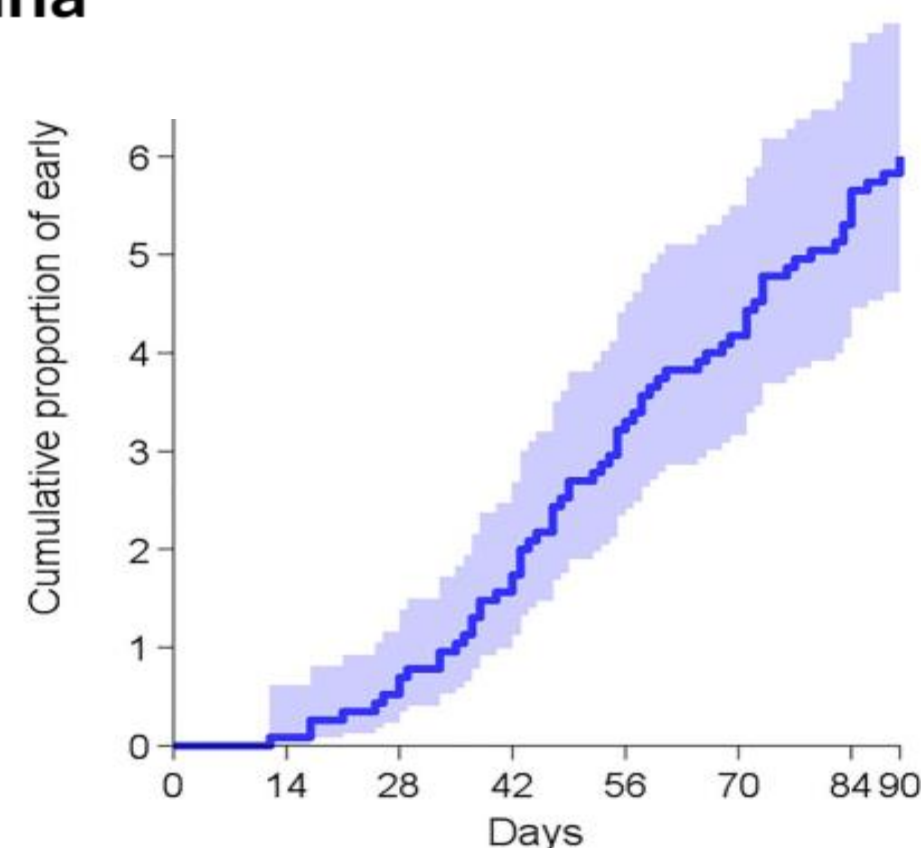


TABLE 2 Cause of death within and after 90 days

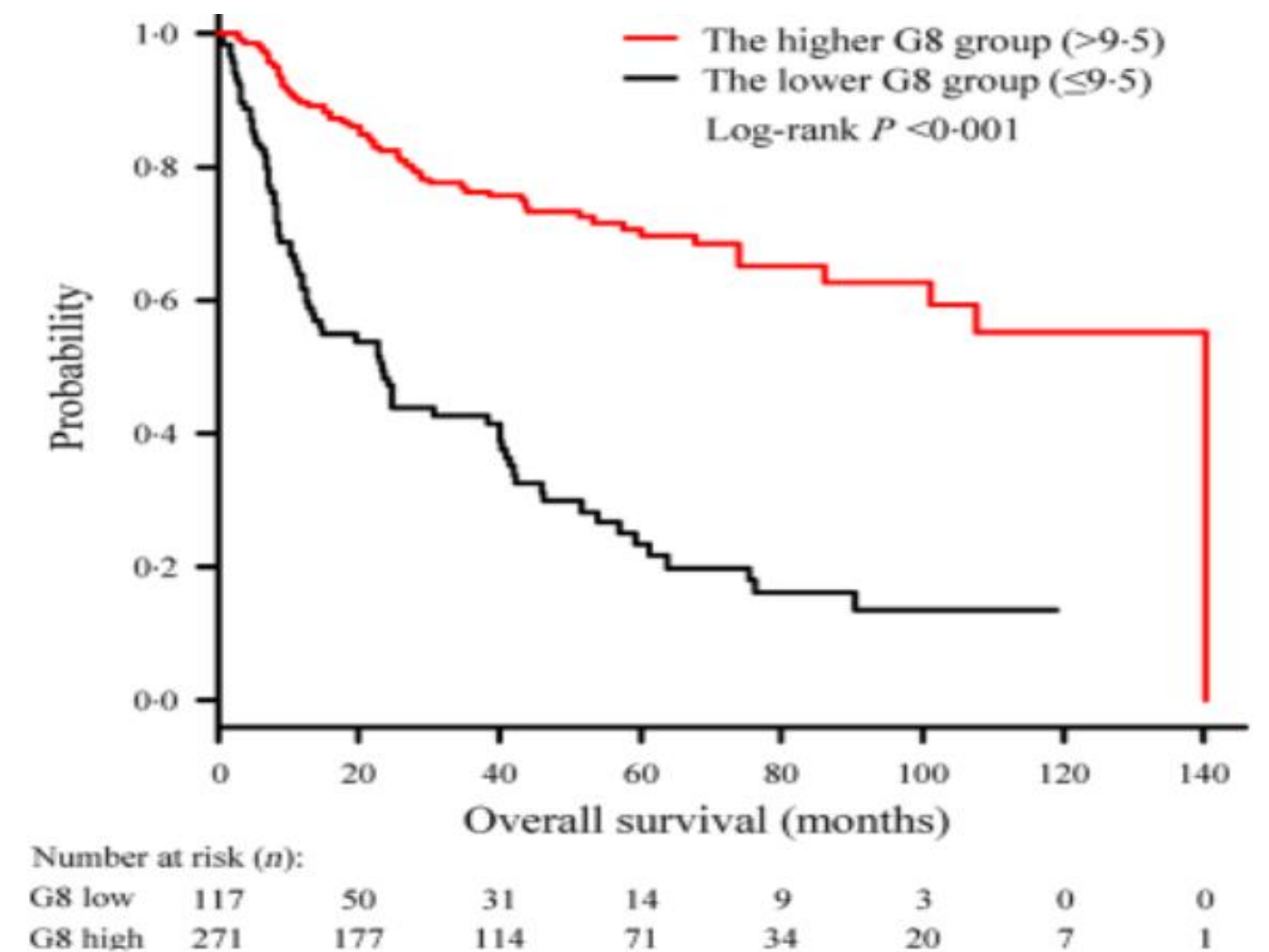
	Death within day 90	Death after day 90	p-value
Lymphoma progression	29/69 (42%)	214/285 (75%)	<0.001
Other than lymphoma progression	40/69 (58%)	71/285 (25%)	
Toxicity (hematological and non-hematological)	15 (22%)	13 (5%)	<0.001
Infections	15 (22%)	9 (3%)	<0.001
Heart failure	2 (3%)	7 (2%)	0.689
Kidney failure	2 (3%)	1 (0.3%)	0.098
Respiratory failure	2 (3%)	2 (0.7%)	0.172
Cachexia	1 (1%)	5 (2%)	1.000
Unknown/other	3 (4%)	34 (12%) ^a	0.078

Factor		OR (95%CI)	p
EPI	0-1	1.00	
	2/4	2.77 (0.94-8.19)	0.066
	6/8	3.45 (1.07-11.2)	0.039
Bulky	Yes	2.09 (1.09-3.98)	0.026

Geriatric 8 (G8) score

- Rappresenta lo score più utilizzato
 - Cut-off 14
- Utile per determinare chi può beneficiare di un GA
 - Copre vari domini, soprattutto aspetti dell'attuale stato di salute piuttosto che della fragilità pre-esistente

Items	Possible answers	Score
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]	



- G8 predittivo per OS
- Average Relative dose intensity 80% per i pz con higher G8 e 60% con lower G8

Vulnerable Elders Survey (VES-13)

- 13 domande, autosomministrato
- Include lo stato di salute percepito e lo stato funzionale

- Associato alla tossicità del trattamento, in pazienti anziani oncologici
- Nei linfomi, uno score ≥ 3 associato alla mortalità a 1 anno

1. Age _____

**SCORE: 1 POINT FOR AGE 75-84
3 POINTS FOR AGE ≥ 85**

2. In general, compared to other people your age, would you say that your health is:

Poor,* (1 POINT)
 Fair,* (1 POINT)
 Good,
 Very good, or
 Excellent

SCORE: 1 POINT FOR FAIR or POOR

3. How difficult, on average, do you have with the following physical activities:

	No Difficulty	A little Difficulty	Some Difficulty	A Lot of Difficulty	Unable to do
a. stooping, crouching or kneeling?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> *	<input type="checkbox"/> *
b. lifting, or carrying objects as heavy as 10 pounds?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> *	<input type="checkbox"/> *
c. reaching or extending arms above shoulder level?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> *	<input type="checkbox"/> *
d. writing, or handling and grasping small objects?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> *	<input type="checkbox"/> *
e. walking a quarter of a mile?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> *	<input type="checkbox"/> *
f. heavy housework such as scrubbing floors or washing windows?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> *	<input type="checkbox"/> *

SCORE: 1 POINT FOR EACH * RESPONSE IN Q3a THROUGH f . MAXIMUM OF 2 POINTS

4. Because of your health or a physical condition, do you have any difficulty:

a. shopping for personal items (like toilet items or medicines)?

