Decennale di
HIGHLIGHTS in
RADIOTERAPIA

Update degli Studi Practice Changing 2024

Undicesima Edizione

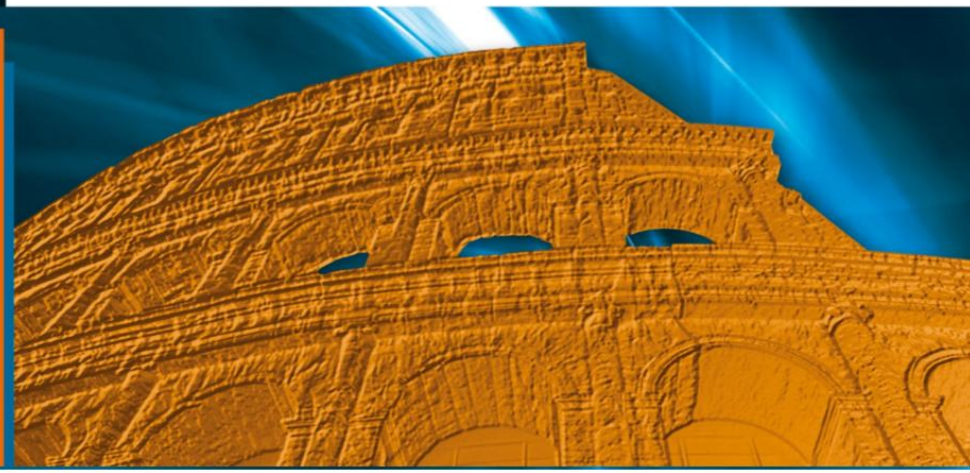
In memoria di Renzo Corvò

ROMA
30-31 gennaio 2025
Starhotels Metropole

New evidence and practice changing treatments in hematologic tumors

Stefano Vagge MD. PhD

E.O. Ospedali Galliera - Genova



Radiotherapy in haematological tumors

It's a huge world – but "fortunately" I've to focus on 2024 picking at 2023 for:

- **Hodgkin Lymphoma**
- **PMBCL**
- *CAR-T cell*
- *Cutaneous lymphoma*
- *Multiple Myeloma*
- *TBI/TMI*

A brief introduction for RT and Lymphoma treatments

RT for lymphoma is old:

- 1st curative treatment for lymphoma
- Also known as the most effective single agent
- Don't induce cross resistance with chemo
- Can reach high local control
- Potential immunogenic effect

However:

The main aim for most of the hematological trials is to omit RT

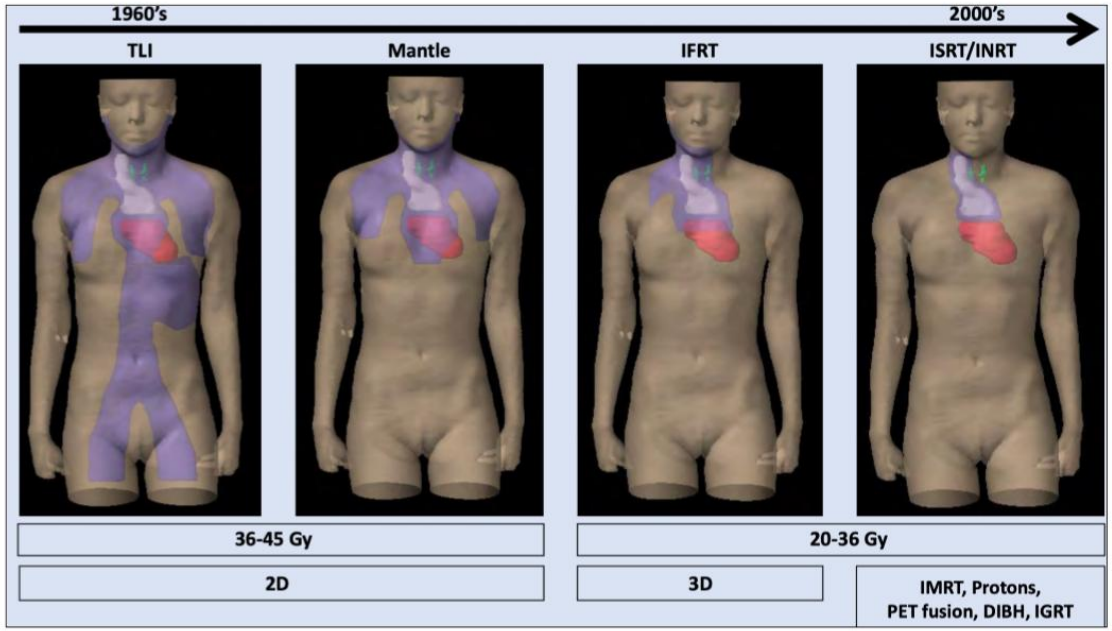
A brief introduction for RT and Lymphoma treatments

NEW DRUGS (Immunotherapy revolution) and

RESPONSE ADAPTED (PET imaging) changed the paradigm

Adapted fro Mikaeel J ESTRO 2023

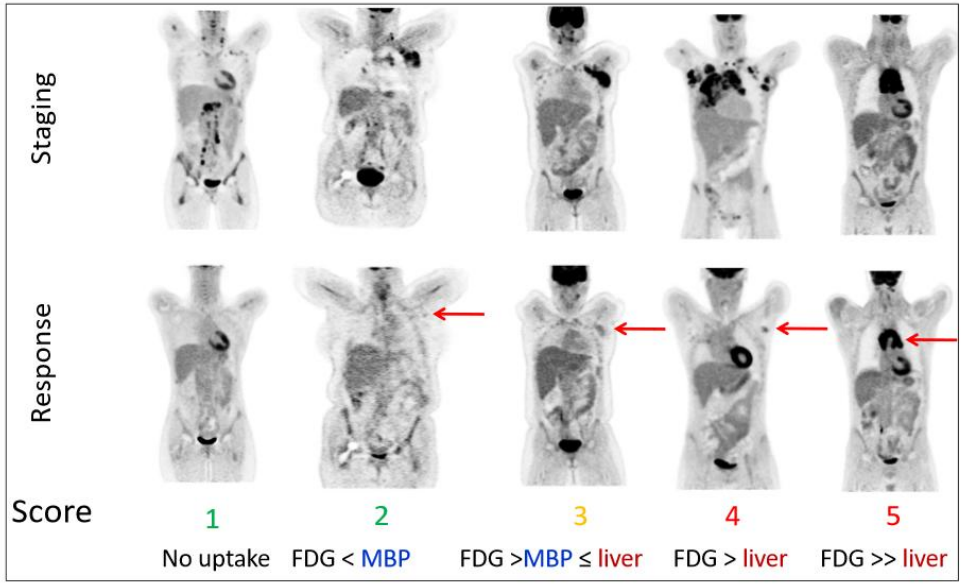
RT DOSES and RT VOLUMES "adaptation"



Modern Radiotherapy

Smaller volume:	Accurate imaging Involved-site only		
Lower dose:	Old doses: 40 -50 Gy Responding lymphoma:	cHL DLBCL FL	20 - 30 Gy 30 Gy 24 Gy or 4 Gy
Better technology:	IMRT IGRT Breathing / motion management		

Functional Imaging to predict response and for prognosis



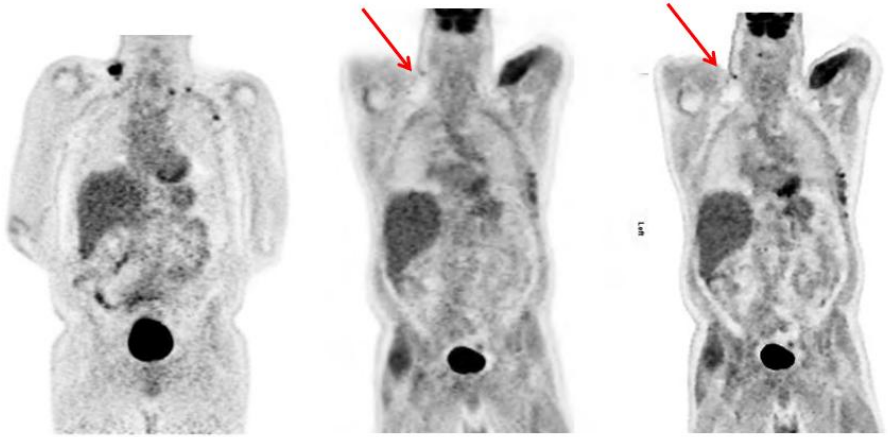
Deauville score

	FDG uptake
CMR	DS 1, 2, or 3
PMR	DS 4/5 - improvement compared to baseline
SMD	DS 4/5 - No significant change from baseline
PMD	DS 4/5 - Uptake > baseline or new areas

. . . . . .

Functional Imaging to predict response and for prognosis

Reconstruction algorithm can change Deauville score



Staging | Response Score 2 | qCLEAR Score 4

Adapted fro Mikaeel J ILROG 2023

Functional Imaging to predict response and for prognosis

Clinical Radiology 78 (2023) e89–e98
Contents lists available at ScienceDirect
Clinical Radiology
journal homepage: www.clinicalradiologyonline.net

The frequency of change in five-point scale score with a Bayesian penalised likelihood PET reconstruction algorithm on interim FDG PET-CT and its potential implications for therapy decisions in Hodgkin's lymphoma

M. Subesinghe [a,b,*], H. Ilyas [c], J.T. Dunn [a,b], N. Mir [d], A. Duran [d], N.G. Mikhaeel [e,f,†], S.F. Barrington [a,b,†]

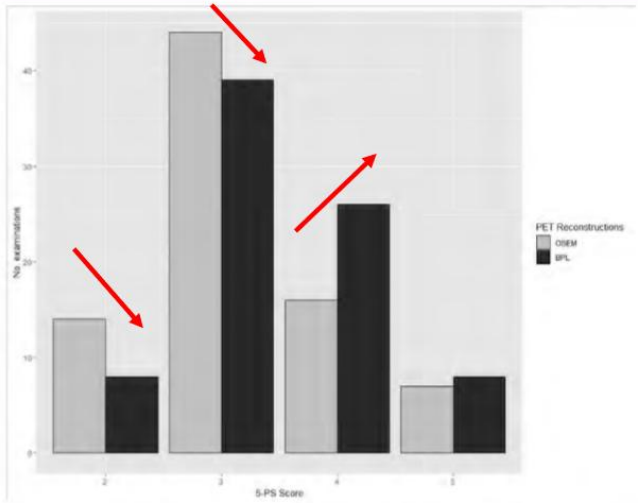


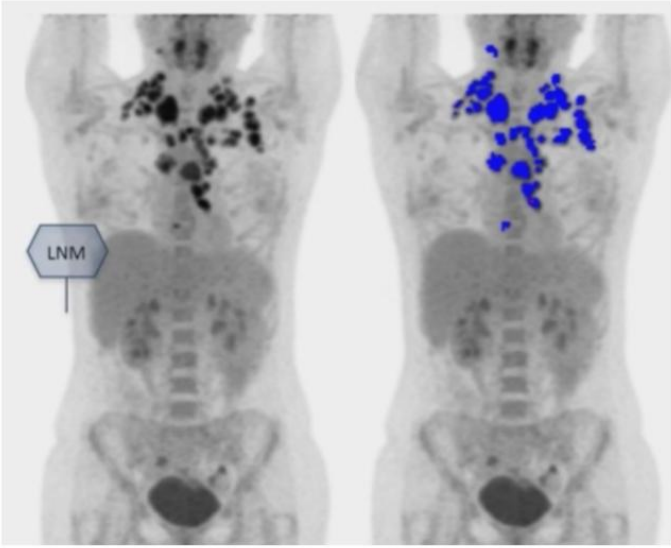
Figure 1 Frequency histogram comparing the 5-PS score between OSEM and BPL PET reconstructions.

