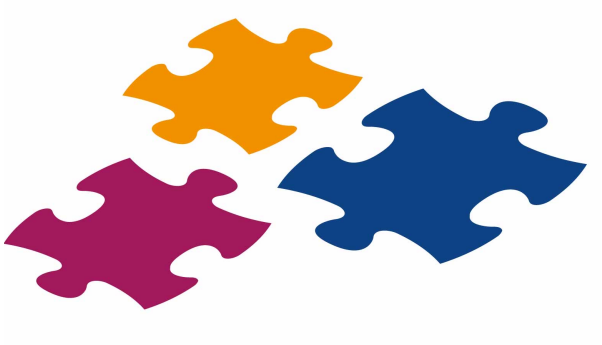
OSPEDALE POLICLINICO SAN MARTINO
Sistema Sanitario Regione Liguria
Istituto di Ricovero e Cura a Carattere Scientifico



UPDATE IN EMATOLOGIA

Mercoledì 15 Dicembre 2021

GENOVA

Starhotels President

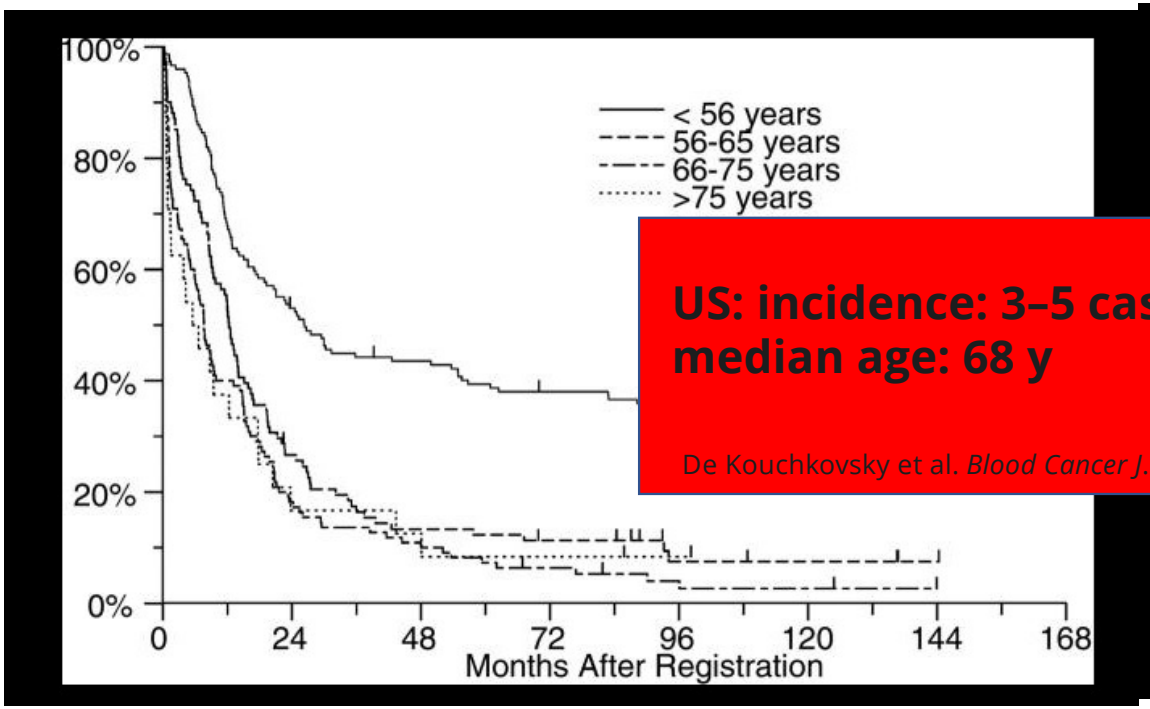
Anna Maria Raiola

Trapianto di cellule staminali e terapie cellulari

Il trapianto allogenico di cellule staminali emopoietiche nel paziente con Leucemia Acuta di età superiore ai 60 anni -

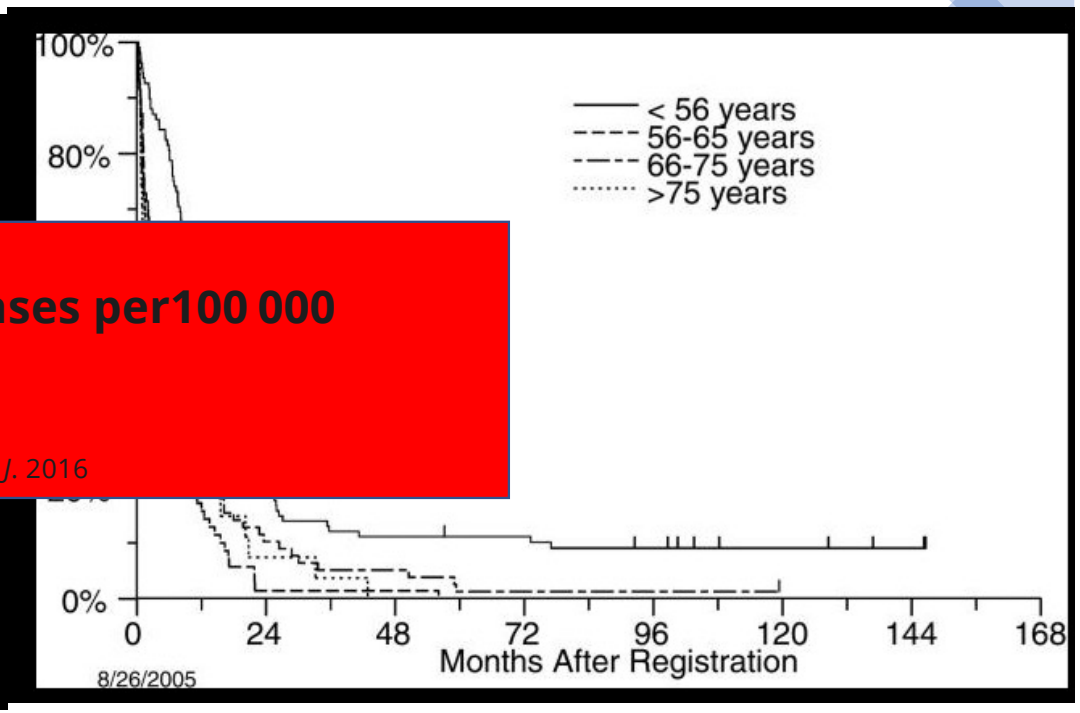
Age and acute myeloid leukemia

Appelbaum 2005



US: incidence: 3–5 cases per100 000
median age: 68 y

De Kouchkovsky et al. *Blood Cancer J*. 2016



Patient with intermediate risk cytogenetics

Patient with poor risk cytogenetics

WHERE DO WE START?

Patient-related factors : concurrent medical conditions including performance status and co-morbidities that can adversely affect outcome .

Burnett et al.J Clin Oncol. 2010
Walter J Clin Oncol. 2010

Disease-related characteristics :

1) Increased incidence of poor risk cytogenetics
2) Increased incidence of patients with secondary AML resulting from progression of an antecedent myelodysplastic syndrome and
3) Increased expression of multidrug resistance mechanisms.

van der Holt B Br J Haematol. 2007
Appelbaum FR Blood. 2006.