YES → Do you get help with shopping? YES * NO
 NO
 DON'T DO → Is that because of your health? YES * NO

b. managing money (like keeping track of expenses or paying bills)?

YES → Do you get help with managing money? YES * NO
 NO
 DON'T DO → Is that because of your health? YES * NO

Continued

c. walking across the room? USE OF CANE OR WALKER IS OK.

YES → Do you get help with walking? YES * NO
 NO
 DON'T DO → Is that because of your health? YES * NO

d. doing light housework (like washing dishes, straightening up, or light cleaning)?

YES → Do you get help with light housework? YES * NO
 NO
 DON'T DO → Is that because of your health? YES * NO

e. bathing or showering?

YES → Do you get help with bathing or showering? YES * NO
 NO
 DON'T DO → Is that because of your health? YES * NO

SCORE: 4 POINTS FOR ONE OR MORE * RESPONSES IN Q4a THROUGH Q4e

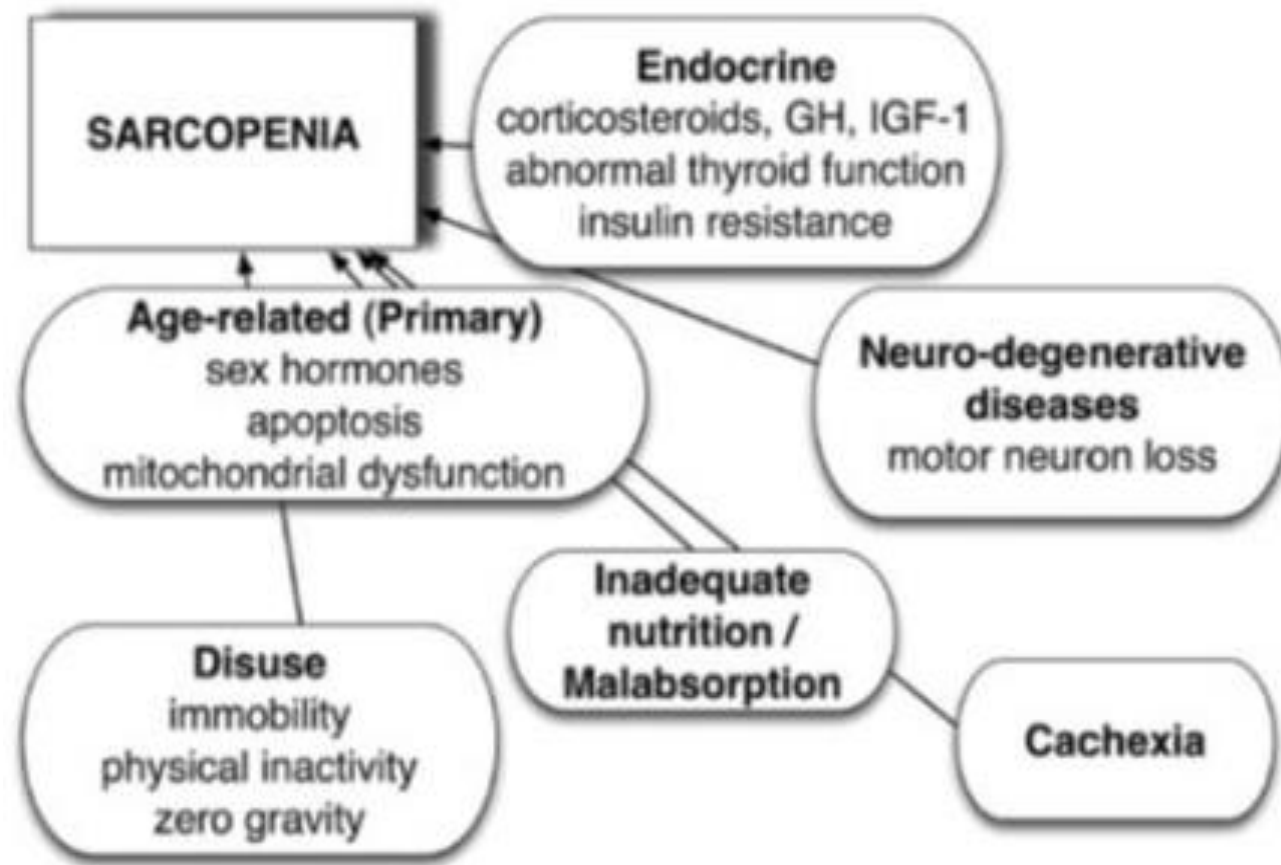
Luciani A et al, J Geriatr Oncol 2015; Fama A et al., Blood 2019

Sarcopenia e DLBCL

Prognostic relevance of sarcopenia, geriatric, and nutritional assessments in older patients with diffuse large B-cell lymphoma: results of a multicentric prospective cohort study

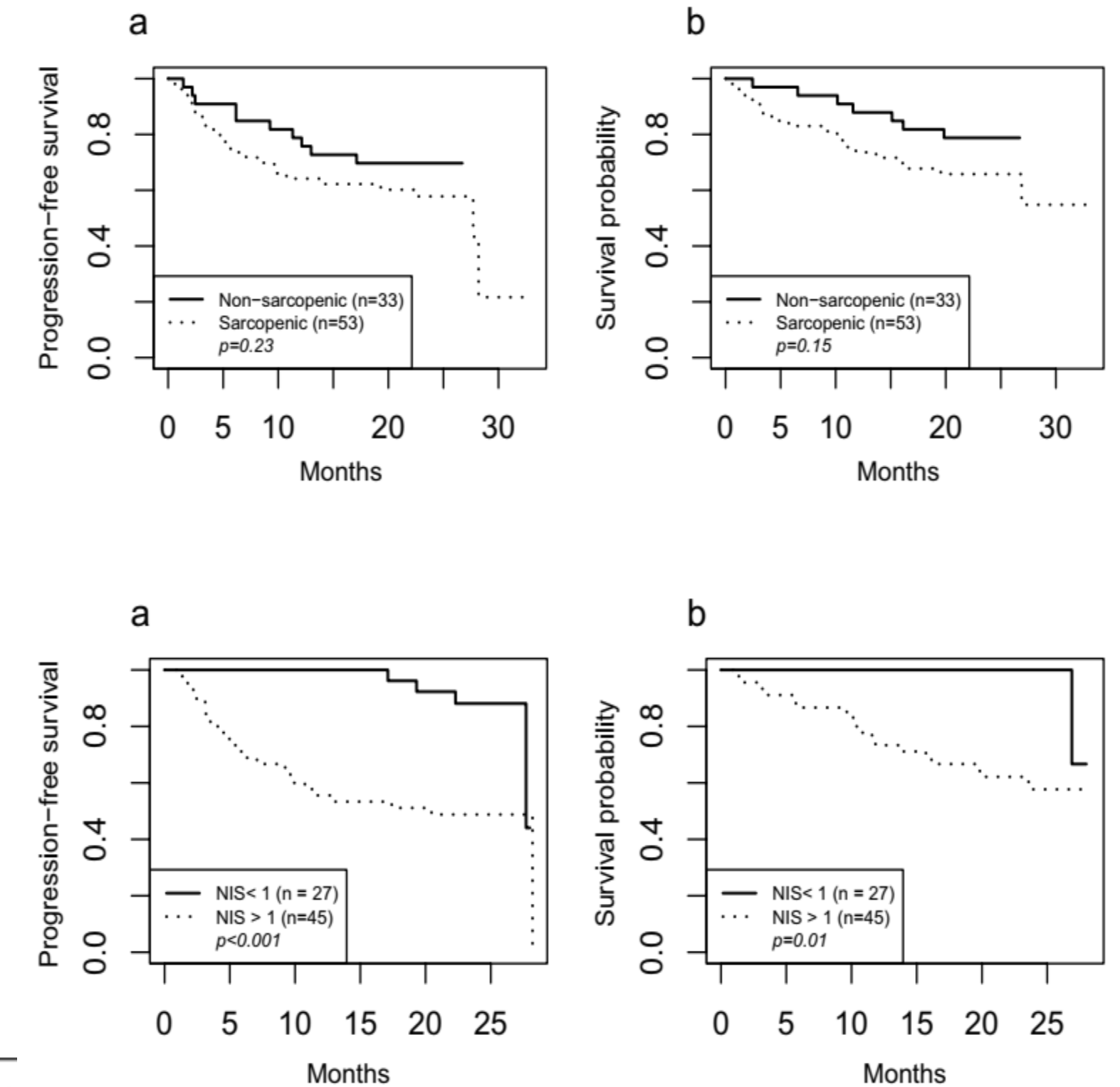
- Rappresenta un disordine che consiste nella perdita di massa muscolare ma anche di funzione
- Si determina con specifici cut-off su immagini radiologiche a livello dell'area di L3
- metanalisi mostra sarcopenia associata a ridotta PFS/OS