Change of DS	18/81 = 22%	
Change from DS 3 → 4	11/81 = 14%	(25% of DS 3)

Functional Imaging to predict response and for prognosis

Is MTV ready for clinical use?

- Is it prognostic?
- Do we have consensus on how to measure it?
  - Software
  - Threshold for measurement
  - Cut-off for prognosis
- Is it reproducible and readily available in clinic?
- How should we use it?
  - In addition to prognostic indices
  - Replace
  - incorporate



A relative threshold method (SUVmax 41%) is used for tumor delineation. Three expert nuclear medicine readers calculated TMTV in baseline PET using the open-source Fiji® plattform[1]

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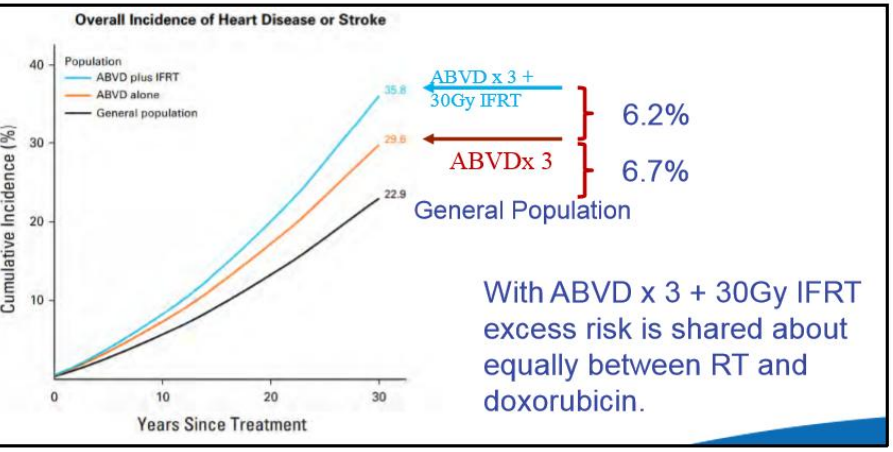
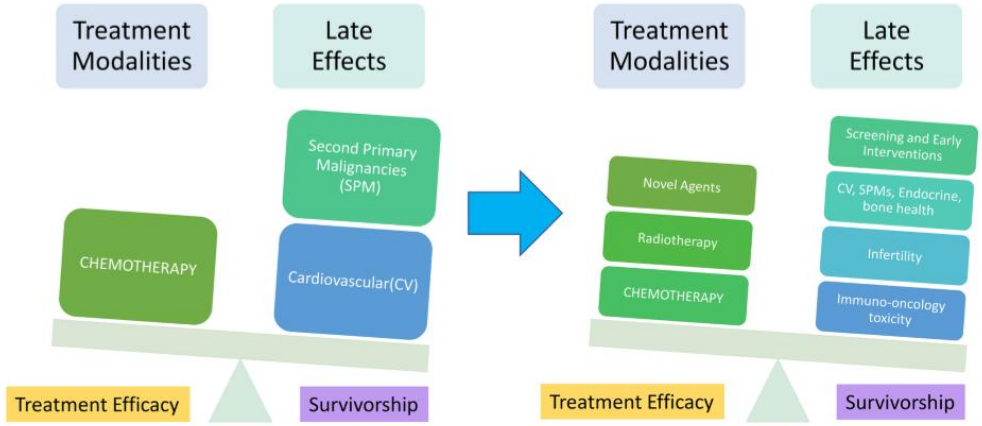
LS-Hodgkin Lymphoma



Considerations for Treatment of Early Stage HL



Taha Al-Juhaishi,Sairah Ahmed, Management of limited-stage Hodgkin lymphoma, Hematology Am Soc Hematol Educ Program, 2023,

Hodgson D. ILROG 2023

LS- Hodgkin Lymphoma

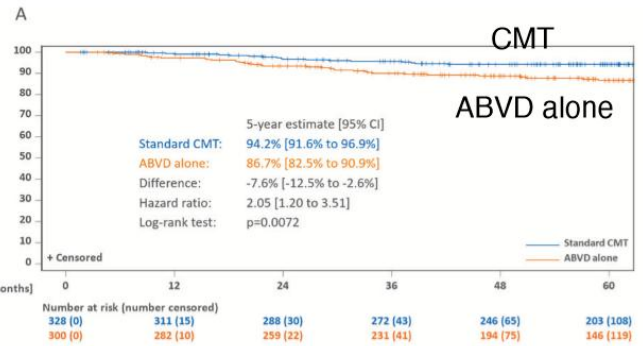
Trial	Trial design	PET negative definition	Disease stage/ characteristics	N	Median follow-up	PFS	OS
RAPID[25]	ABVD×3 – > PET neg: no further treatment or 30 Gy IFRT PET pos: ABVD×1 plus 30 Gy IFRT	DS 1–2	Stage IA or IIA Nonbulky	602	5 yrs	3-yr 90.8% 3-yr 94.6% 3-yr 83%	3-yr 99.0% 3-yr 97.1% 3-yr 87.6%
EORTC H10[19]	Favorable ABVD×2- > ABVD×1 plus INRT Or ABVD×2 – > PET PET neg: ABVD×2 PET pos: escBEACOPP×2 plus INRT Unfavorable ABVD×2- > ABVD×2 plus INRT Or ABVD×2- > PET PET neg: ABVD×4 PET pos: escBEACOPP×2 plus INRT	DS 1–2	Stage I or II Favorable or unfavorable	1950	4.5 yrs	(F) PET neg control = 5-yr 99% (F) PET neg trial = 5-yr 87.1% (U) PET neg control = 5-yr 92% (U) PET neg trial = 5-yr 89.6% (F/U) PET pos control = 5-yr 77.4% (F/U) PET pos trial = 5-yr 90.6%	5-yr 100% 5-yr 99.6% 5-yr 96.7% 5-yr 98.3% 5-yr 89.3% 5-yr 96.0%
CALGB 50604[27]	ABVD×2 – > PET PET neg: ABVD×2 PET pos: escBEACOPP×2 plus IFRT	DS 1–3	Stage I or II Nonbulky	164	3.8 yrs	3-yr 91% 3-yr 66%	
GHSG HD16[26]	CMT arm: ABVD×2 plus 20 Gy IFRT ABVD×2 – > PET neg: no further treatment PET pos: 20 Gy IFRT	DS 1–2	Stage I or II – Favorable Nonbulky	1150	3.8 yrs	5-yr 93.4% 5-yr 86.1% 5-yr 88.4%	5-yr 98.1% 5-yr 98.4% 5-yr 97.9%
GHSG HD17[28]	CMT arm: escBEACOPP/ABVD×4 plus 30 Gy IFRT PET-4 neg: no further treatment PET-4 pos: 30 Gy IFRT	DS 1–2	Stage I or II – Unfavorable Bulky	1100	3.9 yrs	5-yr 97.7% 5-yr 95.9% 5-yr 94%	5-yr 98.7% 5-yr 98.8% 5-yr 99.2%
CALGB 50801[39]	ABVD×2 – > PET PET neg: ABVD×4 PET pos: escBEACOPP×4 plus 30 Gy ISRT	DS 1–3	Stage IA-IIB Bulky only	94	5.5 yrs	3-yr 89.7% 3-yr 92%	3-yr 94.4% 3-yr 97.7%
RATHL[29]	ABVD×2 – > PET PET neg: ABVD×4 or AVD×4 PET pos: BEACOPP×4	DS 1–3	Stage IIB-IV or IIA with adverse features	1203	3.4 yrs	3-yr 85.7%, ABVD 3-yr 84.4%, ABVD- > AVD 3-yr 67.5%	3-yr 97.2% 3-yr 97.6% 3-yr 87.8%
HD10[40]	ABVD×4 plus 30 Gy IFRT ABVD×4 plus 20 Gy IFRT ABVD×2 plus 30 Gy IFRT ABVD×2 plus 20 Gy IFRT	Not PET adapted	Stage I or II Favorable	1370	7.5 yrs	8-yr 88.4% 8-yr 90.0% 8-yr 85.4% 8-yr 86.5%	8-yr 94.4% 8-yr 94.7% 8-yr 93.6% 8-yr 95.1%