•. 2021

Best Practice & Research Clinical Haematology

journal homepage: www.elsevier.com/locate/issn/15216926

2021

How old is too old for a transplant?☆

Daniel Weisdorf

Division of Hematology, Oncology and Transplantation, Department of Medicine, University of Minnesota, MMC 480, Minneapolis, MN, 55455, USA

Decision-making about hematopoietic cell transplantation (HCT) for older patients is ***challenging****.*

It depends on ***actual or perceived risks****,* ***potential benefits*** *and* ***available options*** *for any patient in question.*

Risk factors that directly impact on survival after HCT include ***age****, but also the patients' accumulated* ***comorbidities.***

A healthy ***donor*** *with suitable histocompatibility and availability in the* ***timeframe*** *needed for the patient care.*

The patient must be ***able to understand****, weigh the options and accept the risks accompanying allo-transplantation.*

Older AML patients with ***an initial remission/response=ugent transplant*** *but are less likely to have healthy siblings suitable.* ***Reluctance to consider transplantation right at the time of diagnosis often delays initiation of HLA typing and donor identification***

WHO??

FITNESS??

"studies evaluating AML patients vary in design and often have a vague and subjective characterization of fitness for therapy…". Cortes et al. Am J Hematol. 2021;

Ex.

1) Venetoclax +HMA:

≥65 years who were ineligible for standard induction chemotherapy, loosely defined as having **"various comorbidities, such as age >75 years, cardiac disease or prior anthracycline use, secondary AML, or high probability of treatment-related mortality."**

DiNardo et al.Blood. 2019

2) LD Ara C +/-glasdegib

age ≥75 years, serum creatinine >1.3 mg/dL, severe cardiac disease (left ejection fraction <45% , or ECOG performance status of 2.

Cortes et. Al Leukemia. 2019

WHO ?

REGULAR ARTICLE

blood advances

Geriatric assessment in older alloHCT recipients: association of functional and cognitive impairment with outcomes

Olin 2020

Fried's Frailty Phenotype Predicts Overall Survival for Older Hematopoietic Cell Transplantation Recipients

Sung Transplant Cell Ther 2021

Comorbidities, age, and other patient-related predictors of allogeneic hematopoietic cell transplantation outcomes

Wais Expert Rev Hematol 2018

WHO ?

- **Comorbidities/medical History / Multi-parametr assessment tools**

CRITICAL REVIEW

Determination of fitness and therapeutic options in older patients with acute myeloid leukemia

…nka Mehta[2]

TABLE 1 Geriatric Assessment Tools[66]

Geriatric assessment domain	Tests/tools used
Comorbidity	Charlson Comorbidity Index (CCI) Cumulative Illness Rating Scale–Geriatric (CII Hematopoietic Cell Transplant–specific Comorbidity Index (HCT-CI) Older Americans Resources Services (OARS) Physical Health Subscale
Cognition	Blessed Orientation-Memory-Concentration (BOMC) Mini-Mental State Examination (MMSE) Modified Mini-Mental State Examination (3N
Depression	Center for Epidemiological Studies–Depressi Scale (CES-D) Geriatric Depression Scale-15 (GDS-15) Mental Health Inventory-17 (MHI-17)
Distress	Distress Thermometer
Functional status	Activities of daily living (ADL) Eastern Cooperative Oncology Group performance status (ECOG PS) Falls Grip strength Instrumental activities of daily living (IADL) Karnofsky performance status (KPS) Pepper Assessment Tool for Disability (PAT-D) Short Physical Performance Battery (SPPB) Medical Outcomes Short Form-36 Health-related
	Weight loss
Polypharmacy	Number of medications
Social support	Medical Outcomes Study (MOS) Social Activity Limitations/Social Support Subscales
Quality of life	European Organization for Research and Treatment of Cancer Quality of Life Questionnaire C30 (EORTC QLQ-C30)

•. 2021

Table 1. Definitions of comorbidities included in the HCT-CI

Comorbidity	Definitions of comorbidities included in the new HCT-CI	HCT-CI weighted scores
Arrhythmia	Atrial fibrillation or flutter, sick sinus syndrome, or ventricular arrhythmias	1
Cardiac	Coronary artery disease*, congestive heart failure, myocardial infarction, or EF ≤ 50%	1
Inflammatory bowel disease	Crohns disease or ulcerative colitis	1
Diabetes		
Cerebrovascular di		
Psychiatric disturb		
Hepatic, mild		
Obesity		
Infection		
Rheumatologic	rheumatica	
Peptic ulcer	Requiring treatment	2
Moderate/severe renal	Serum creatinine > 2 mg/dL, on dialysis, or prior renal transplantation	2
Moderate pulmonary	DLco and/or FEV_1 66%-80% or dyspnea on slight activity	2
Prior solid tumor	Treated at any time point in the patient's past history, excluding nonmelanoma skin cancer	3
Heart valve disease	Except mitral valve prolapse	3
Severe pulmonary	DLco and/or FEV_1 ≤ 65% or dyspnea at rest or requiring oxygen	3
Moderate/severe hepatic	Liver cirrhosis, bilirubin > 1.5 x ULN, or AST/ALT > 2.5 x ULN	3

*One or more vessel coronary artery stenosis requiring medical treatment, stent, or bypass graft

Ex. pulmonary hypertension (PASP > 24 mm Hg) significantly associated with inferior OS 58.9% vs 88.8% *P* = 0.024) mainly due to increase NRM (21.6% vs. 7.1% *p* = 0.007)

Gupta BMT 2020

WHO??

	NRM	
Score	HR* (95% CI)	2-year, %
0	1	14
1	1.57 (0.7-3.3)	22
2	1.26 (0.6-2.8)	19
3	3.95 (2.1-7.5)	41
4 or more	3.05 (1.5-6..2)	40

*Adjusted for age, disease risk, and conditioning.