La sarcopenia non prognostica ma associata al NIS (stato nutrizionale e infiammatorio)



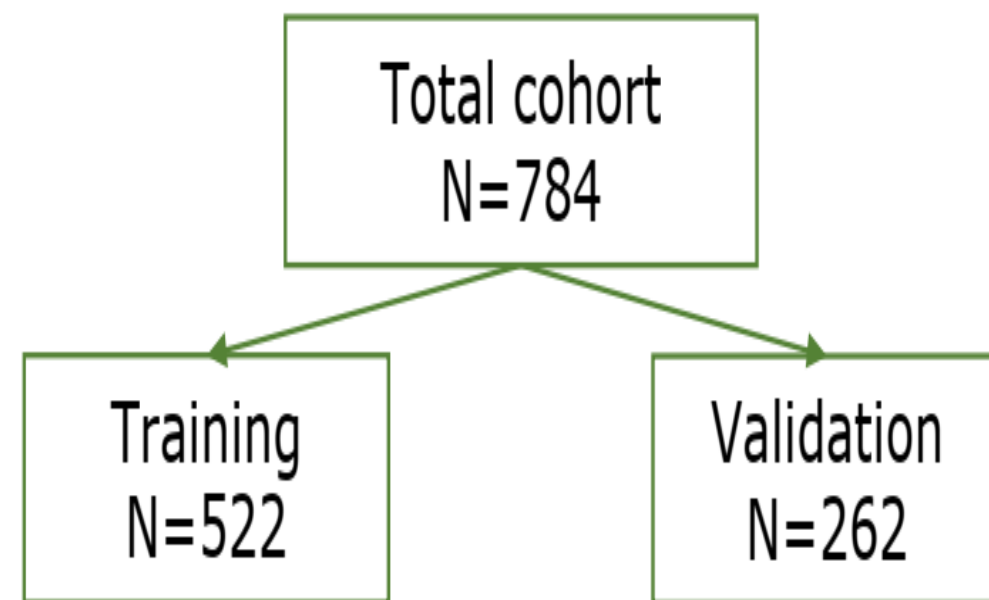
Albumin (g/dL) (mean [sd])	3.4 [0.6] (NA = 4)	3.5 [0.7] (NA = 1)	3.4 [0.6] (NA = 3)	0.41
Prealbumin (g/L) (mean [sd])	0.20 [0.1] (NA = 9)	0.22 [0.1] (NA = 3)	0.18 [0.1] (NA = 6)	0.01
Alpha-1 acid glycoprotein (g/L) (mean [sd])	1.4 [0.5] (NA=10)	1.2 [0.4]	1.4 [0.5] (NA = 8)	0.03
CRP (mg/L) (mean [sd])	29.3 [38.6] (NA = 5)	15.4 [23.8] (NA = 1)	33.7 [41] (NA = 3)	0.02

Sd, standard deviation; LDH, lactate dehydrogenase; CRP, C-reactive protein; NA, not available. Bold values denote statistical significance at the $p < 0.05$ level



Penichoux J et al, Ann Hematol 2023

A simplified frailty score predicts survival and can aid treatment-intensity decisions in older patients with DLBCL

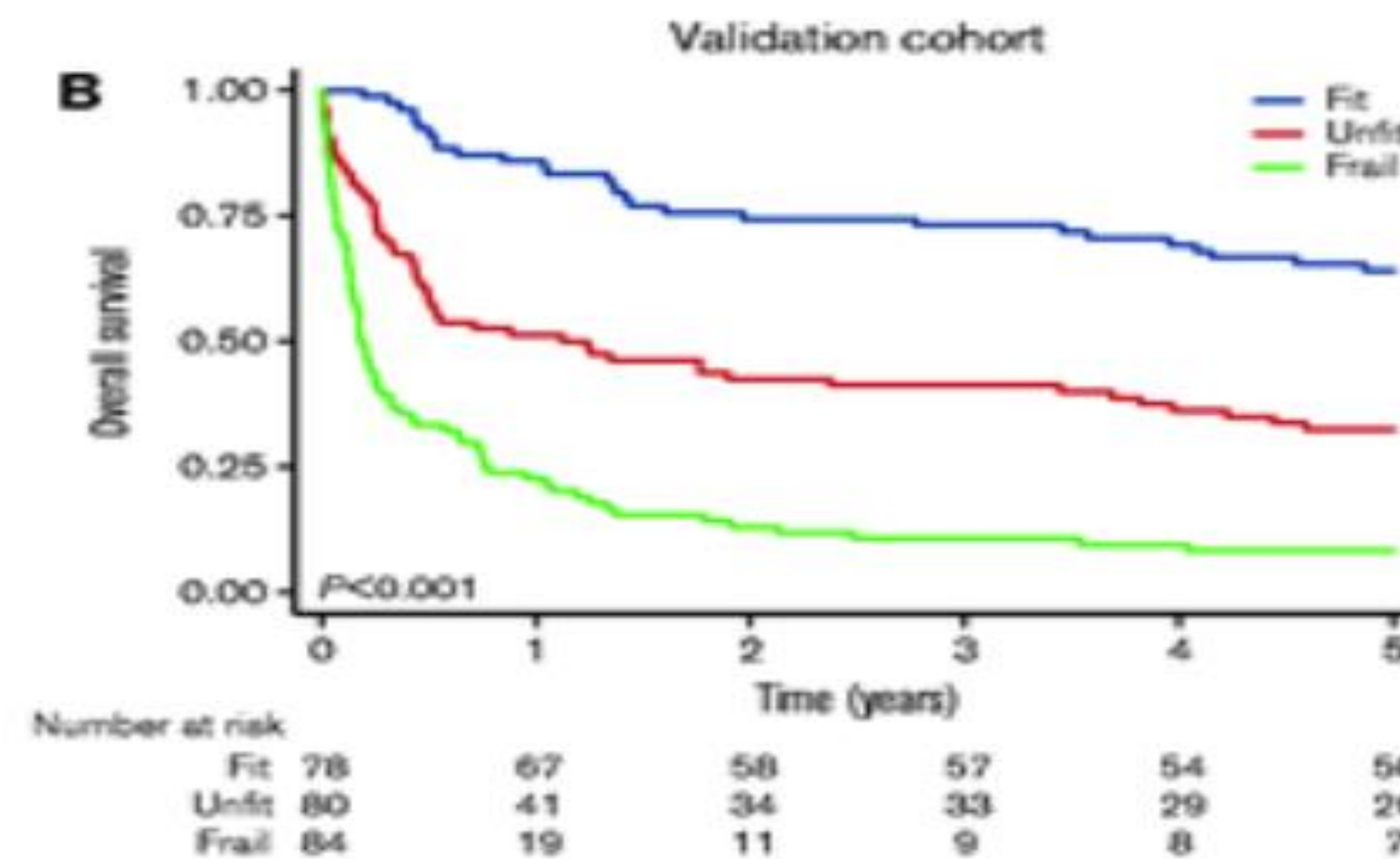
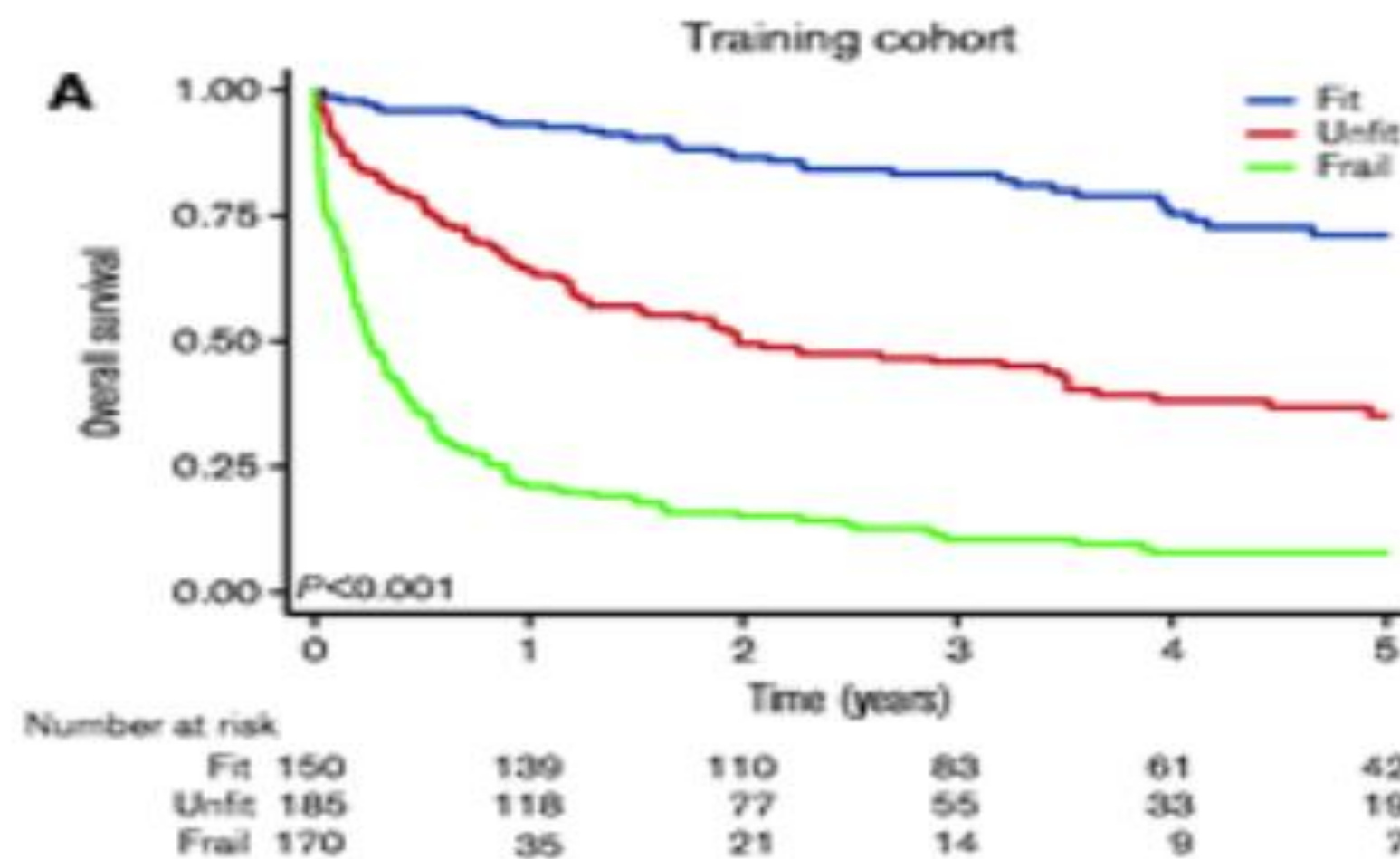