Omission / not inclusion of RT at least in one arm

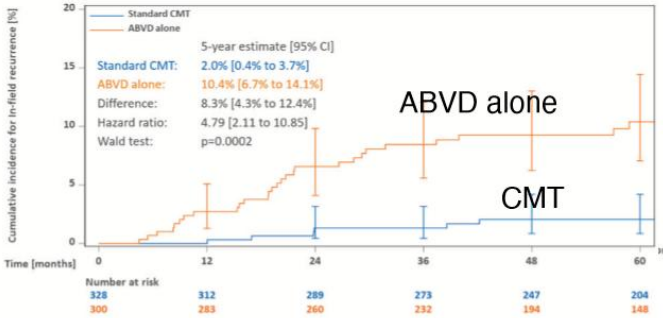
Taha Al-Juhaishi Hematology 2023

LS-Hodgkin Lymphoma

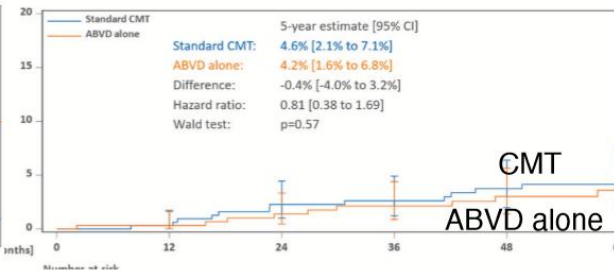
Follow-up of the GHSG HD16 trial of PET-guided treatment in early-stage favorable Hodgkin lymphoma



PFS



Local recurrence



Second malignancy

Fuchs et al Leukemya 2024

Hodgkin Lymphoma upcoming trial

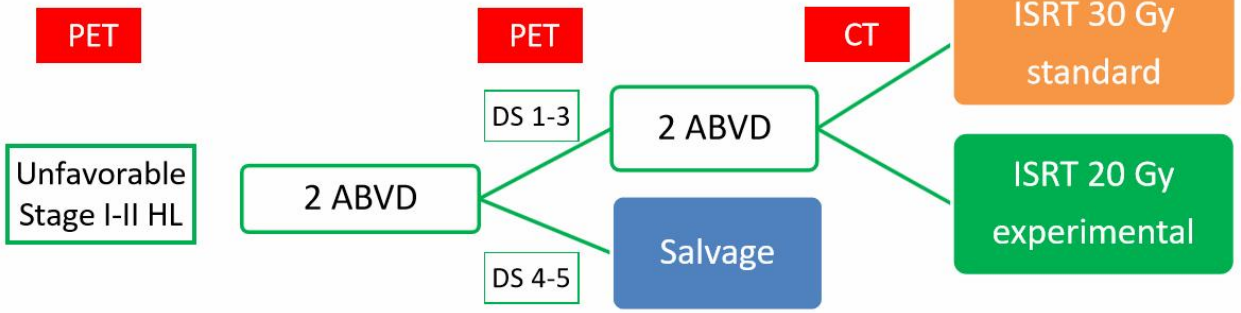
PET-guided dose Reduction for InvOlved site Radiotherapy In early-sTage unfavourable Hodgkin lymphoma: a randomized phase III studY

PRIORITY Trial

PI: Prof. U. Ricardi

Co-PI: dr. F. Matrone

NOVITÀ



RAFTING Trial

RADIATION-FREE THERAPY AS THE INITIAL TREATMENT OF GOOD-PROGNOSIS EARLY NON-BULKY HODGKIN LYMPHOMA, DEFINED BY A LOW METABOLIC TUMOR VOLUME AND A NEGATIVE PET-2 - RAFTING TRIAL.

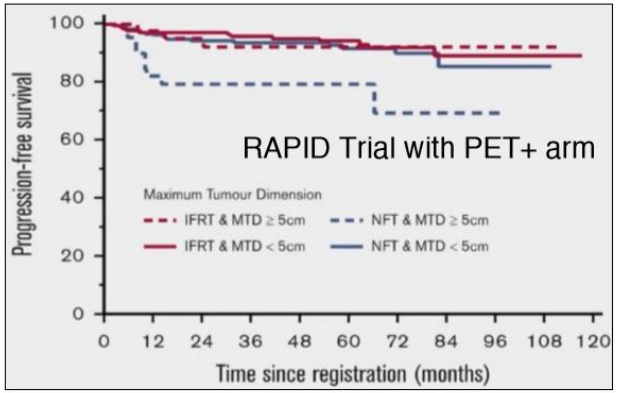
The RAFTING trial has been conceived with the aim of delivering the appropriate treatment intensity to early-stage nonbulky HL moving from the best risk-stratification so far available to predict treatment failure in a single-patient basis.

1. Modified EORTC Criteria
2. MTV value at baseline
3. Interim PET after 2 ABVD (PET-2) results

LOW-RISK: all the above: (Group 1a)
Favorable according to m-EORTC
Low MTV Value
Negative PET-2

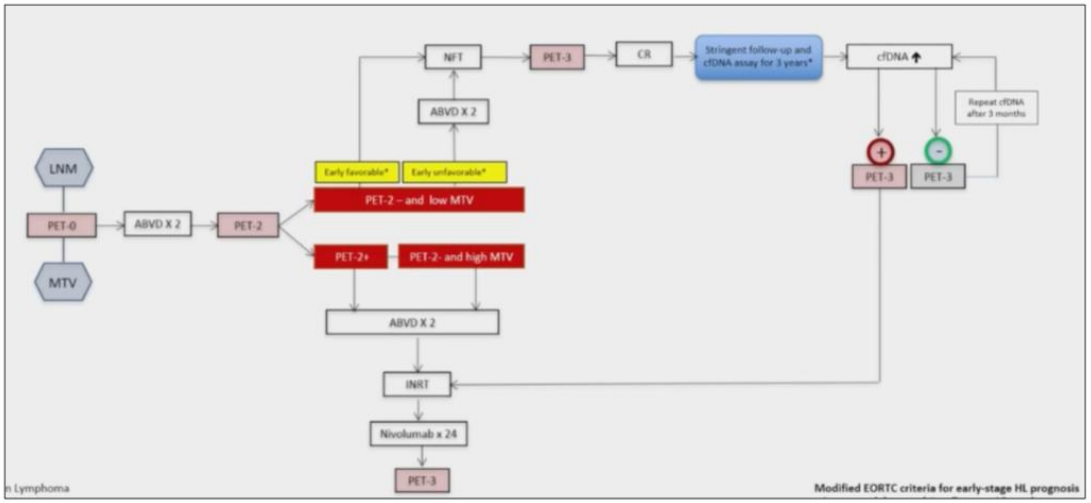
INTERMEDIATE RISK: (Group 1 b)
Low-risk patients with unfavorable m-EORTC criteria.

HIGH-RISK: any of the following: (Group 3a and 3b)
PET-2 positive (whatever the mEORTC class)
High MTV (whatever the mEORTC class)



Gallamini et al Hematological oncology 20

RAFTING Trial



Patient n°	Risk group	Risk factors	Treatment	PET-2 (DS)	PET-3 (DS)
1	High (3b)	MTV high	ABVD x 4 + INRT + Nivo	2	5
2	Low-int. (1b)	Age > 50§	ABVD x 4	3	4
3	High (3a)	PET-2 positive	ABVD x 4 + INRT + Nivo	4	4
4	Low-int. (1b)	LNM	ABVD x 2	3	5 (New Les.)
5	Low-int. (1b)	LNM	ABVD x 4	3	5

ISHL 12

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Hodgkin Lymphoma

The NEW ENGLAND JOURNAL of MEDICINE

EDITORIALS

Therapy for Hodgkin's Lymphoma — Can It Get Any Better?

James O. Armitage, M.D., and Dan L. Longo, M.D.

2024

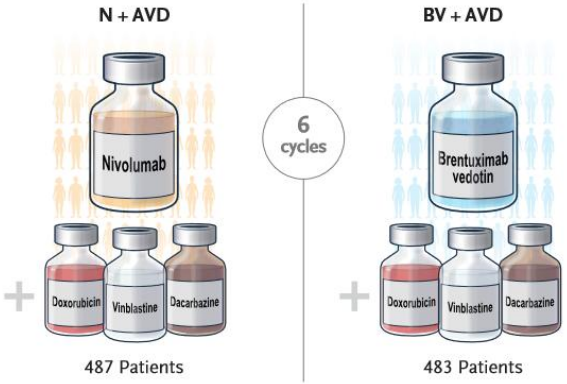
IO in advanced stage Hodgkin Lymphoma

The NEW ENGLAND JOURNAL of MEDICINE

ESTABLISHED IN 1812 OCTOBER 17, 2024 VOL. 391 NO. 15

Nivolumab+AVD in Advanced-Stage Classic Hodgkin's Lymphoma

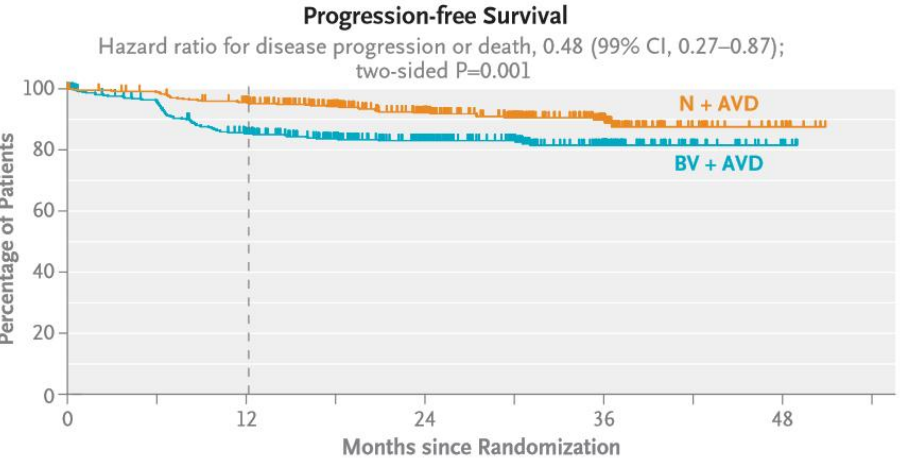
A.F. Herrera, M. LeBlanc, S.M. Castellino, H. Li, S.C. Rutherford, A.M. Evens, K. Davison, A. Punnett, S.K. Parsons, S. Ahmed, C. Casulo, N.L. Bartlett, J.M. Tuscano, M.G. Mei, B.T. Hess, R. Jacobs, H. Saeed, P. Torka, B. Hu, C. Moskowitz, S. Kaur, G. Goyal, C. Forlenza, A. Doan, A. Lamble, P. Kumar, S. Chowdhury, B. Brinker, N. Sharma, A. Singh, K.A. Blum, A.M. Perry, A. Kovach, D. Hodgson, L.S. Constine, L.K. Shields, A. Prica, H. Dillon, R.F. Little, M.A. Shipp, M. Crump, B. Kahl, J.P. Leonard, S.M. Smith, J.Y. Song, K.M. Kelly, and J.W. Friedberg