Sorror Blood 2005

VOLUME 32 · NUMBER 29 · OCTOBER 10 2014

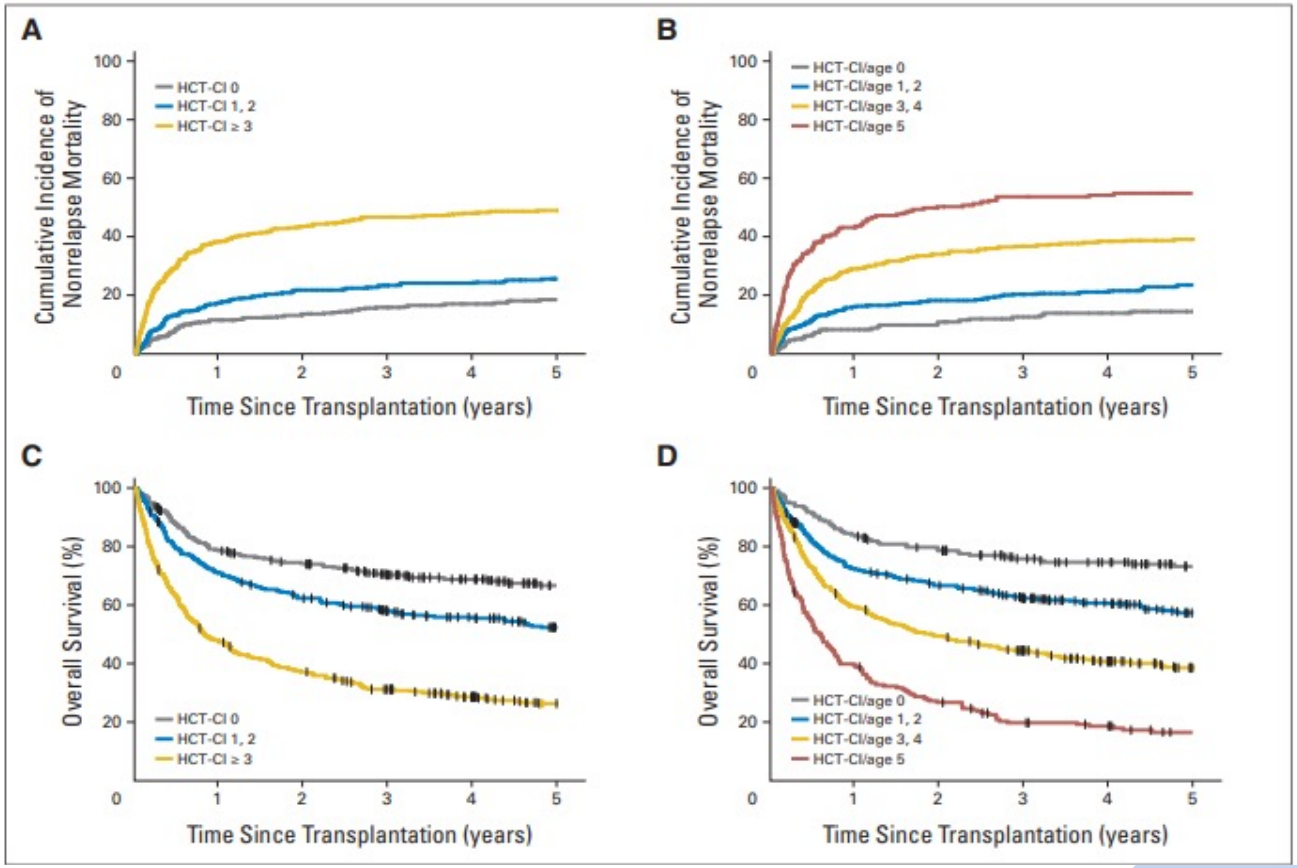
JOURNAL OF CLINICAL ONCOLOGY

ORIGINAL REPORT

Comorbidity-Age Index: A Clinical Measure of Biologic Age Before Allogeneic Hematopoietic Cell Transplantation

Mohamed L. Sorror, Rainer F. Storb, Brenda M. Sandmaier, Richard T. Maziarz, Michael A. Pulsipher, Michael B. Maris, Smita Bhatia, Fabiana Ostronoff, H. Joachim Deeg, Karen L. Syrjala, Elihu Estey, David G. Maloney, Frederick R. Appelbaum, Paul J. Martin, and Barry E. Storer

WHO??



Transplantation and Cellular Therapy

journal homepage: www.tctjournal.org

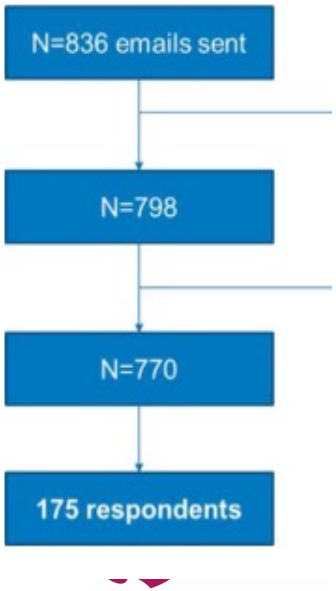
ASTCT American Society for Transplantation and Cellular Therapy

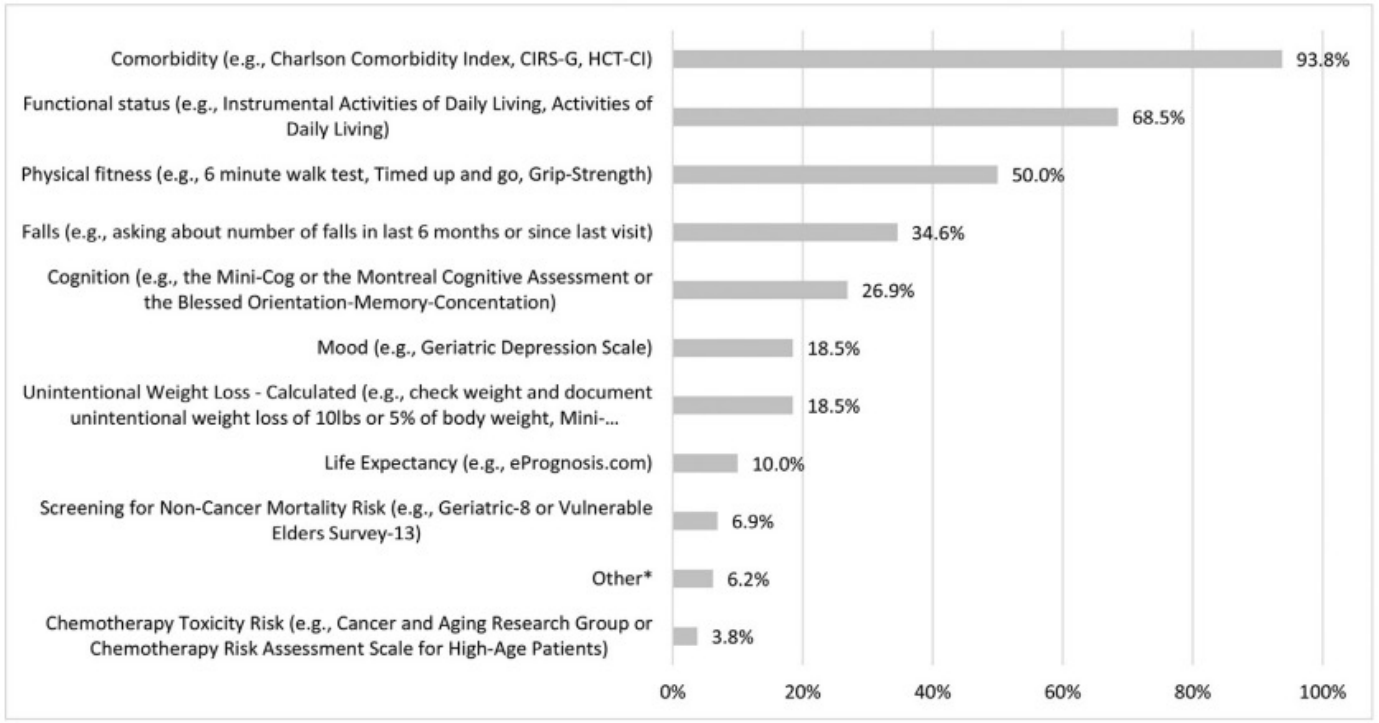
WHO ?

Domains beyond performance status used in the past 12 months to assess patients age 60 years being considered for alloHCT

Full Length Article
Analysis

Breaking the Age Barrier: Physicians' Perceptions of Candidacy for Allogeneic Hematopoietic Cell Transplantation in Older Adults





Mishra 2021

WHO ?

Full Length Article
Quality of Care

Composite Health Assessment Risk Model (CHARM) for Older Adults (BMT CTN 1704) (BMT CTN 1704)

Primary Outcome: 1 year NRM

To determine the set of assessments and biomarkers that could together constitute a robust and valid composite health risk model for accurate personalized estimation of NRM by analyzing data collected from all measures pre and post transplant.

Multim
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The ER-S
from m **rough**
100 day

Transplan
Senior ph
Geriatrician
Clinical Nutrition
Clinical Pharmacy
Inpatient Nursing Staff

Szewczyk 2021

haematologica
Journal of The Ferrata Storti Foundation

WHY ?