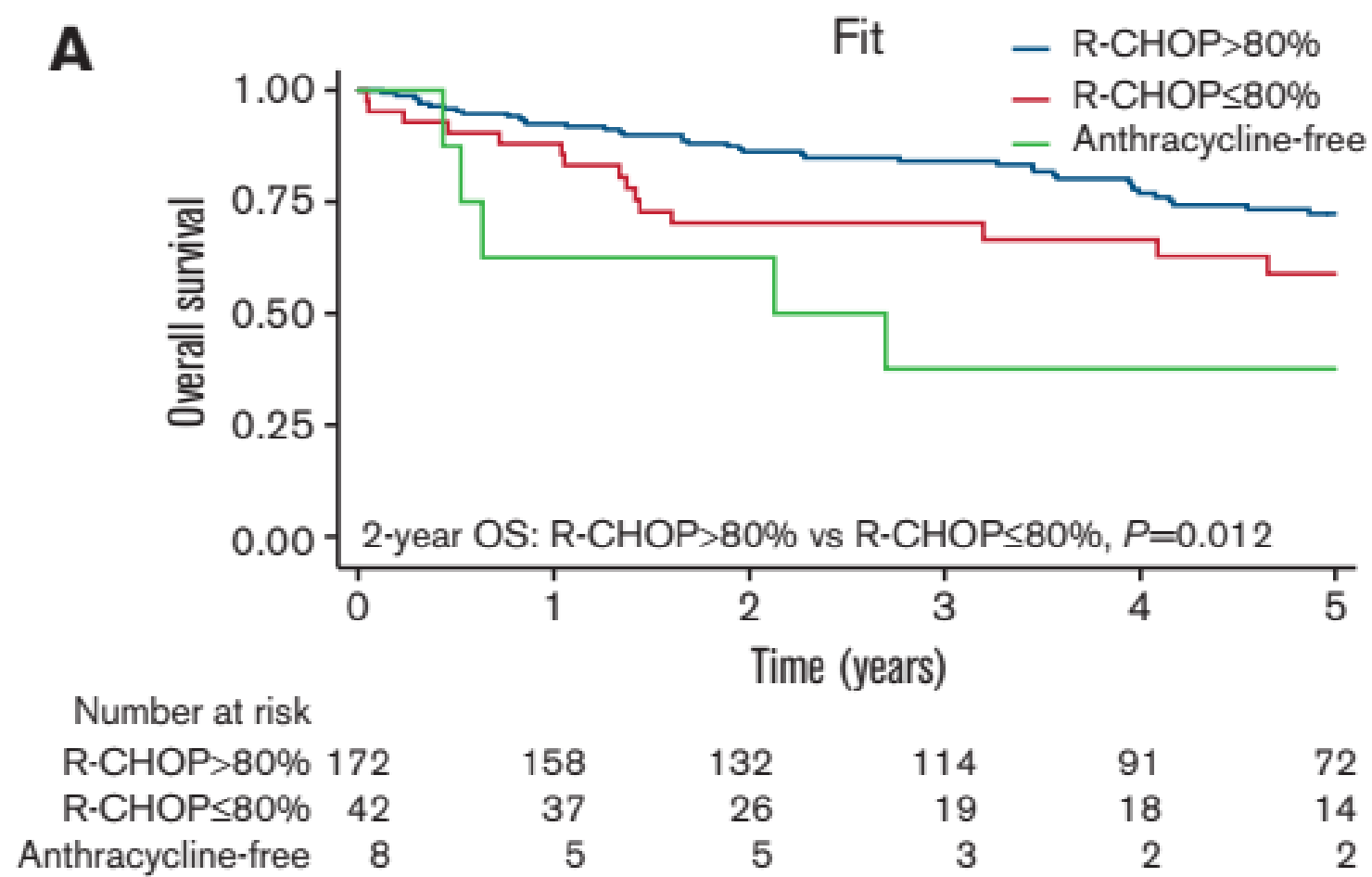
	HR (95% CI)	P	Score
ADL			
Independent	1		1
Dependent	2.07 (1.59-2.71)	<.001	2
CCI			
Score 0-1	1		1
Score 2	1.53 (1.14-2.04)	.004	1.5
Score ≥3	1.92 (1.45-2.55)	<.001	2
GNRI			
Absent/low	1		1
Moderate	2.01 (1.49-2.70)	<.001	2
Severe	2.31 (1.61-3.30)	<.001	2.5
Age, y			
<85	1		1
≥85	2.25 (1.70-2.98)	<.001	2