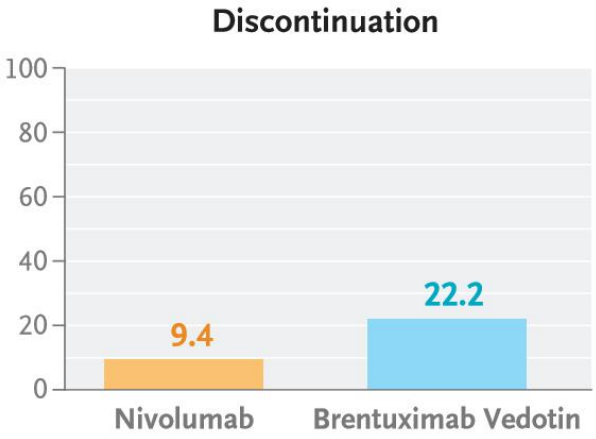


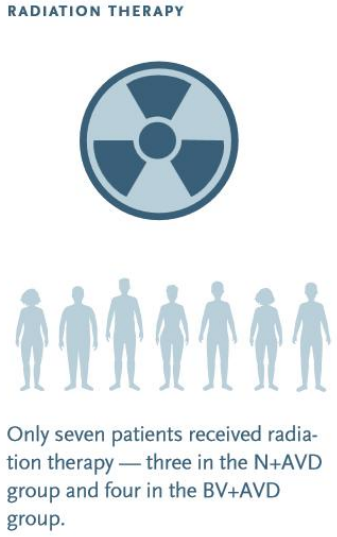
	N+AVD (N=487)	BV+AVD (N=483)
Disease stage — no. (%)		
III	185 (38)	168 (35)
IV	302 (62)	315 (65)
B symptoms present — no. (%)‡	288 (59)	273 (57)
IPS — no. (%)§		
0–3	332 (68)	328 (68)
4–7	155 (32)	155 (32)
Bulky disease — no. (%)¶	156 (32)	127 (26)

Age		
Median (range) — yr	27.6 (12.0–83.7)	26.8 (12.0–81.7)
Distribution — no. (%)		
12–17 yr	118 (24)	118 (24)
18–60 yr	321 (66)	318 (66)
>60 yr	48 (10)	47 (10)
Female sex — no. (%)	216 (44)	210 (43)

IO in - Hodgkin Lymphoma







NEJM 2024

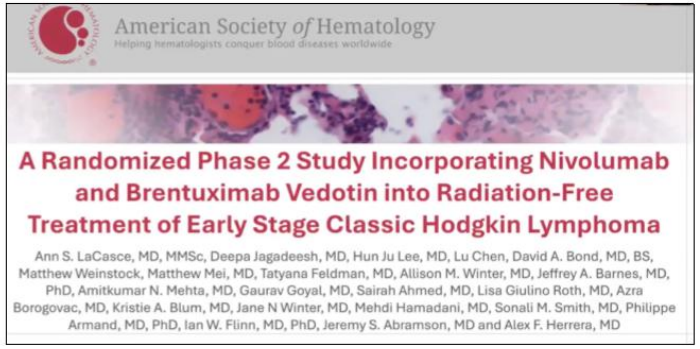
IO in LS-Hodgkin Lymphoma

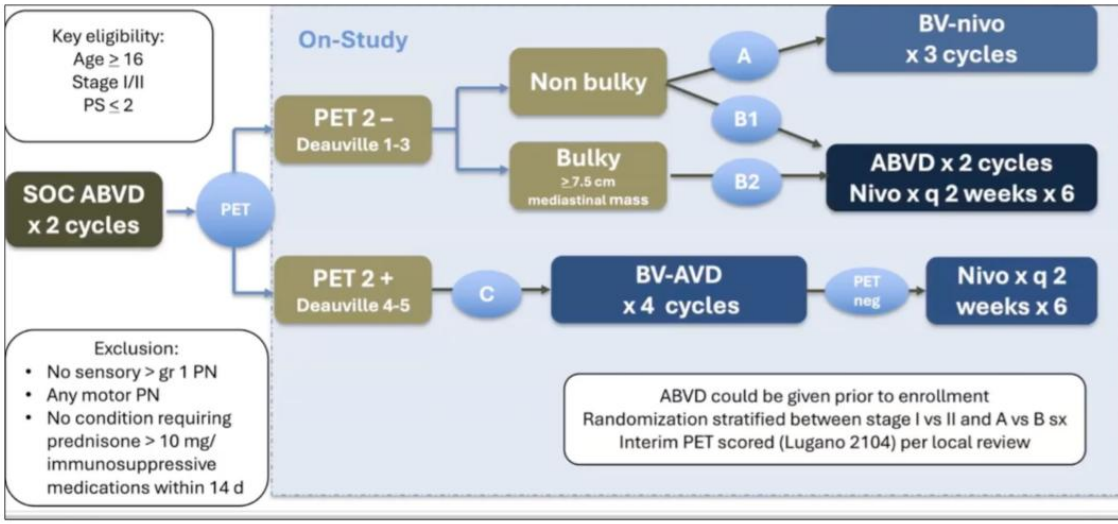
Trial	Trial design	Disease stage	N	Median follow-up	Outcomes	PFS	OS
Pembrolizumab followed by AVD[51]	Pembro×3 → AVD×4–6 (4 cycles for early stage, 6 cycles for advanced-stage or early-stage bulky)	Stage I/II unfavorable Stage III/IV	30	22.5 months	CMR 55% with pembro alone, but reached 100% after AVD×2	Median PFS not reached, 2-year PFS 100%	Median OS not reached, 2-year OS 100%
Nivolumab and AVD[54]	Nivo-AVD×4 plus 30 Gy ISRT Sequential therapy: nivo×4 doses → nivo-AVD×2 → AVD×2plus 30 Gy ISRT	Early-stage unfavorable	109	13 months	CMR Group 1: 83% Group 2: CR 84%	12-month PFS: Group 1: 100% Group 2: 98%	12-month OS 100% in both groups
Bv-AVD vs ABVD, followed by 30 Gy INRT[53]	Bv-AVD×4 or ABVD×4→30 Gy INRT	Early-stage unfavorable	170	45 months	CMR Bv-AVD 86.7% ABVD 78.9%	2-year PFS: 97.3% with Bv-AVD vs 92.6% with ABVD	Median not reached
Bv-AD[45]	Bv-AD×2 → PET 1. If PET neg, then Bv-AD×2 (total 4) 2. If PET pos, then Bv-AD×4 (total 6)	Non-bulky early-stage favorable or unfavorable	34	53 months	CMR 97%	Estimated 5-year PFS of 91%	Estimated 5-year OS of 96%
Bv-AVD +/− RT (4 cohorts)[52]	BV-AVD×4 → PET If PET neg, then 1. 30 Gy ISRT 2. 20 Gy ISRT 3. 30 consolidation volume radiotherapy 4. No radiotherapy	Early-stage unfavorable	117	45.6 months	CMR 1. 93% 2. 100% 3. 93% 4. 97%	Overall 2-year PFS 94% 2-year PFS for 4 cohorts 1. 93.1% 2. 97% 3. 90% 4. 97%	Overall 2-year OS 99.1%
ABVD followed by Bv consolidation[56]	ABVD×2 →PET Favorable and PET neg, then BV consolidation Favorable and PET pos or unfavorable and PET neg, then ABVD×2 plusBV consolidation Unfavorable and PET pos, then ABVD×4 plusBV consolidation	Nonbulky early-stage favorable and unfavorable	41	47 months	CMR 95%	3-year PFS of 92% 3-year PFS 100% for PET neg after Bv	OS was 97% 3 year OS 100% for PET neg after Bv

Important results for PFS

Taha Al-Juhaishi Hematology 20

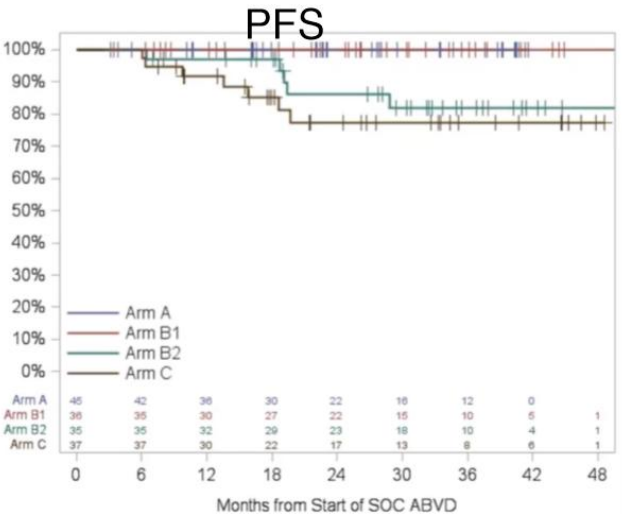
IO and Radiation Free - Hodgkin Lymphoma





ASH 2024

IO in - Hodgkin Lymphoma



PFS (95% CI)	# of PD/Rel	18-month	24-month
Arm A (n=45)	0	100%	100%
Arm B1 (n=36)	0	100%	100%
Arm B2 (n=35)	5	97% (81-100%)	86% (67-95%)
Arm C (n=37)	7	85% (68-94%)	77% (57-89%)

No deaths reported thus far.
Median follow-up is 27.7 months (range 3.2-51.0).

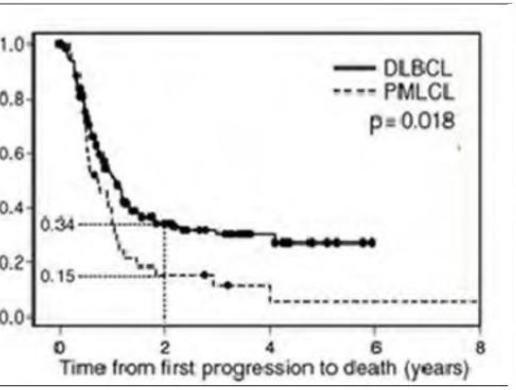
Incorporating Nivo +/- BV in PET2-negative patients with non-bulky early stage cHL after 2 cycles of ABVD resulted in 100% 24 month PFS with manageable toxicity, without radiotherapy.