Outcomes of older patients aged 60 to 70 years undergoing reduced intensity transplant for acute myeloblastic leukemia: results of the NCRI acute myeloid leukemia 16 trial

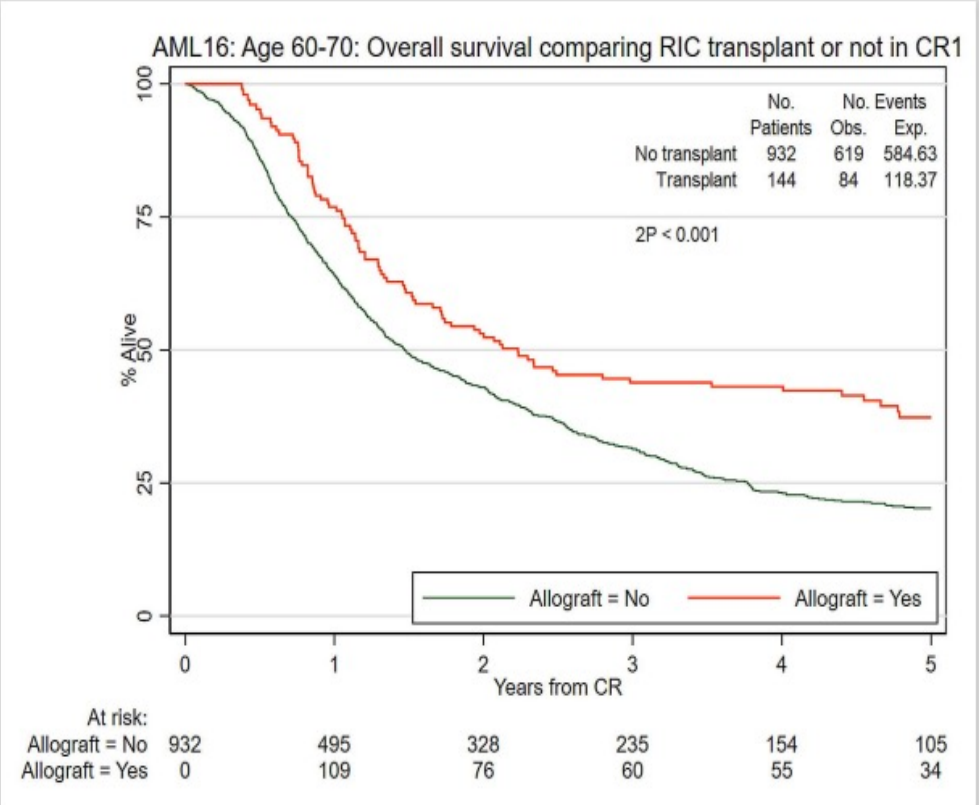
Russel et al. NCRI AML Working Group 2021

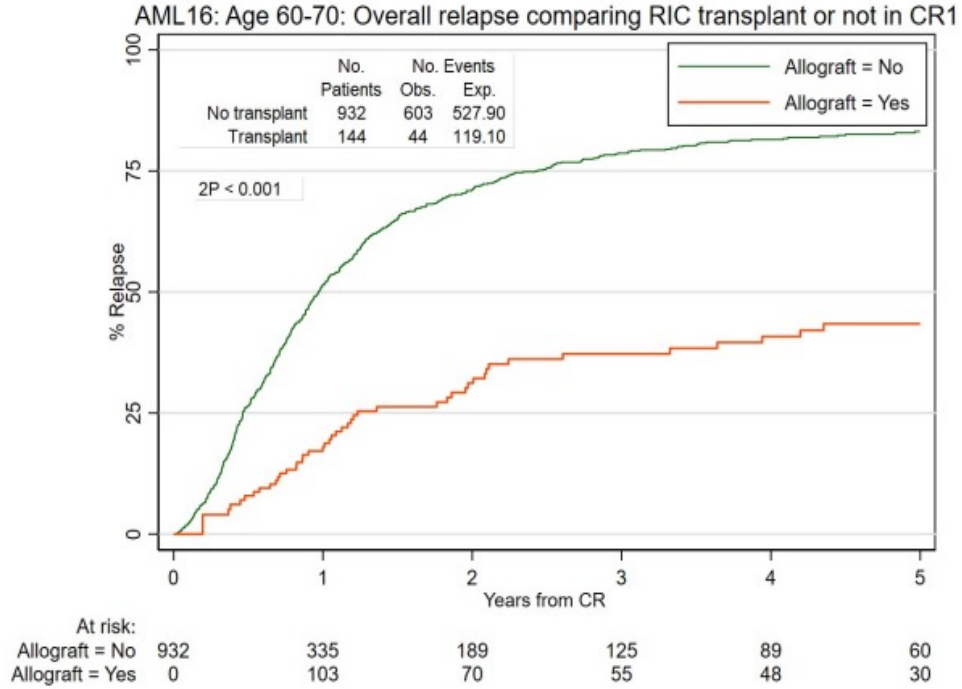
932 patients aged 60-70 and lacking favorable risk cytogenetics were studied, RIC transplant in first remission given to 144 (sibling n=52, MUD n=92) median follow-up for survival from CR of 60 months.

Table 2: Survival estimates

Category	*Transplant N=144*	*No transplant N=932*	*HR (95%CI)*	*P-Value*
Overall survival post CR1	37%	20%	0.67 (0.53-0.84)	<0.001
Relapse free survival	32%	13%	0.56 (0.45-0.70)	<0.001
CI of death in remission 1**	34%	10%	5.07 (3.46-7.29)	<0.001
CI of relapse*	34%	77%	0.30 (0.22-0.40)	<0.001

WHY ?