Final Model

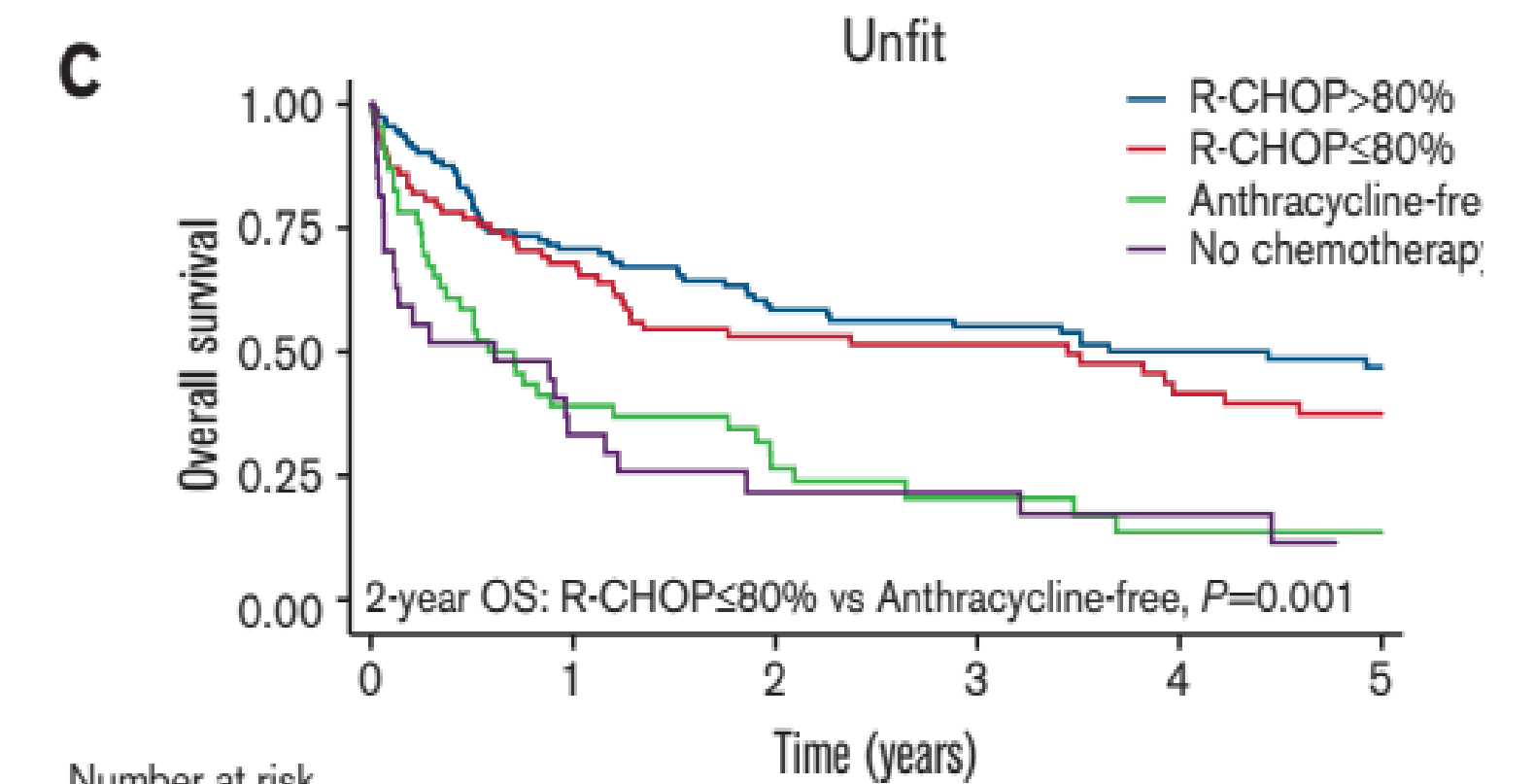
- **Activities of Daily Living (ADL)**
- **Charlson Comorbidity Index (CCI)**
- **Geriatric Nutritional Risk Index (GNRI)**
- **age ≥ 85 years**

FRAILTY Score	FRAILTY Group
1.0	FIT
1.5-3.0	UNFIT
> 3.0	FRAIL



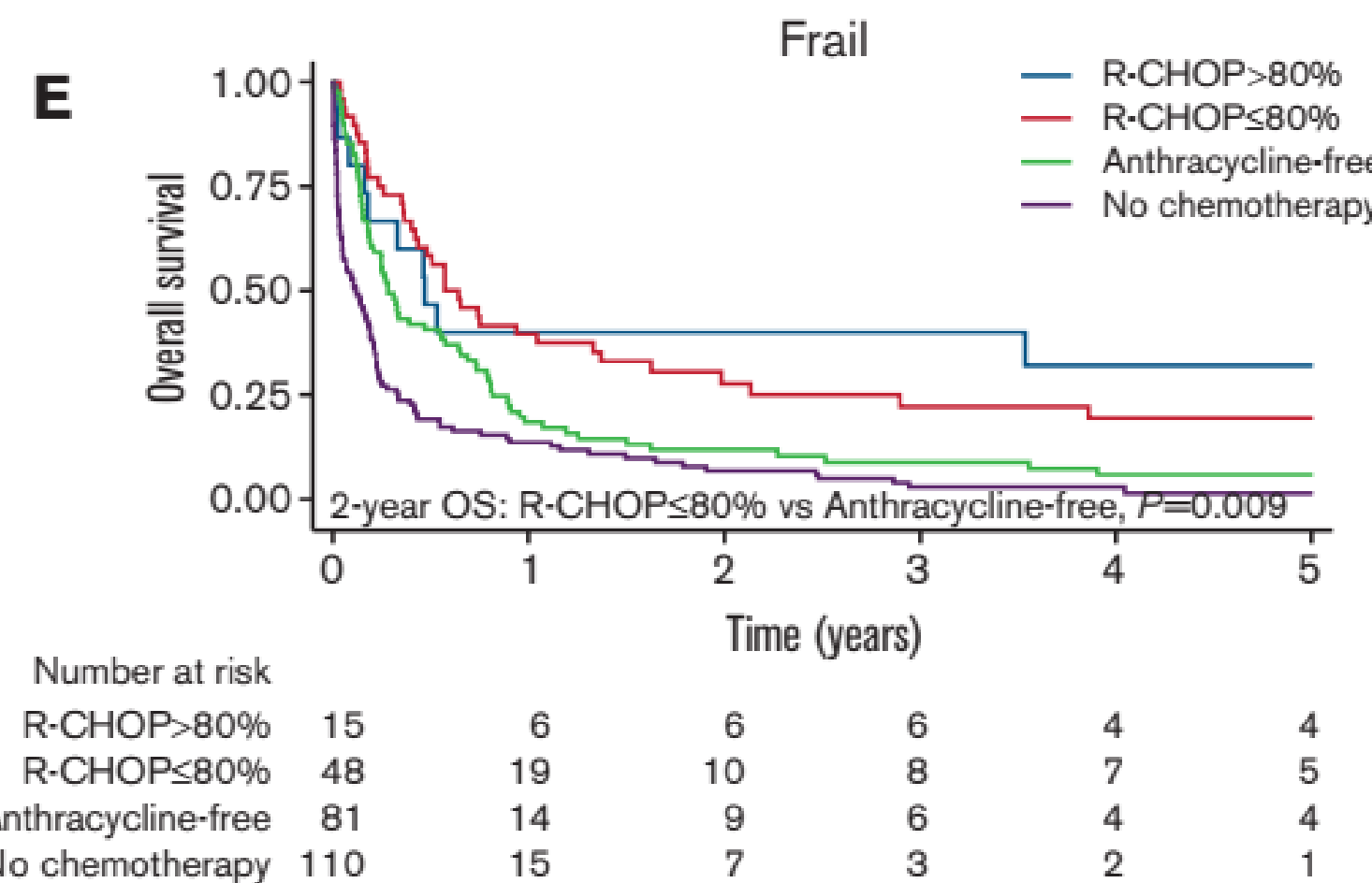


Per i pazienti FIT
beneficio con R-CHOP
full-dose



Per i pazienti UNFIT
R-CHOP a dosi ridotte
può essere sufficiente

Per i pazienti FRAIL
OS è ridotta ma in
alcuni casi beneficio
con R-CHOP a dosi
ridotte



The Geriatric Prognostic Index: a clinical prediction model for survival of older diffuse large B-cell lymphoma patients treated with standard immunochemotherapy

A

Predictor	β	SE	HR (95% CI)	P
Age >70 years	0.04103	0.02080	1.04 (1.00-1.09)	0.0486
ADL dependent	0.48169	0.25612	1.62 (0.98-2.67)	0.0600
CCI ≥ 2	0.74504	0.18873	2.11 (1.46-3.05)	<0.001
Albumin <36 g/L	0.90446	0.21018	2.47 (1.64-3.73)	<0.001
ECOG PS ≥ 2	0.45541	0.21912	1.58 (1.03-2.42)	0.0377
Stage III/IV	0.52298	0.21781	1.69 (1.10-2.59)	0.0163
Male	0.33396	0.19184	1.40 (0.96-2.03)	0.0817
Lactate dehydrogenase				
1-3 x ULN	0.12446	0.22784	1.13 (0.72-1.77)	0.5849
>3 x ULN	0.65823	0.32334	1.93 (1.02-3.64)	0.0418