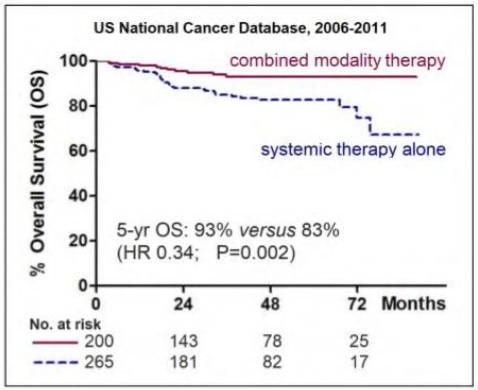
Lead to AHOD 2131 intergroup study

ASH 2024

PMBCL

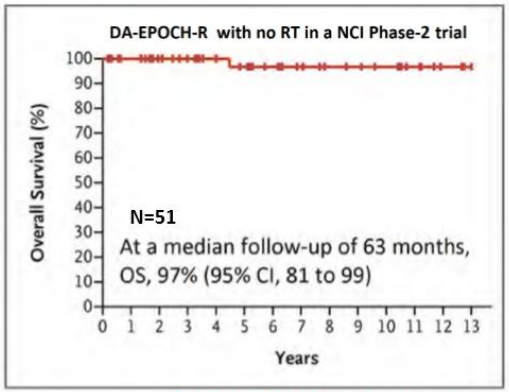
CMT





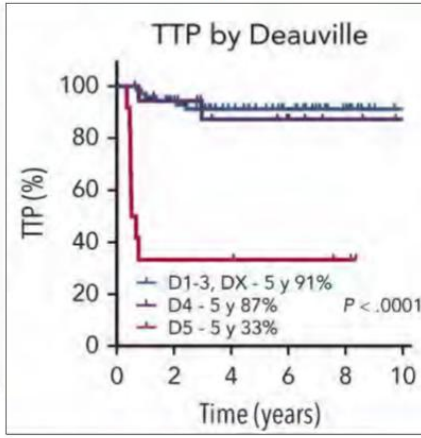
MW Jackson et al. Am J Hematol. 2016; 91:476-80

Chemo only



K Dunleavy et al. NEJM. 2013; 368:1408-16

PET adaptation



Hayden AR et al, Blood 2020;136:2803

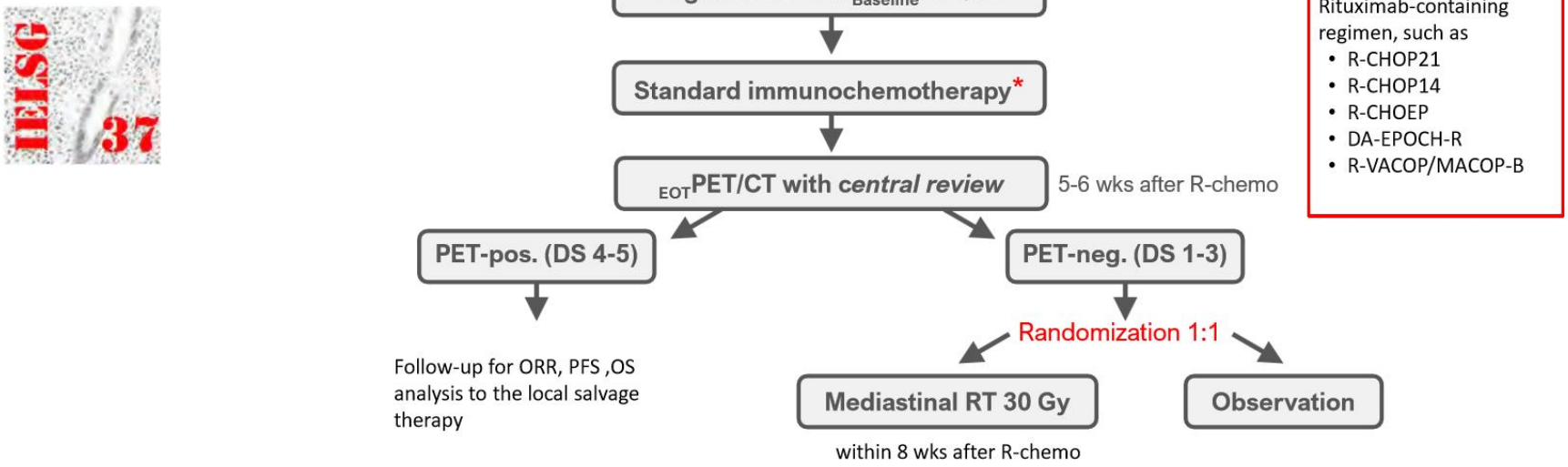
A distinctive lymphoma looking for the best strategy of cure

Adapted from Ricardi U- ILROG 2023

IELSG 37 and OMISSION of RT in PMBCL

Journal of Clinical Oncology®

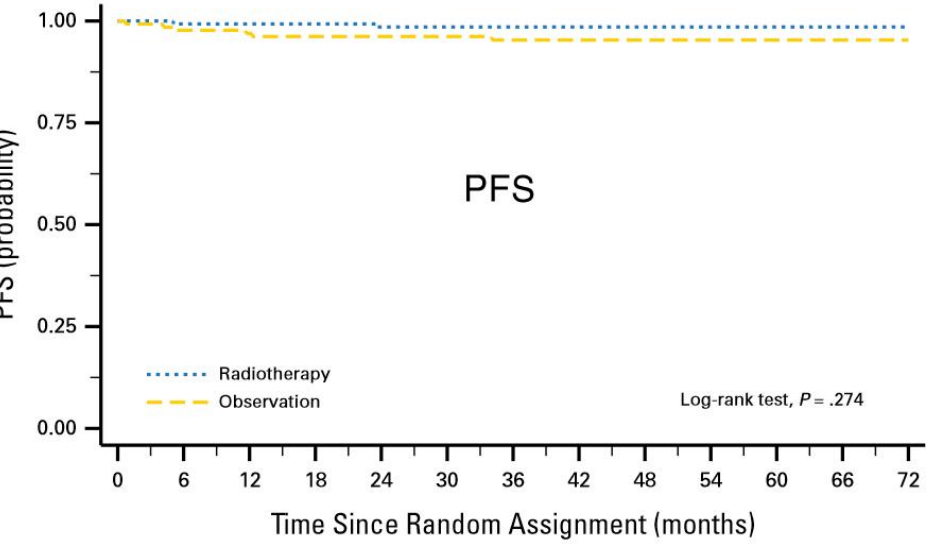
Martelli et al 2024

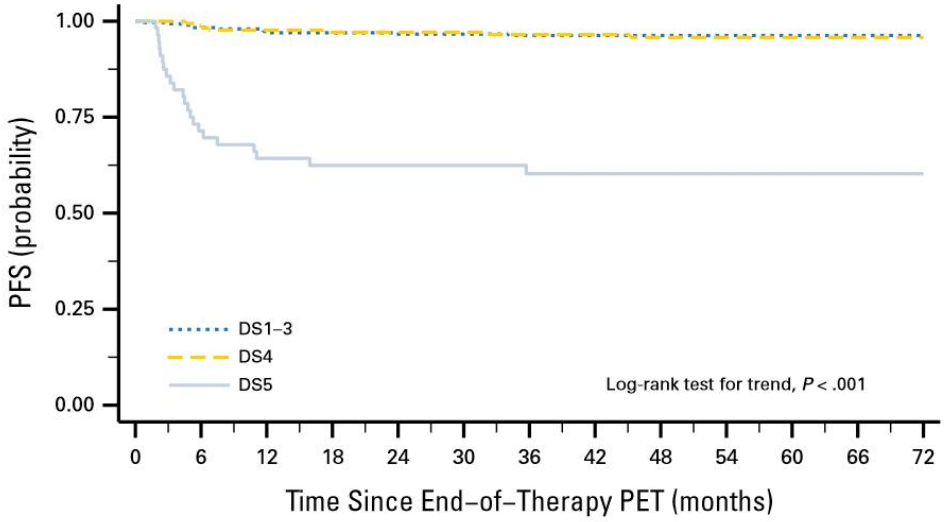


IELSG 37 and OMISSION of RT in PMBCL

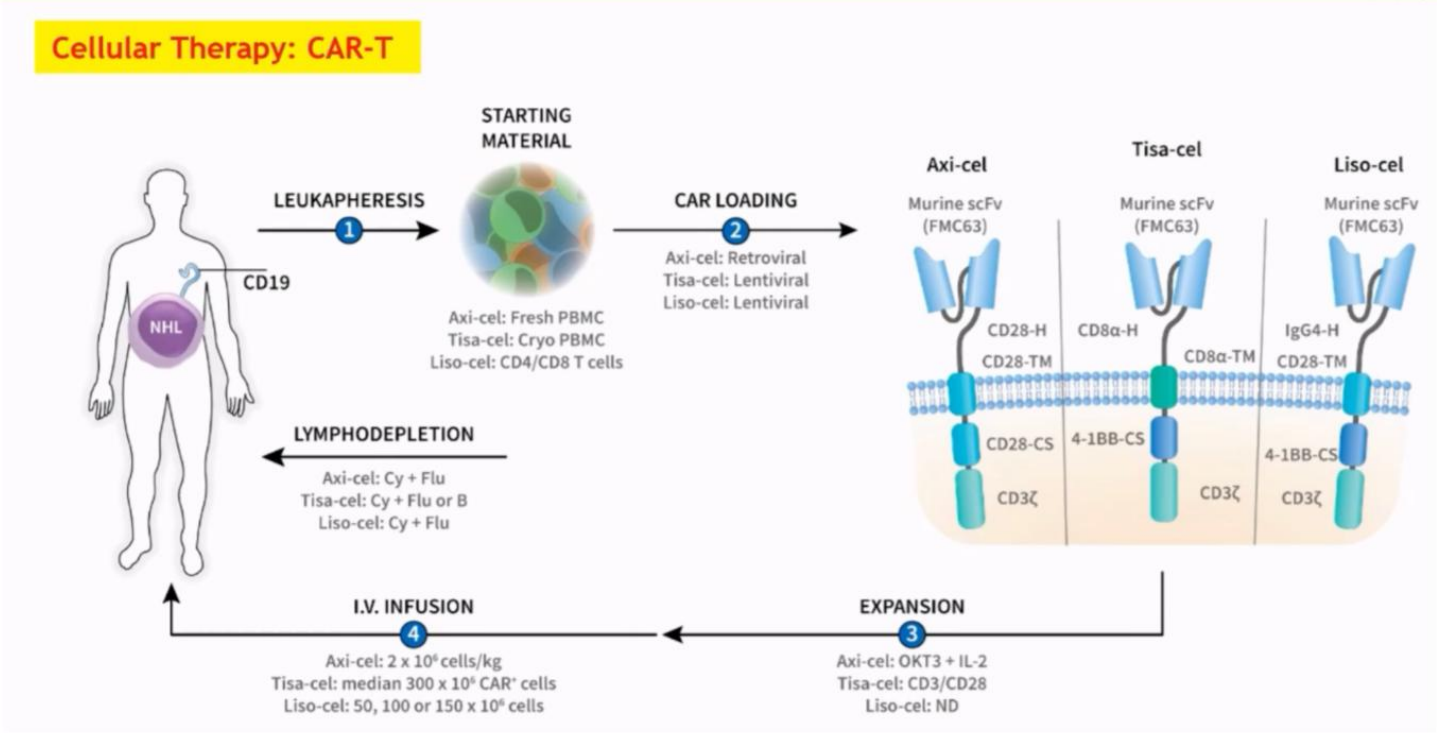
Journal of Clinical Oncology®
Martelli et al 2024