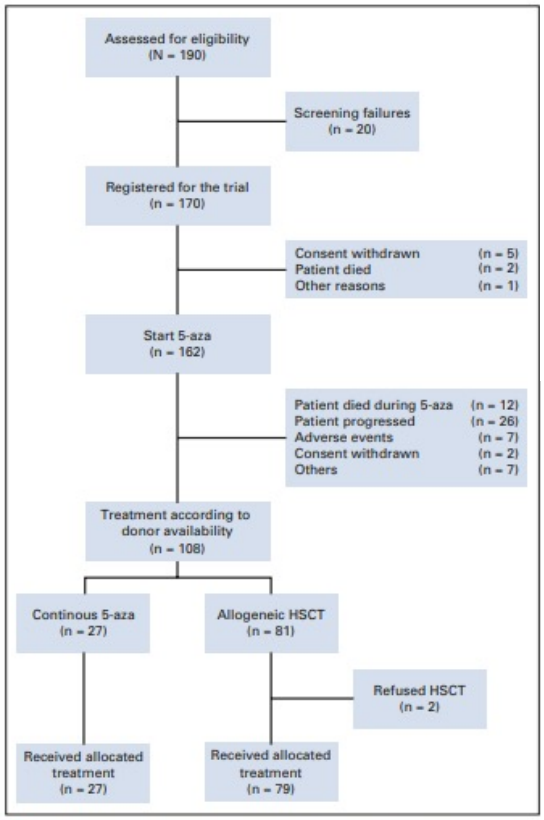


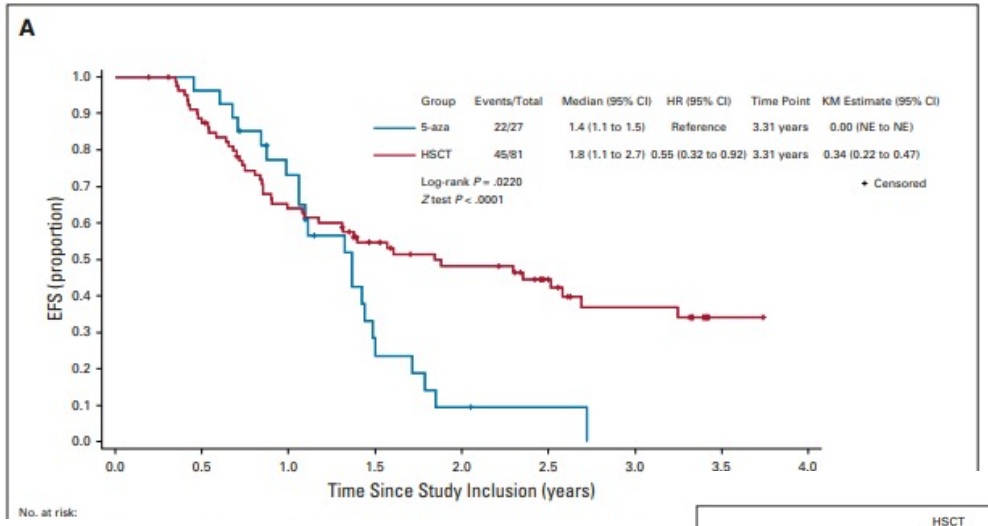
although the survival for siblings (44%) was better than that for MUDs (34%) this was not significant (p=0.2).

Comparison Between 5-Azacytidine Treatment and Allogeneic Stem-Cell Transplantation in Elderly Patients With Advanced MDS According to Donor Availability (VidazaAllo Study)

Kroger JCO 2021

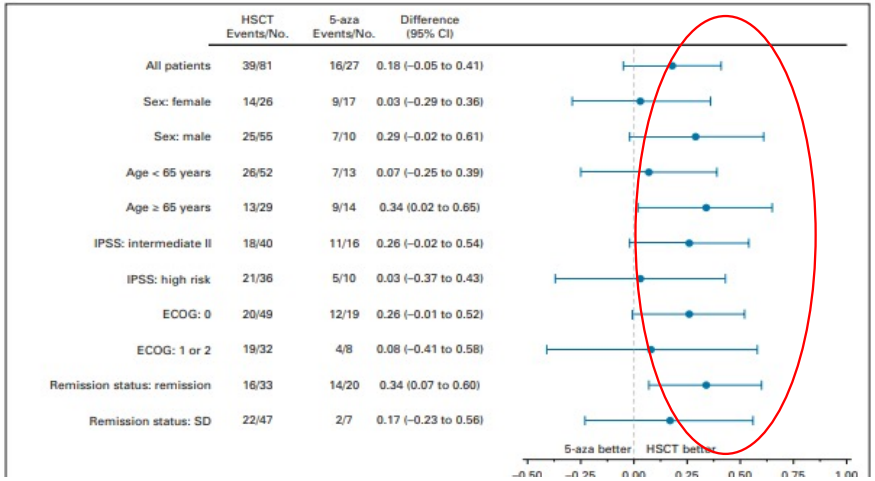
WHY ?



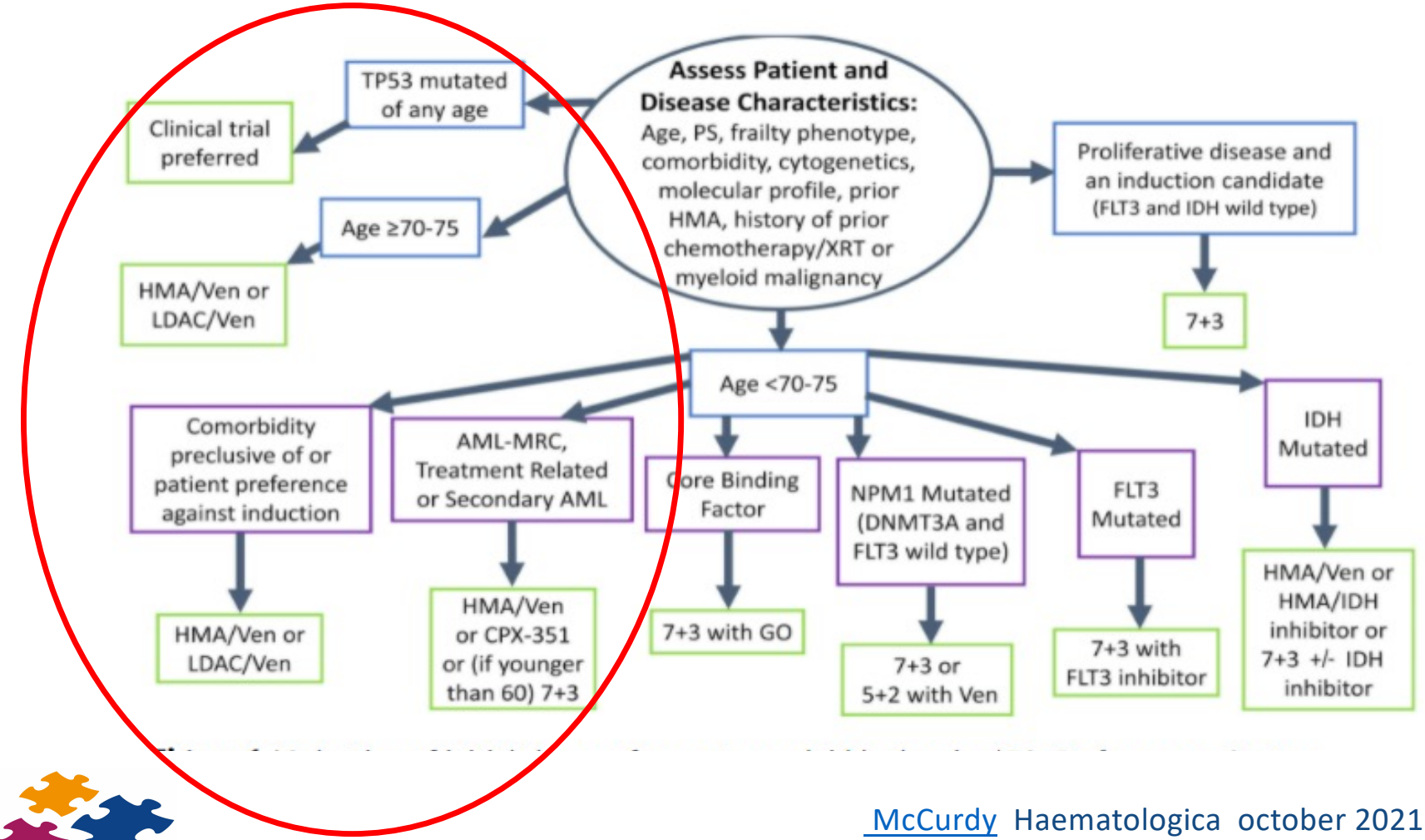


Median age of 63 years

Patients received 4-6 cycles of 5-aza followed by HLA-compatible HSCT after RIC or by continuous 5-aza if no donor was identified.



WHEN ?



McCurdy Haematologica october 2021

WHEN ?