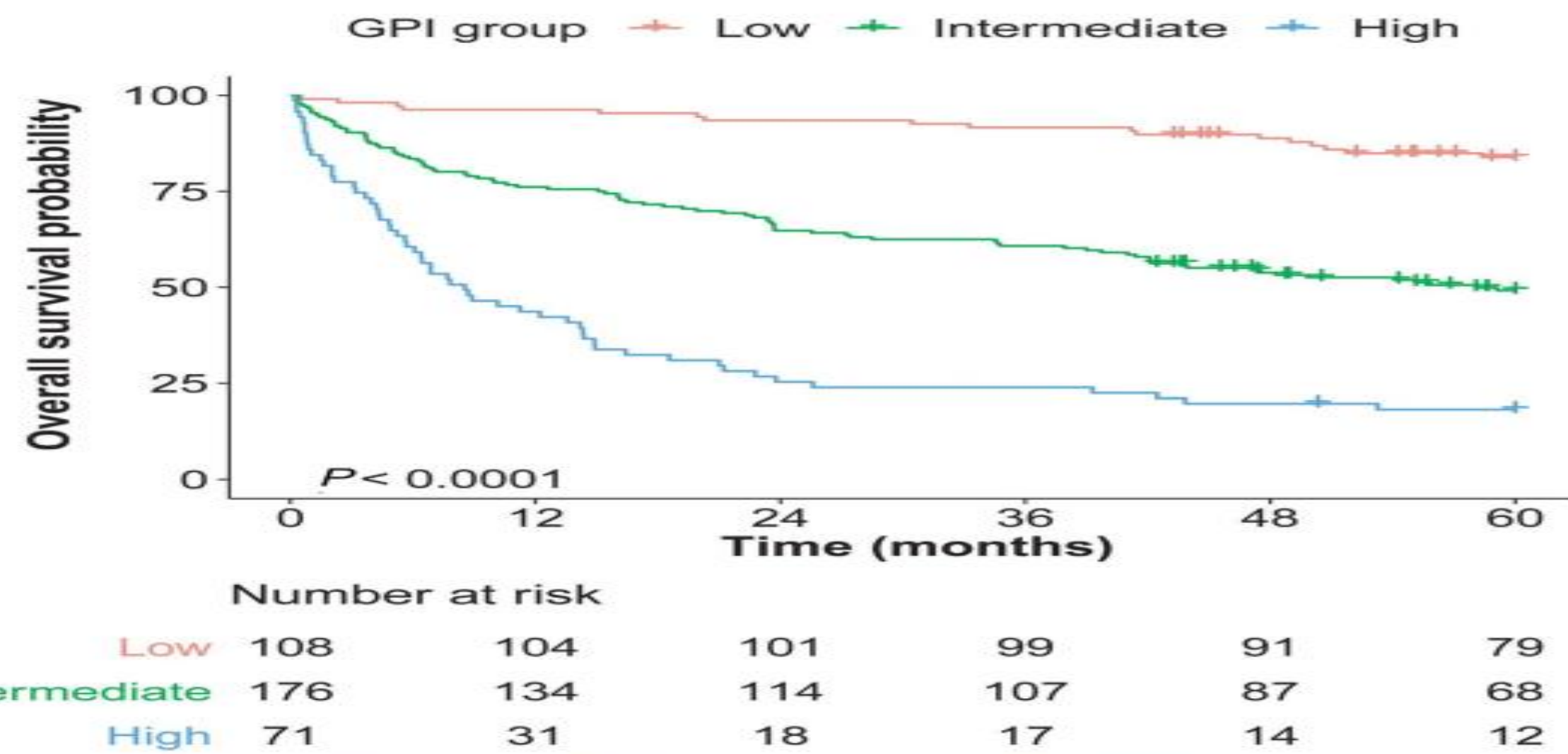


Figure 2. Overall survival of patients in the different Geriatric Prognostic Index groups in the training set. GPI: Geriatric Prognostic Index.

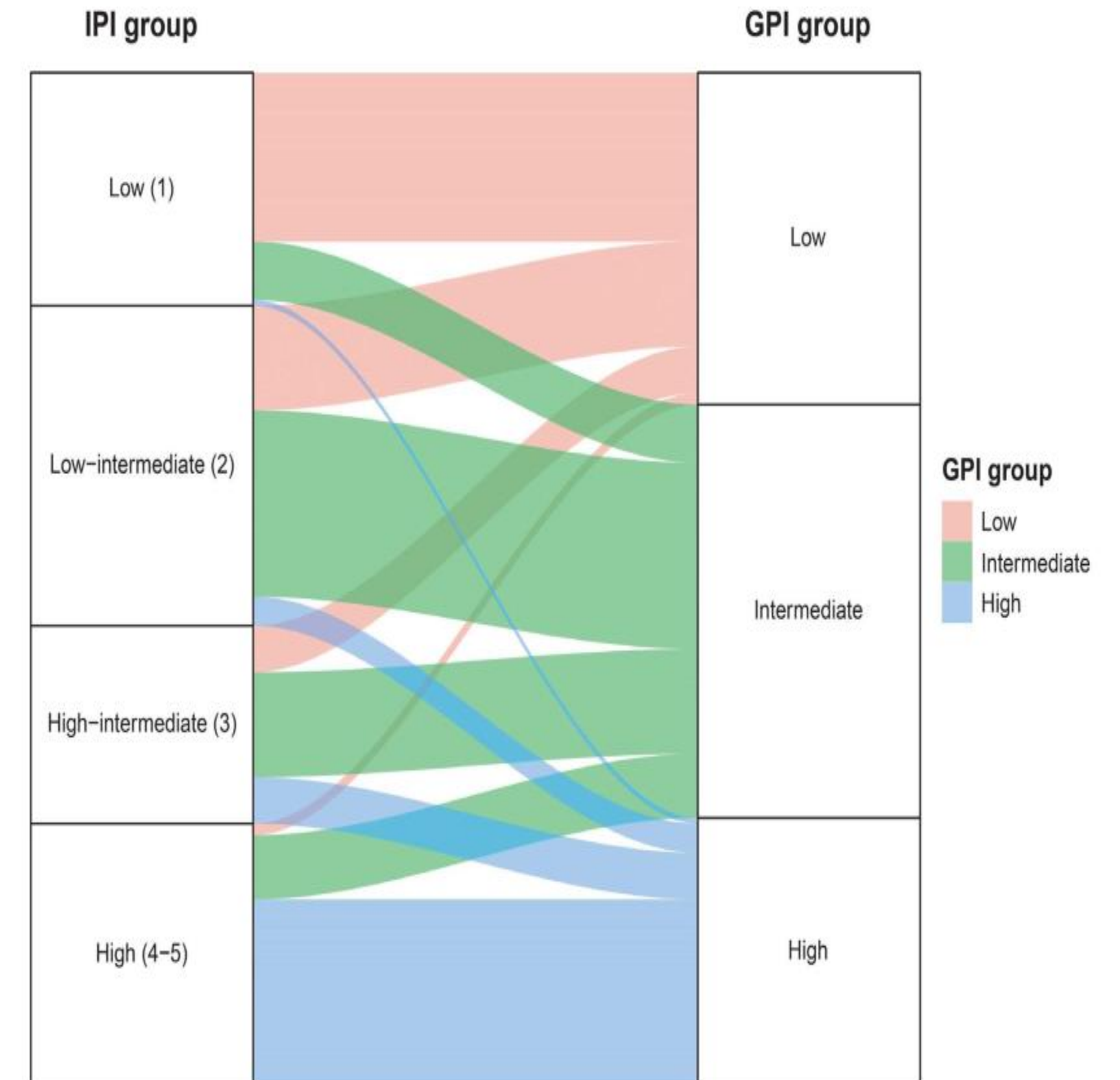


Figure 4. Alluvial plot showing the flow of patients from International Prognostic Index groups to Geriatric Prognostic Index groups in the test set (N=174). IPI: International Prognostic Index; GPI: Geriatric Prognostic Index.

Table 4

Geriatric assessment-guided treatment interventions in older adults with NHL.