Practice changing



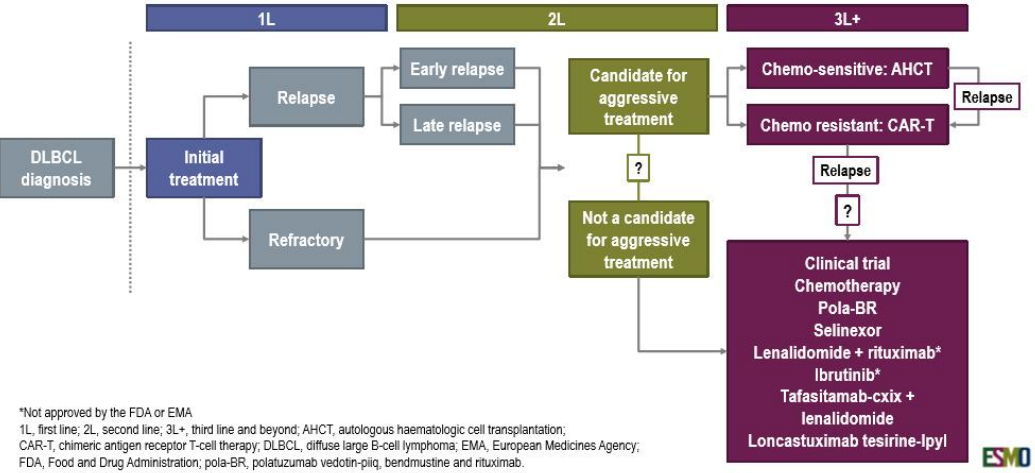


CART-T cells and RT



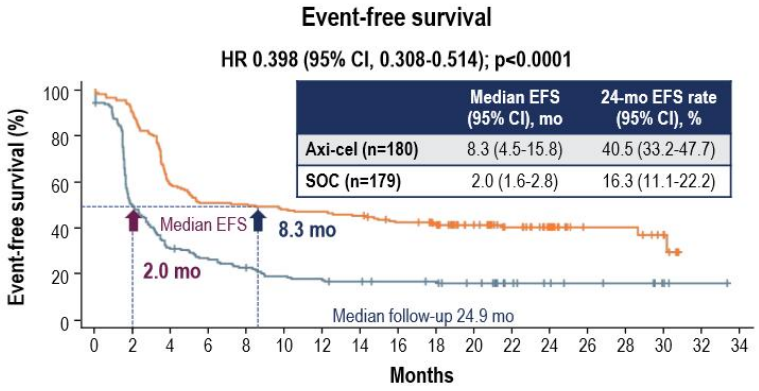
CART-T cells and RT

TREATMENT APPROACH AND UNMET NEED IN DLBCL



*Not approved by the FDA or EMA
1L, first line; 2L, second line; 3L+, third line and beyond; AHCT, autologous haematologic cell transplantation; CAR-T, chimeric antigen receptor T-cell therapy; DLBCL, diffuse large B-cell lymphoma; EMA, European Medicines Agency; FDA, Food and Drug Administration; pola-BR, polatuzumab vedotin-piiq, bendmustine and rituximab.
Wang L, *et al.* J Hematol Oncol 2020;13:175.

CAR-T AS 2L THERAPY IN R/RLBCL ZUMA 7: RESULTS



Ruth Pettengell

Consolidative radiotherapy for residual fluorodeoxyglucose activity on day +30 post CAR T-cell therapy in non-Hodgkin lymphoma

Omran Saifi,[1] William G. Breen,[2] Scott C. Lester,[3] William G. Rule,[3] Bradley J. Stish,[2] Allison Rosenthal,[4] Javier Munoz,[4] Yi Lin,[5,6] Radhika Bansal,[5] Matthew A. Hathcock,[5,7] Patrick B. Johnston,[5] Stephen M. Ansell,[5] Jonas Paludo,[5] Arushi Khurana,[5] Jose C Villasboas,[5] Yucai Wang,[5] Madiha Iqbal,[5] Muhamad Alhaj Moustafa,[5] Hemant S. Murthy,[5] Mohamed A. Kharfan-Dabaja,[5] Jennifer L. Peterson[1] and Bradford S. Hoppe[1]

Correspondence: B. S. Hoppe
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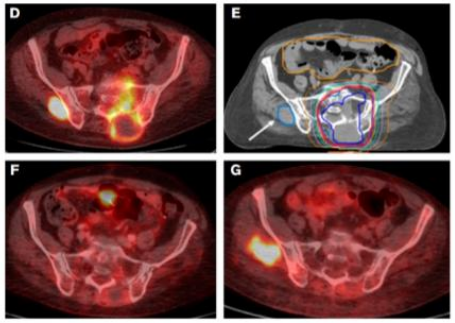
FONDAZIONE ITALIANA LINFOMI

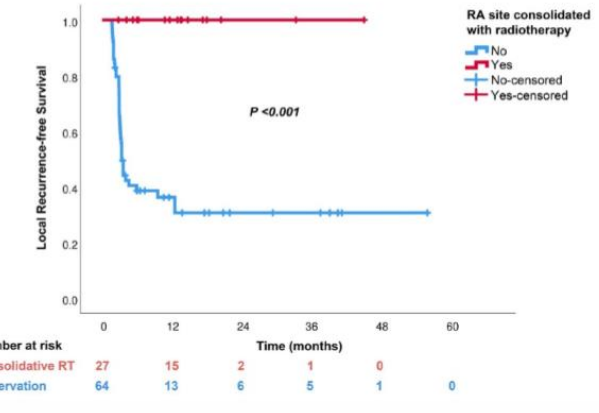
Saifi, Haematologica 2023



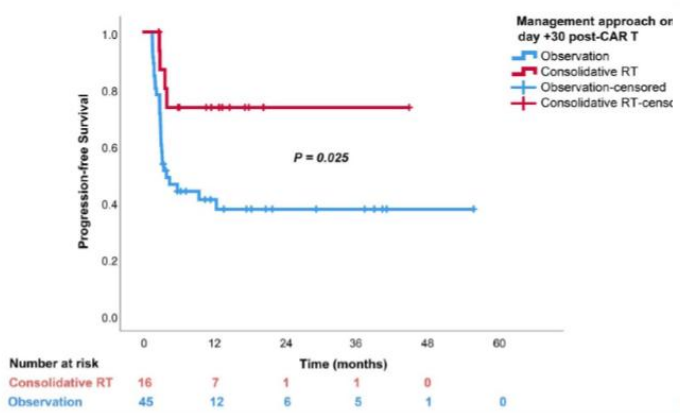
- **61 pts with positive FDG PET at day +30**
- **45 patients were observed and 16 received cRT.**
- **15 (33%) observed patients ⟹ CR**
- **27 (60%) PR progressed with all relapses involving initial sites of residual FDG activity**
- **10 (63%) cRT patients achieved CR, and four (25%) progressed with no relapses in the irradiated sites.**

Courtesy by
Simontacchi G

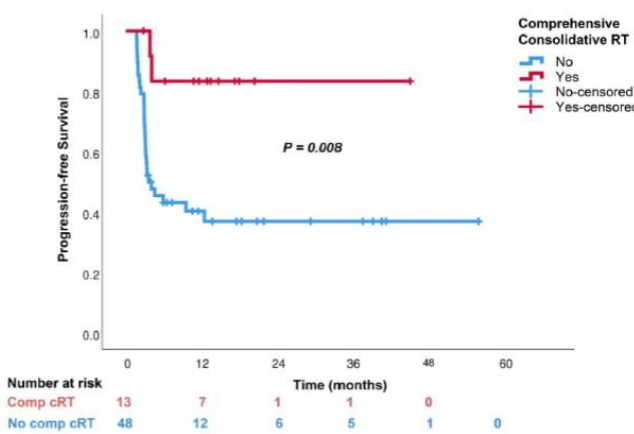
CART-T cells and RT consolidative



LOCAL CONTROL



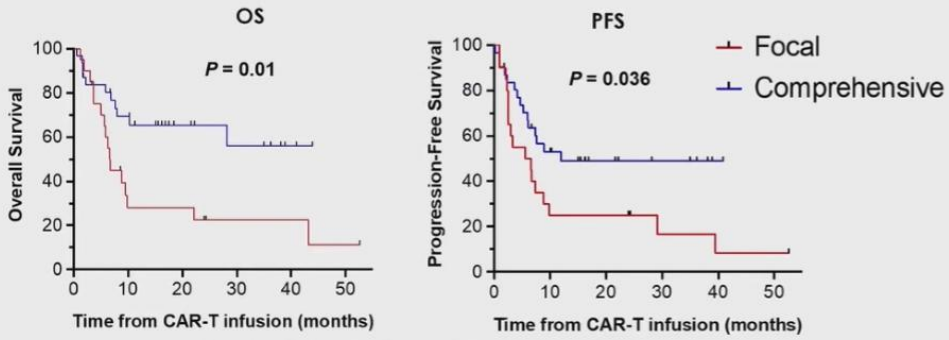
Patient level PFS



PFS «comprehensive RT»

CART-T cells and RT Bridging

OS & PFS ↑ with **comprehensive** bRT to all disease sites



1 yr OS: 72% [52-85] *vs.* 45% [23-65], *p*=0.01

Gohar et al. ASTRO 2023

What bridging strategy is best?