Curr. Treat. Options in Oncol. (2018) 19: 63
DOI 10.1007/s11864-018-0577-2

CrossMark

Leukemia (PH Wiernik, Section Editor)

Allogeneic Hematopoietic Stem Cell Transplantation for Older Patients With Acute Myeloid Leukemia

Levin-Epstein Curr. Treat. Options in Oncol.2018

"HSCT in the elderly AML population can be considered in the setting of post remission therapy after complete response, post-induction therapy with residual disease present (although less efficacious), or after salvage therapy in relapsed/refractory disease."

Induction therapy

1°CR (MRD?)

NO CR

CONSOLIDATION THERAPY

-Further therapies increase toxicity and risk of infection
-Availability of the donor

HOW??

REVIEW ARTICLES

Dose intensity for conditioning in allogeneic hematopoietic cell transplantation: can we recommend "when and for whom" in 2021?

Disease-specific factors	
Advanced disease status	relapse > NRM
Unfavorable cytogenetics/molecular genetics	relapse > NRM
Susceptibility to GVL-effect	relapse > NRM
Patient-specific risk factors	
Age	NRM > relapse
Performance status	NRM > relapse
Comorbidities	NRM > relapse
Transplant-specific risk factors	
MRD positivity	relapse > NRM
HLA disparity	NRM > relapse
CMV incompatibility	NRM > relapse
Center effect (JACIE accredited)	NRM > relapse

ELSEVIER

Biology of Blood and Marrow Transplantation

journal homepage: www.bbmt.org

ASTCT American Society for Transplantation and Cellular Therapy

HOW??

Outcome of Allogeneic Hematopoietic Stem Cell Transplantation in Patients Age >69 Years with Acute Myelogenous Leukemia: On Behalf of the Acute Leukemia Working Party of the European Society for Blood and Marrow Transplantation

Ringden 2019

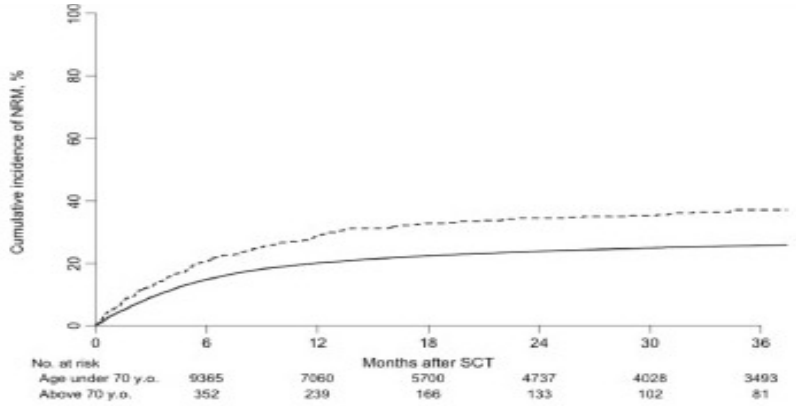
AML: 713 patients age> 70 years

vs

16.161 patients age 50 to 69 years

who underwent HSCT between 2004 and 2014.

Conditioning regimen, n (%)	≥60	50 - 59	<.001
MAC	122 (18)	5771 (36)	
RIC	572 (82)	10,131 (64)	



-NRM at 2 years was 34% in patients age ≥70 years and 24% in those <70 years of age (p < .001)

In multivariate analysis NRM is worse in MAC regimen (0,0003)

Defining the Intensity of Conditioning Regimens: Working Definitions

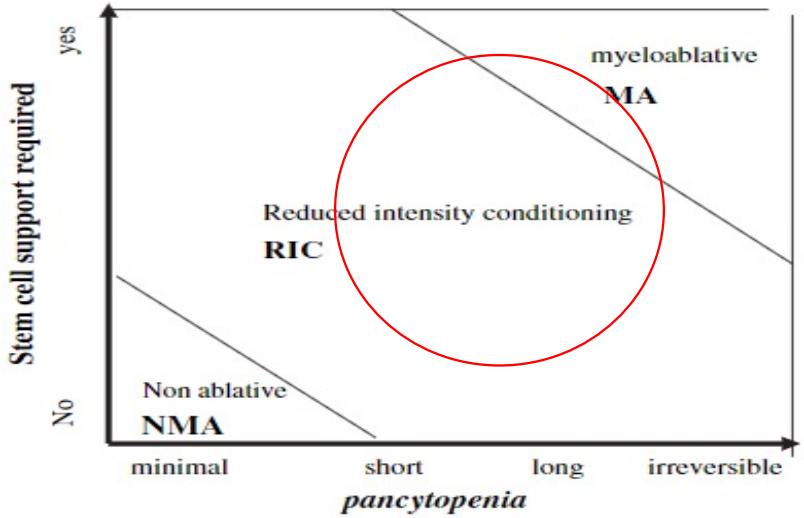
Andrea Bacigalupo, M.D.,[1] Karen Ballen, M.D.,[2] Doug Rizzo, M.D.,[3] Sergio Giralt, M.D.,[4] Hillard Lazarus, M.D.,[5] Vincent Ho, M.D.,[6] Jane Apperley, M.D.,[7] Shimon Slavin, M.D.,[8] Marcelo Pasquini, M.D.,[3] Brenda M. Sandmaier, M.D.,[9] John Barrett, M.D.,[10] Didier Blaise, M.D.,[11] Robert Lowski, M.D.,[12] Mary Horowitz, M.D.[3]

HOW??

MA conditioning regimen cause irreversible pancytopenia. SC support required to rescue marrow function, and prevent aplasia-related death.

NMA regimen is a regimen that produce minimal cytopenia, and there is no need for SC support.

<u>A conditioning regimen that does not fulfill MA or NMA is defined as an RIC regimen</u>



Bacigalupo BBMT 2009

HOW??

TRANSPLANTATION

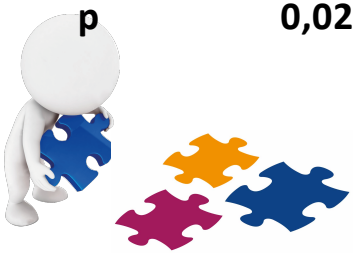
Is there an optimal conditioning for older patients with AML receiving allogeneic hematopoietic cell transplantation?

Ciurea et al. Blood 2020

Retrospective analysis: 404 AML patients >60 years of age

Fludarabine+melphalan 100 mg/m2 (FM100)
Fludarabine+melphalan 140 mg/m2 (FM140),
Fludarabine+ IV busulfan 130 mg/mq x4 d(FluBu130)
Fludarabine+IV busulfan 110 mg/mq x4d(FluBu110)

	PFS	NRM	GRFS
FM100	**49%**	**19%**	**28%**
FM140	**30%**	**39%**	**20%**
FluBu130	**34%**	**35%**	**18%**
FluBu 110	**23%**	**31%**	**9%**
p	**0,02**	**0.06**	**0.006**