Study	Geriatric Assessment Domains	Categorization	Approach	Outcomes	Treatment toxicity
Bernardi et al. [60]	Age, IADL, IADL, hepatic/renal function	<i>Fit</i> : ADL and IADL score of at least 5, with intact hepatic, renal function and hemopoietic reserve; <i>Intermediate dose group</i> - IADL < 5, or age > 80; <i>Frail</i> : dependent on ≥ 1 ADL, ≥ 3 comorbidities, or ≥ 1 geriatric syndromes	Curative intent with full dose in “fit” group; 75% of planned dose in intermediate-dose group and palliative approach in “frail” group	Entire cohort: ORR - 90%; CR 79%	Not available
Spina et al. [61]	Comorbidities, ADL, IADL	<i>Fit</i> : no grade 3 comorbidities (or < 3 grade 2 comorbidities), an ADL score of 6, and/or an IADL score of 7 or 8; <i>Unfit</i> - no grade 3 comorbidities (or 3–5 grade 2 comorbidities), an ADL score of 5, and/or an IADL score of 5 or 6; <i>Frail</i> : ≥ 1 grade 3 comorbidities (or > 5 grade 2 comorbidities), an ADL score < 5, or an IADL score < 5.	Two-step approach: <i>Step 1</i> : Regimen based on comorbidities - No Comorbidities: RCHOP; Comorbidities (Cardiac, Neuropathy, Diabetes): R-CEOP/CEOP, R-CVP/CVP, R-CHP/CHP; R-CHO/CHO <i>Step 2</i> : Dosing based on functional status - Full dose (100%): ADL (6), IADL (7–8); Intermediate dose (75%): ADL (5), IADL (5–6); Reduced dose (50%): ADL/IADL < 5	CR rate: 85% in fit versus 72% in unfit and 85% in frail ($p = 0.34$); 5-year OS: 76% for fit versus 53% for unfit and 29% for frail ($p = 0.001$)	Severe toxicity reported in 31% in fit versus 48% and 58% in unfit and frail, respectively $p = 0.11$; Treatment-related mortality: (fit - 5%, unfit - 9% and frail - 11%);
Olivieri et al. [62]	Age, comorbidities, geriatric syndromes, ADL independence	<i>Fit</i> : Age < 85, no grade 2 comorbidities or geriatric syndromes and ADL independence; <i>With comorbidities</i> : presence of comorbidities; <i>Frail</i> : age ≥ 85, ≥ 1 ADL dependence, ≥ 1 geriatric syndrome, ≥ 3 grade 2 or ≥ 1 CIRS-G grade 3 comorbidity	Fit: RCHOP21 With comorbidities: RCHOP21 (with liposomal doxorubicin) Frail: mini-RCHOP21	CR Rate was 81.5% in the fit group versus 63.6% in patients with comorbidities (unfit) and 60% in frail; Improved OS in fit vs unfit/frail ($p = 0.00933$), but no difference between OS between unfit and frail ($p = 0.63$)	Treatment-related mortality: 1.9% (fit) versus 9.1% (with comorbidities) versus 6.7% (frail).
Lastra-German et al. [63]	Unintentional weight loss, physical exhaustion, low physical activity, slowness, weakness	One point for each positive item: <i>fit</i> : 0 points, <i>unfit</i> : 1–2 points, <i>frail</i> : 3 points	Fit patients: R-CHOP; Unfit patients: R-choP (adjusted to 80% of total R-CHOP dose); Frail patients: R-COP	CR rate was 66.6% in fit, versus 78.3% in unfit and 40% in frail patients; Median OS was 22.5 months in fit, vs 21 months and 11 months in unfit and frail groups respectively.	No significant difference in grade 3/4 hematological toxicity (83.3% in fit versus 65.2% in unfit and 45% in frail, $p = 0.192$)
Bai et al. [20]	ADL, IADL, age, comorbidities (modified CIRS-G)	<i>Fit</i> , <i>unfit</i> and <i>frail</i> groups based on Tucci et al. [23] Study combined unfit and frail into one group for therapeutic interventions.	Fit patients: R-CHOP; Unfit/frail patients: R-CHOP (with 50% anthracycline dose), R-COP or R-miniCHOP	CR rate was 84.4% versus 51.5% ($p = 0.002$). Three-year OS was 91% versus 69% (statistical significance unknown).	No significant difference in treatment-related toxicity between fit and unfit/frail groups (grade 3/4 hematological toxicity - 51.1% vs 54.5%, $p > 0.05$)

ADL: Activities of Daily Living, IADL: Instrumental Activities of Daily Living; CIRS-G – Comorbidities Illness Rating Scale-Geriatrics; ORR – overall response rate; CR- complete response; OS – overall survival; R- rituximab; CEOP - cyclophosphamide, epirubicin, vincristine, and prednisone; CHO - cyclophosphamide, doxorubicin, and vincristine; CHOP - cyclophosphamide, doxorubicin, vincristine, and prednisone; CHP - cyclophosphamide, doxorubicin, and prednisone; CVP - cyclophosphamide, vincristine, and prednisone, COP - cyclophosphamide, vincristine, and prednisone.

Evaluation of the safety and efficacy of humanized anti-CD19 chimeric antigen receptor T-cell therapy in older patients with relapsed/refractory diffuse large B-cell lymphoma based on the comprehensive geriatric assessment system

Table 1. Grouping criteria for comprehensive geriatric assessment system.

CGA category	Fit	Unfit	Frail
Age (years)	≥65 to <80	≥80	≥80
ADL (score)	6	5	≤4
IADL (score)	8	6-7	≤5
CIRS-G	No comorbidity score 3-4 and <5 comorbidities score 2	No comorbidity score 3-4 and 5-8 comorbidities score 2	≥1 comorbidity score 3-4 or >8 comorbidities score 2

CGA: comprehensive geriatric assessment; ADL: activity of daily living; IADL: instrumental activity of daily living; CIRS-G: Cumulative Illness Rating Score for Geriatrics.

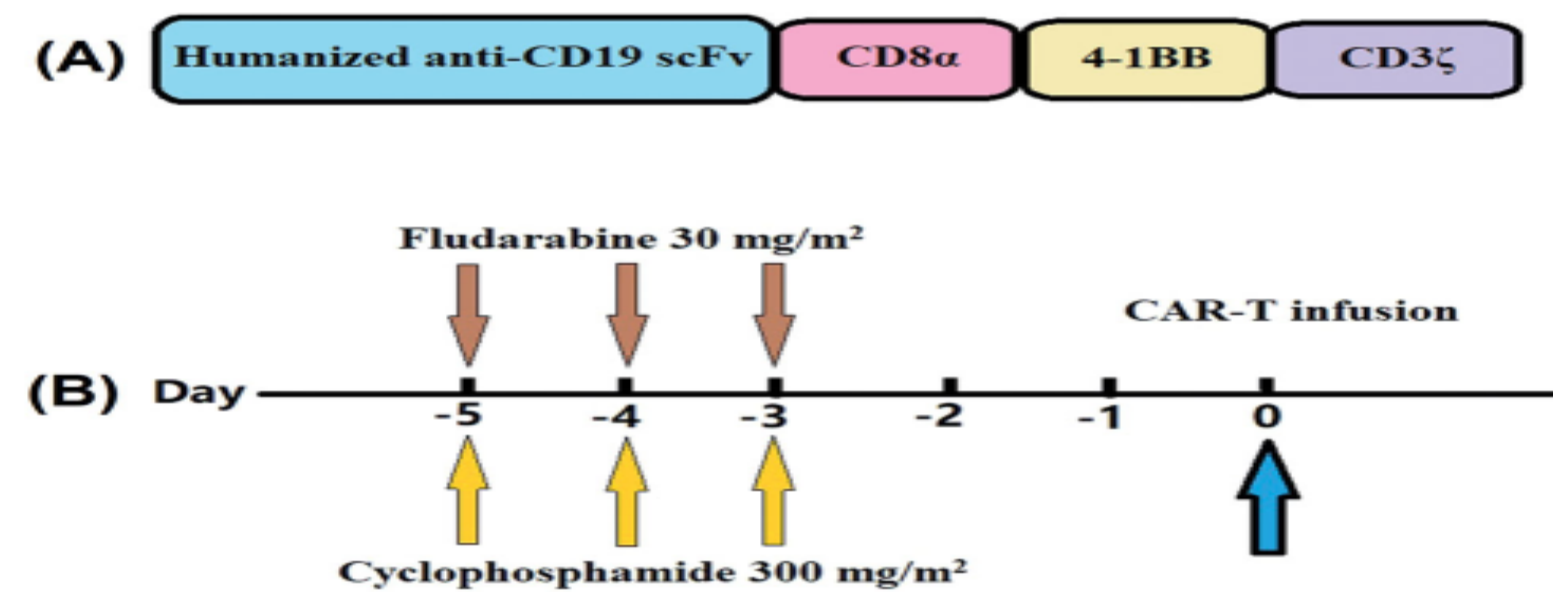


Figure 1. Structure and infusion of humanized anti-CD19 CAR T-cells. (A) CAR T-cells were composed of a humanized anti-CD19 antigen-binding region (scFv), CD8- α hinge, and a transmembrane domain, the 4-1BB-CD3 ζ costimulatory-activation domain. (B) Participants received a lymphodepletion therapy regimen (fludarabine 30 mg/m² and cyclophosphamide 300 mg/m²) from four to two days before receiving anti-CD19 CAR T-cell therapy.