"Non-Ablative"	"Bridging"	"Ablative"
2-8 Gy	20-30 Gy	> 30 Gy
Ultra Low-Dose	Moderate Dose	*High dose*
Immunogenic	Temporizing	*Definitive*
Abscopal Effect	Debulking	Debulking
	Palliative	Curative
2-8 Gy	**20-30 Gy**	**37.5-45 Gy**
in 1-2 frx	**in 5-10 frx**	**in 15-18 frx**
"Boom boom"		

Courtesy by
Simontacchi G

Cutaneous Lymphomas

BRIEF REPORT

Real-World Pattern-of-Care Analysis of Primary Cutaneous Lymphomas Radiation Therapy Among European Organisation for Research and Treatment of Cancer Members

Khaled Elsayad, MD, PhD,[*,†,‡,§,‖,1] Emmanuella Guenova, MD, PhD,[†,¶,1] Beatrice Fournier,[‡] Carolina Fernandes,[‡,1] Enrico Clementel,[‡] Evangelia Papadavid, PhD,[§,1] Marie Beylot Barry, MD, PhD,[‖,1] Felix Pavlotsky, MD,[¶] Chalid Assaf, MD, PhD,[#,**,††,1] Pablo L. Ortiz-Romero, PhD,[‡‡,1] Vassilis Kouloulias, MD, PhD,[§§,1] Adele de Masson, MD, PhD,[‖‖,1] Stephane Dalle, MD,[¶¶,1] Pierre Clavère, PhD,[##,1] Max Schlaak, MD,[***,1] Nina Booken, MD, PhD,[†††,1] Marion Wobser, MD,[‡‡‡,1] Christina Mitteldorf, MD,[§§§,1] Barzilai Aviv, MD,[¶] Virgínia Mareco, MD,[¶¶¶,1] Fernando Gallardo, PhD,[###,1] Reinhard Dummer, MD,[****,1] Markus Gross, PhD,[††††] Felix Ehret, MD,[‡‡‡‡] Andrea Lancia, MD,[§§§§] Bartłomiej Tomasik, PhD,[‖‖‖] Lorna Hawley, PhD,[¶¶¶¶] Vincent Rermouchamps, MD, PhD,[####] Mona Abdel-Halim Ibrahim, MD,[*****,1] Ahmed Gawish, PhD,[†††††,‡‡‡‡‡,§§§§§,‖‖‖] Mohamed Abouegylah, MD,[¶¶¶¶¶] Martin Stuschke, PhD,[#####] Adinda Baten, MD,[******] Hans Theodor Eich, PhD,[*] Lena Specht, MD, PhD,[‡‡‡‡‡,1] Mario Levis, PhD,[§§§§§§] Stephen Morris, MBBS, MRCP, FRCR,[‖‖‖‖‖‖‖,1] Belinda Campbell, MBBS, MMed, FRANZCR,[¶¶¶¶¶¶,######,*******,1] Jan P. Nicolay, MD, PhD,[†††††††,1] Richard Cowan, MD,[‡‡‡‡‡‡‡,1] and Dora Correia, MD[§§§§§§§,‖‖‖‖‖‖‖] on behalf of the EORTC Cutaneous Lymphoma Tumour Group[1]

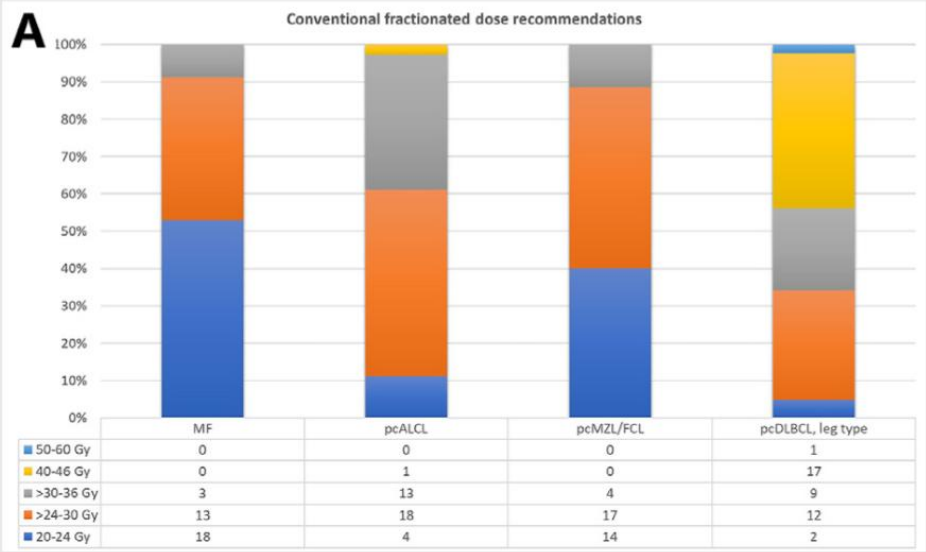
IJROBP 2024

Radiotherapy in cutaneous lymphomas: Recommendations from the EORT cutaneous lymphoma tumour group

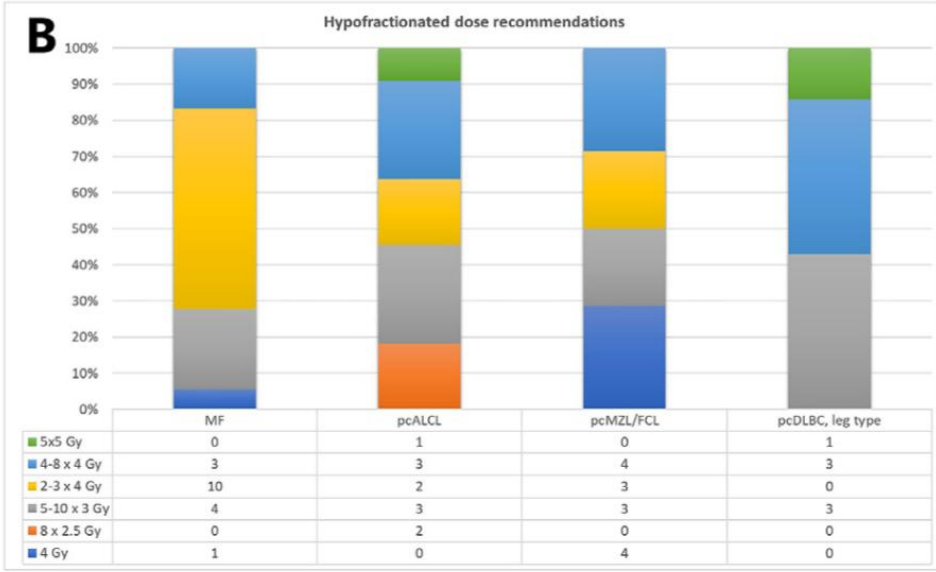
Khaled Elsayad [a,ab,ai,aj,*], Emmanuella Guenova [b,ak], Chalid Assaf [c,d], Jan P. Nicolay [e], Franz Trautinger [f], Rudolf Stadler [g], Cora Waldstein [h], Tom Boterberg [i], Paul Meijnders [j], Youlia Kirova [k], Gabor Dobos [l], Victor Duque-Santana [m,al], Elena Riggenbach [n], Wael Elsheshtawy [o], Anne Niezink [p], Evangelia Papadavid [q], Julia Scarisbrick [r], Maarten Vermeer [s], Karen J. Neelis [t], Martine Bagot [u], Maxime Battistella [v], Pietro Quaglino [w], Robert Knobler [x], Werner Kempf [y,z], Ahmed Maklad [aa], Sebastian Adeberg [ab,ai,aj], Vassilis Kouloulias [ac], Gabriele Simontacchi [ad], Stefanie Corradini [ae], Laila König [af], Hans Theodor Eich [a], Richard Cowan [ag], Dora Correia [n,ah]

EJC 2024

Cutaneous Lymphomas



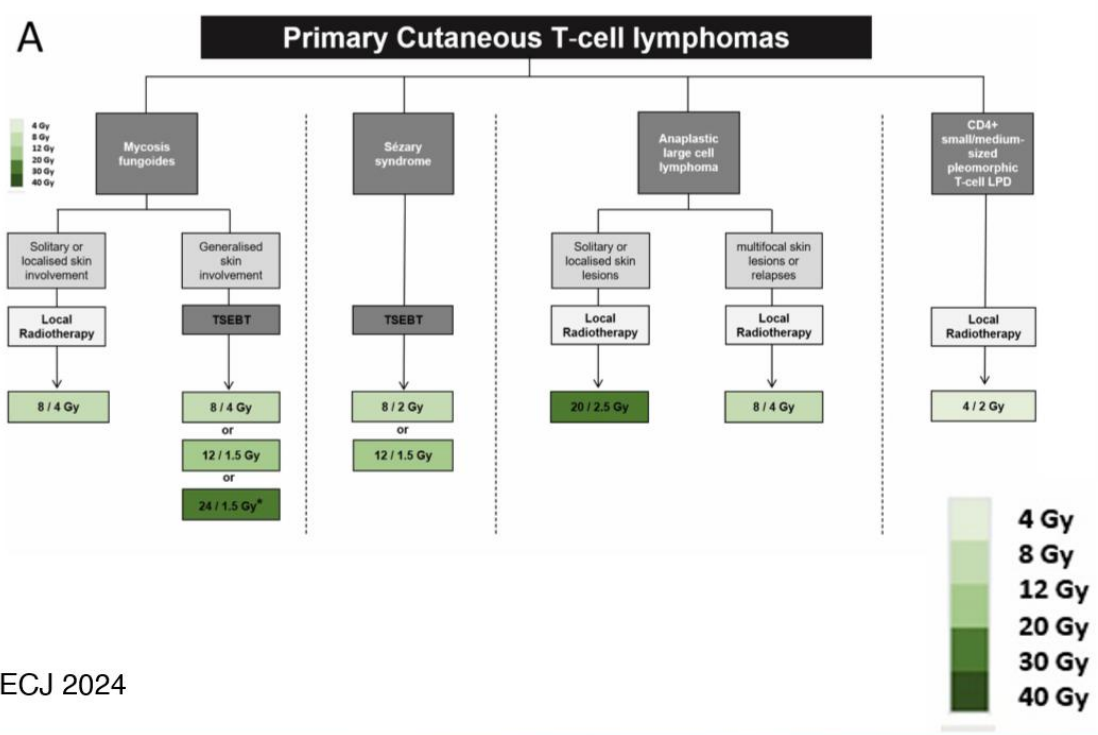
	MF	pcALCL	pcMZL/FCL	pcDLBCL, leg type
50-60 Gy	0	0	0	1
40-46 Gy	0	1	0	17
>30-36 Gy	3	13	4	9
>24-30 Gy	13	18	17	12
20-24 Gy	18	4	14	2