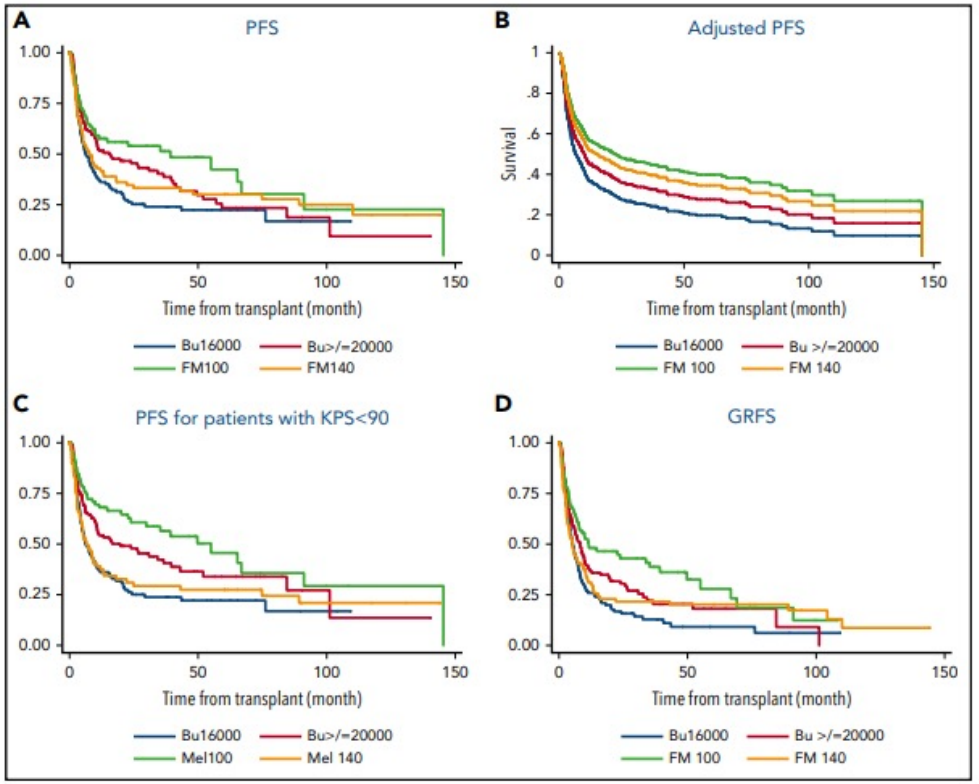


Figure 1. Transplant outcomes by conditioning regimen type. PFS (A), adjusted PFS (B), PFS for patients with KPS <90% (C), and GRFS for all patients (D).

DONOR

HOW??

Unpublished analysis of data from the CIBMTR examining all allotransplants in the United States between 2005 and 2019 (n =80,281 cases).

Weisdorf 2021

Table 1
US Allogeneic Transplants by Donor type: 2005–2019: 1 year Survival by Donor Type.

Overall survival at 1 year	HLA-identical sibling (N = 27406)		Haploiical dent (N = 7624)		Unrelated donor (N = 39912)		Cord blood (N = 5339)		Total (N = 80281)	
	N	Prob (95% CI)	N	Prob (95% CI)	N	Prob (95% CI)	N	Prob (95% CI)	N	Prob (95% CI)
Age 20-30	2133	77.4 (75.8–78.9)%	710	74.8 (72.1–77.3)%	3056	71.3 (70–72.6)%	547	58.9 (55.8–62)%	6446	72.3 (71.4–73.2)%
31–40	2161	75.9 (74.4–77.5)%	562	71.6 (68.6–74.6)%	2910	69.9 (68.6–71.3)%	512	59.6 (56.4–62.8)%	6145	71 (70.1–72)%
41–50	3833	70.5 (69.3–71.7)%	713	69.7 (67–72.4)%	4223	66.6 (65.4–67.7)%	518	54.9 (51.8–58)%	9287	67.6 (66.8–68.3)%
51–60	5796	66.7 (65.8–67.7)%	1136	65.4 (63.2–67.5)%	6506	62.7 (61.8–63.6)%	635	52 (49.2–54.7)%	14073	63.9 (63.3–64.5)%
61–70	3472	63.8 (62.6–65.1)%	1060	59.6 (57.4–61.7)%	6291	60.5 (59.6–61.4)%	444	46.1 (43–49.2)	11267	60.6 (60–61.3)%
≥71	226	57.6 (52.8–62.3)%	201	57.2 (52.3–62)%	967	59.3 (57–61.6)%	34	38.4 (29.2–48.1)%	1428	57.9 (56.1–59.8)%

*Data from CIBMTR (Center for International Blood and Marrow Transplant Research).

Outcomes in older patients were similar for those receiving matched sibling, haploidentical or matched URD, though a bit worse for the few cord blood recipients.[2]

DONOR

HOW??

Haploidentical Hematopoietic Cell Transplant with Post-Transplant Cyclophosphamide and Peripheral Blood Stem Cell Grafts in Older Adults with Acute Myeloid Leukemia or Myelodysplastic Syndrome

Michael Slade, John F. DiPersio, Peter Westervelt, Ravi Vij, Mark A. Schroeder, Rizwan Romee *

BBMT2017

Haploidentical Transplantation for Older Patients with Acute Myeloid Leukemia and Myelodysplastic Syndrome

Ciurea BBMT2017

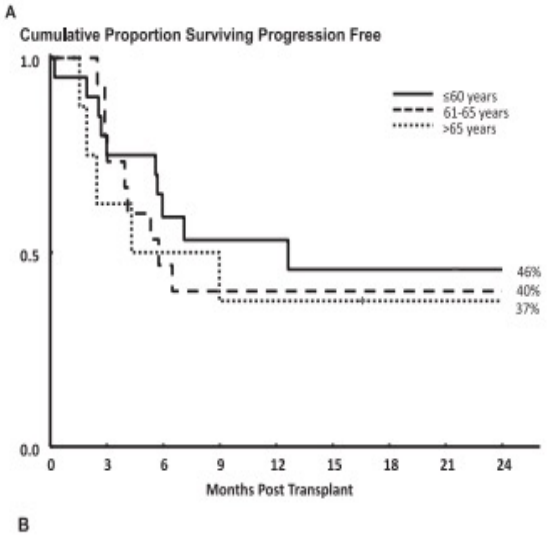
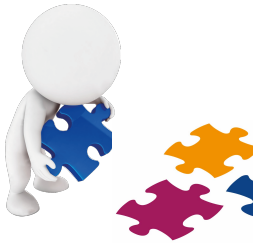


Table 2
Predictors of OS in Multivariate Analysis (Cox)

	HR	95% CI	P
Disease status not CR1/CR2	3.3	1.3-8.1	.01
Donor age > 40 yr	3.1	1.2-7.7	.01
Poor-risk cytogenetics	2.9	1.2-7.2	.02



POST allo HSCT???

The use of venetoclax-based salvage therapy for post-hematopoietic cell transplantation relapse of acute myeloid leukemia

Michael Byrne[1,2] | Nathalie Danielson[3] | Salyka Sengsayadeth[1,3] | Adrianne Rasche[4] | Katie Culos[5] | Katie Gatwood[5] | Houston Wyatt[5] | Wichai Chinratanalab[1,3] | Bhagirathbhai Dholaria[1,2] | P. Brent Ferrell[1,2] | Kristin Fogo[4] | Stacey Goodman[1,3] | Madan Jagasia[1,2] | Reena Jayani[1,2] | Adetola Kassim[1,2] | Sanjay R. Mohan[1,2] | Bipin N. Savani[1,2] | Stephen A. Strickland[1,2] | Brian G. Engelhardt[1,2] | Michael Savona[1,2,6]

JCO 2019

JCO2020

Venetoclax and donor lymphocyte infusion for early relapsed acute myeloid leukemia after allogeneic hematopoietic cell transplantation. A retrospective multicenter trial

Odelia Amit[1,2] · Yael Bar On[1,2] · Galit Perez[3] · Liat Shargian-Alon[2,4] · Moshe Yeshurun[2,4] · Ron Ram[1,2]