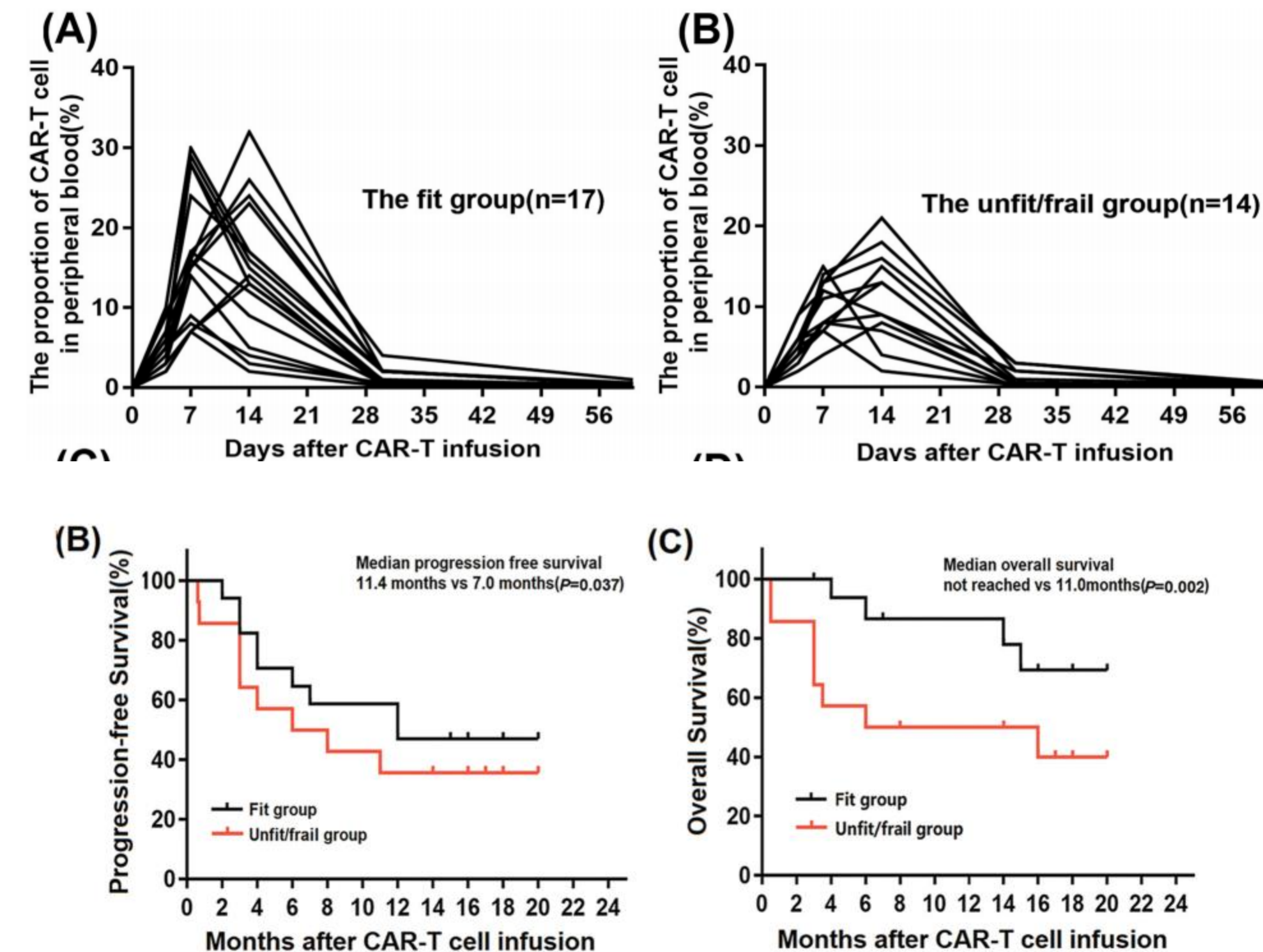
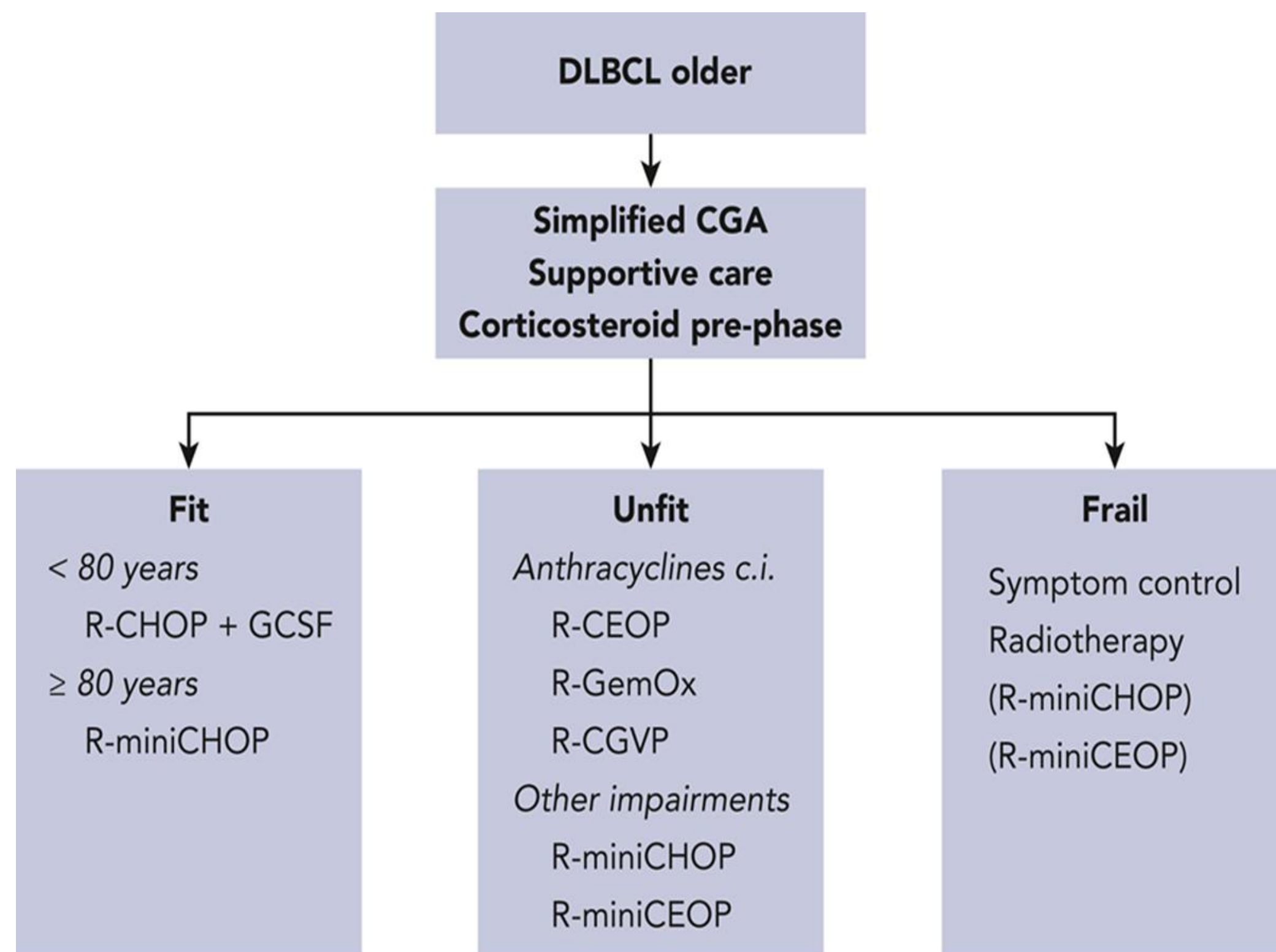


Figure 2. Feasibility assessments of humanized anti-CD19 CAR T-cells. (A) Treatment response and duration after beginning CAR T-cell infusion. (B) The Kaplan-Meier estimates of the PFS. The median PFS lengths of the two groups were 11.4 months and 7.0 months ($p=0.037$). (C) The Kaplan-Meier estimates of the OS. The median overall survival lengths of the two groups were not reached and 11.0 months ($p=0.002$).

Zhang H et al., Leuk Lymphoma 2022

Pieterella J. Lugtenburg, Pim G. N. J. Mutsaers, How I treat older patients with DLBCL in the frontline setting, Blood, 2023,



DLBCL, diffuse large B-cell lymphoma; CGA, comprehensive geriatric assessment; R-CHOP, rituximab, cyclophosphamide, doxorubicin, vincristine, prednisone; GCSF, granulocyte colony-stimulating factor; c.i., contra-indicated; R-CEOP, rituximab, cyclophosphamide, etoposide, vincristine, prednisone; R-GemOx, rituximab, gemcitabine, oxaliplatin; R-CGVP, rituximab, cyclophosphamide, gemcitabine, vincristine, prednisone



Merli F et al, The Role of Geriatric Assessment in the Management of Diffuse Large B-Cell Lymphoma, Cancers, 2024,