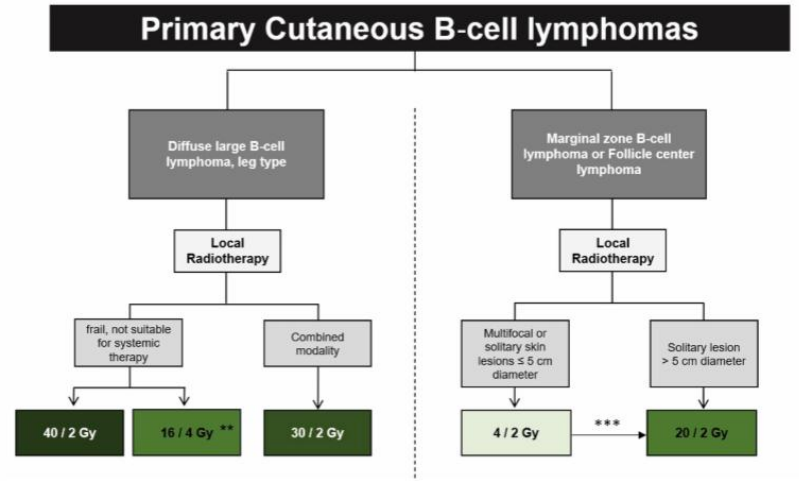


	MF	pcALCL	pcMZL/FCL	pcDLBC, leg type
5x5 Gy	0	1	0	1
4-8 x 4 Gy	3	3	4	3
2-3 x 4 Gy	10	2	3	0
5-10 x 3 Gy	4	3	3	3
8 x 2.5 Gy	0	2	0	0
4 Gy	1	0	4	0

IJROBP 2024

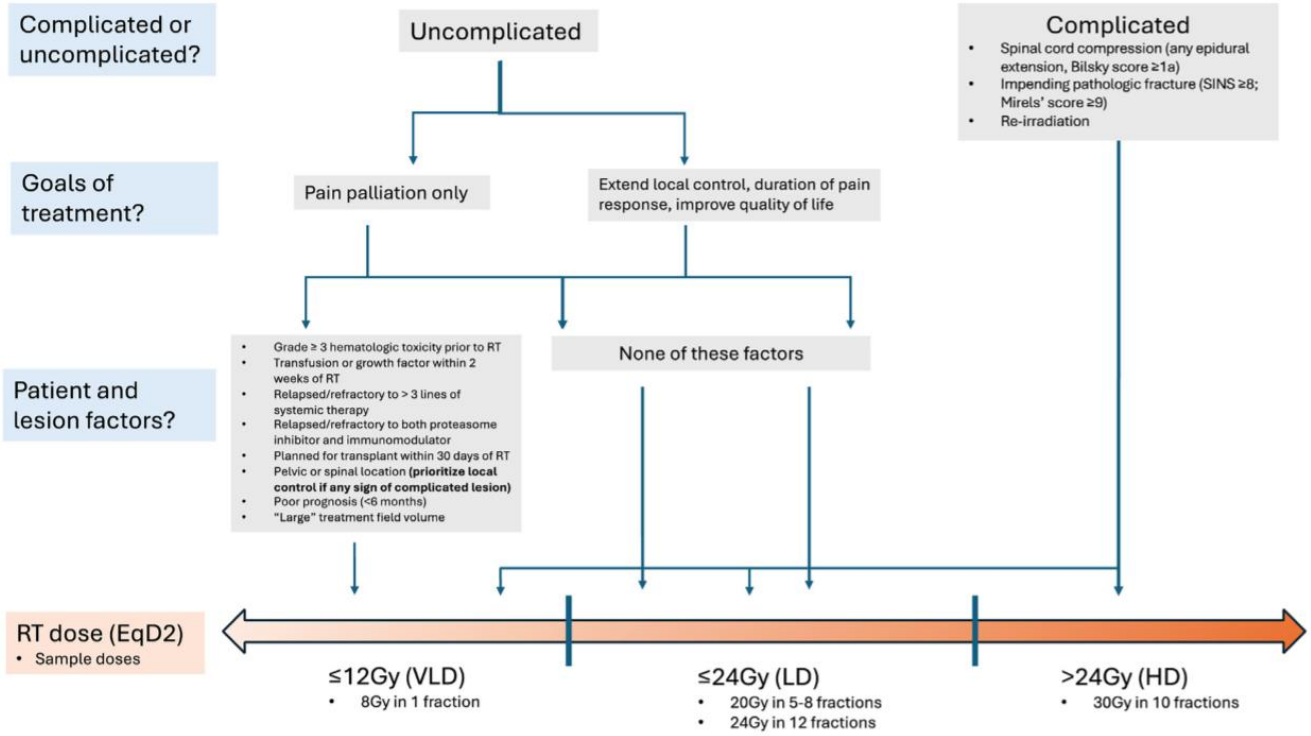
Cutaneous Lymphomas





ECJ 2024

Radiotherapy and Multiple Myeloma



Sem Rad Onc 2025

S.C. Zhang and L.K. Ballas

TBI/TMI

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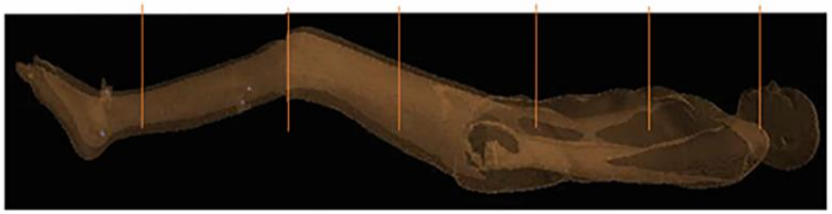
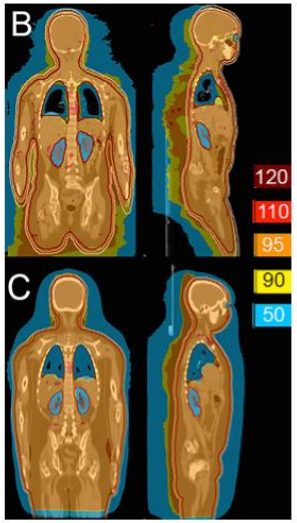
journal homepage: www.thegreenjournal.com

Technical recommendations for implementation of Volumetric Modulated Arc Therapy and Helical Tomotherapy Total Body Irradiation

Enrica Seravalli [a], Mirjam E. Bosman [a], Chunhui Han [b], Christoph Losert [c], Montserrat Pazos [c], Per E Engström [d], Jacob Engellau [e], Christian P.L. Fulcheri [f], Claudio Zucchetti [f], Simonetta Saldi [g], Carlos Ferrer [h], Abrahams Ocanto [i], Susan M. Hiniker [j], Catharine H. Clark [k,l,m,n], Mohammad Hussein [l], Sarah Misson-Yates [o,p,q], Daria A. Kobyzeva [r], Anna A. Loginova [r], Bianca A.W. Hoeben [a,s,*]

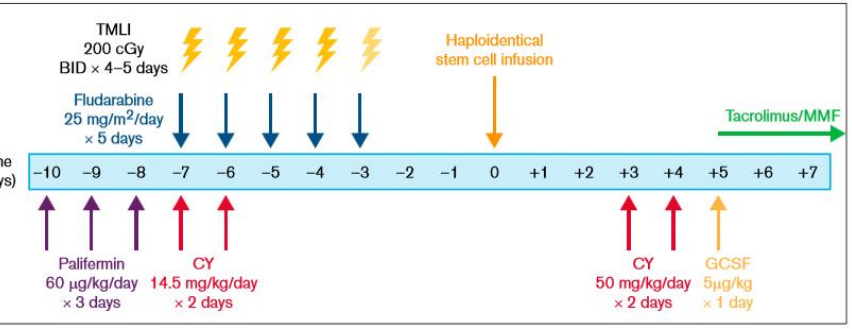


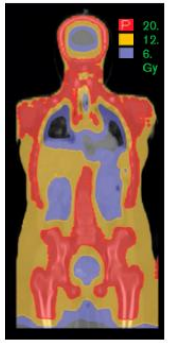


Multicentric approach

It's not a pioneering approach, but volumetric whole-body irradiation became appealing

TBI/TMI





Total marrow and lymphoid irradiation as conditioning in haploidentical transplant with posttransplant cyclophosphamide

Al Malki Blood advances 2022

1 year RR 17%

2023

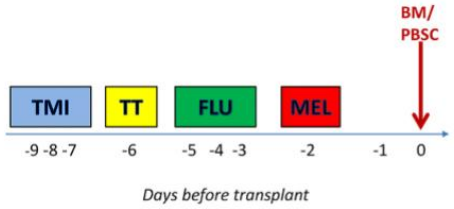
67% 3 yy RFS

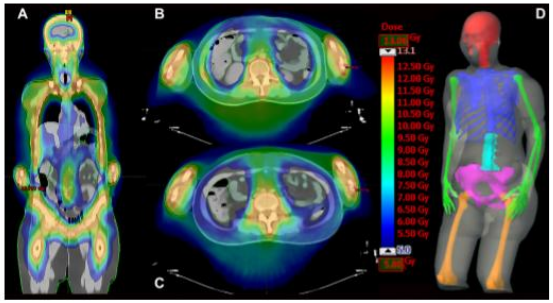
ELSEVIER
Transplantation and Cellular Therapy
journal homepage: www.astctjournal.org
ASTCT American Society for Transplantation and Cellular Therapy

Full Length Article
Allogeneic – Adult

Total Marrow Irradiation for Second Allogeneic Hematopoietic Stem Cell Transplantation in Patients with Advanced Acute Leukemia

Alida Dominietto[1,*], Stefano Vagge[2], Carmen di Grazia[1], Stefania Bregante[1], Anna Maria Raiola[1], Riccardo Varaldo[1], Francesca Gualandi[1], Marco Gusinu[4], Salvina Barra[5], Stefano Agostinelli[4], Emanuele Angelucci[1], Susanta Hui[3]





Thanks