Biol Blood Marrow Transplant 2016

Annals of Hematology 2021

3424 A Phase 2, Open-Label, Multiarm, Multicenter Study to Evaluate Magrolimab Combined with Antileukemia Therapies for First-Line, Relapsed/Refractory, or Maintenance Treatment of Acute Myeloid Leukemia

Program: Oral and Poster Abstracts
Session: 616. Acute Myeloid Leukemias: Investigational Therapies, Excluding Transplantation and Cellular Immunotherapies: Poster III
Hematology Disease Topics & Pathways:
Acute Myeloid Malignancies, Biological, Adults, AML, Clinical Research, Clinically Relevant, Diseases, Therapies, Myeloid Malignancies, Monoclonal Antibody Therapy, Study Population

Monday, December 13, 2021, 6:00 PM-8:00 PM

Paresh Vyas, DPhil, FRCP, FRCPath, MRCP, MRCPath[1,2], *Naval Daver, MD*[3], *Mark Chao, MD, PhD*[4], *Guan Xing, PhD*[4^v], *Camille Renard, MSc*[4^v], *Giri Ramsingh, MD*[4^v], *Andrew H. Wei, MD, PhD*[5] *and David A. Sallman, MD*[6]

[1]*MRC Molecular Hematology Unit, Weatherall Institute of Molecular Medicine, University of Oxford, Oxford, United Kingdom*
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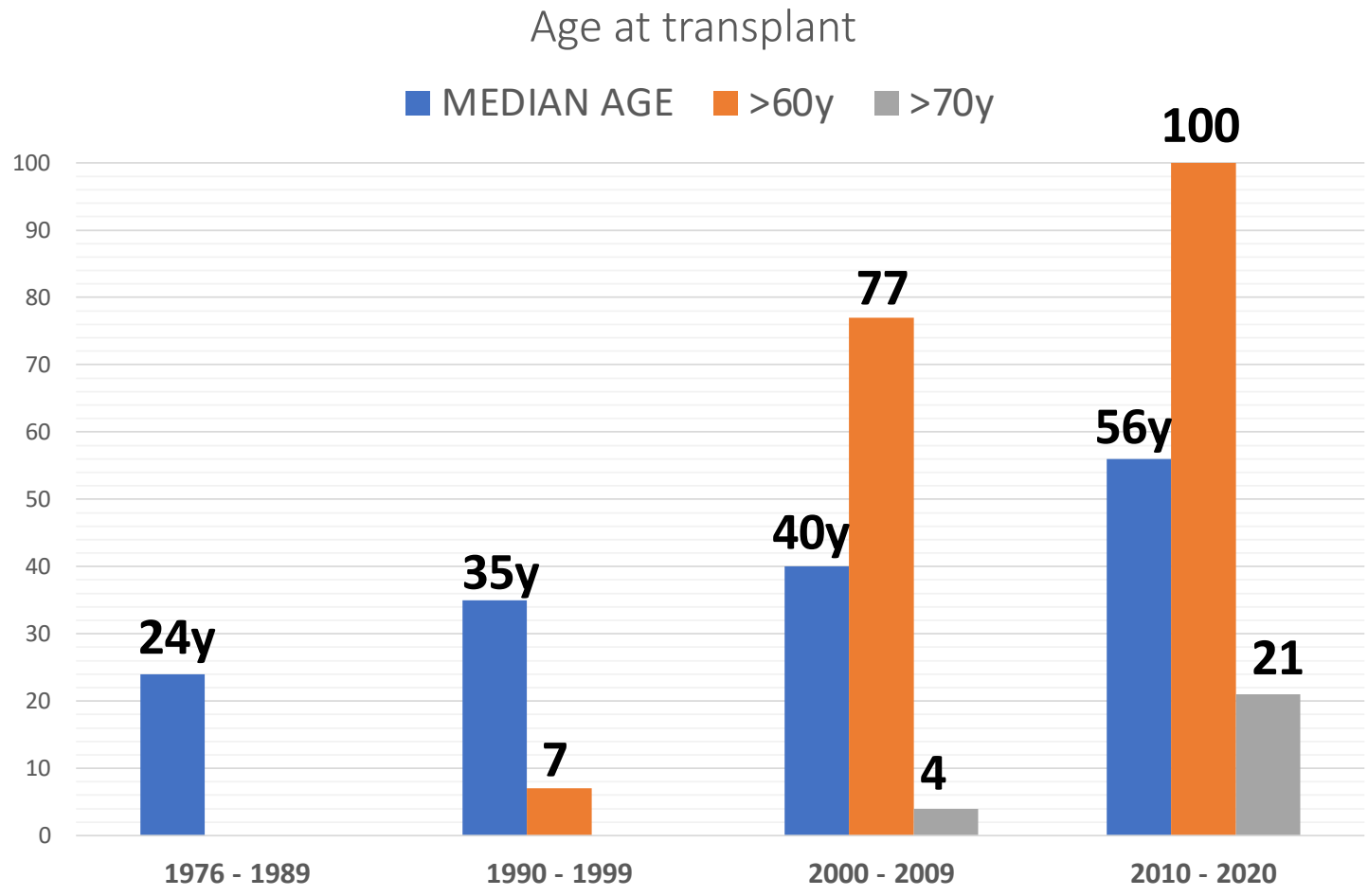
JCO 2020

HOW??

GENOVA EXPERIENCE



GENOVA EXPERIENCE

PATIENTS: 71

HSCT from 1/1/2016 to 1/9/2021

Median follow up: 504 days from HSCT (range: 15 - 1589)

Median age: 65 y (range 60 -75)
Patients ≥ 70 years: 15

Sorror age 0 -2: 30 pz
Sorror ≥ 3: 41 pz (**3**:11, **4**:10, **5**: 9, **6**: 6, **7**:1, **9**:4)

GENOVA EXPERIENCE

DISEASE: AML 31

ELN

GOOD RISK : 8 (25%) (7 NPM 1 CBF)

INTERMEDIATE RISK: 17(55%) (2 NPM +FLT3)

HIGH RISK: 3 (10%)

MISSING DATA: 3 (10%)

PHASE AT HSCT

1°RC: 15(48%)

2°RC: 10 (32%)

ACTIVE: 6 (20%)

1° RC: 28 PZ (39%)
10 CR/MRD NEG
12CR/MRD POS
6 CR POST 2° IND

Treatment pre HSCT

ALL PATIENTS WERE TREATED WITH CONVENTIONAL CT

AML MRC/SECONDARY AML: 40

HIGH RISK : 9 (22%)

PHASE AT HSCT

1°RC: 13(32%)

2°RC: 3 (8%)

ACTIVE: 24 (60%)

Treatment pre HSCT

Only HMA:	6 (15%)
HMA + venetoclax:	1 (3%)
CPX 351:	13 (32%)
Conventional CT:	12 (30%)
No therapy:	8 (20%)

GENOVA EXPERIENCE

HSCT

DONOR

APLO:	54 (76%)
SIBLING HLA ID:	3 (4%)
MUD:	11 (15%)
MMUD	3 (5%)

CONDITIONING

RIC	25 (35%)
MAC	44 (62%)
NMA	2 (3%)

SOURCE

BM	41(58%)
PB	30 (42%)

CMV

RECIPIENT POS	63 (88%)
DONOR POS:	36 (51%)

RELATION (APLO)

CHILD	41 (76%)
SIBLING	10 (19%)
NEPHEW	3 (5%)

GENOVA EXPERIENCE

RESULTS

TAKE (BM 100% CHIMERISM DONOR AT + 30) : **62 (87%)** patients

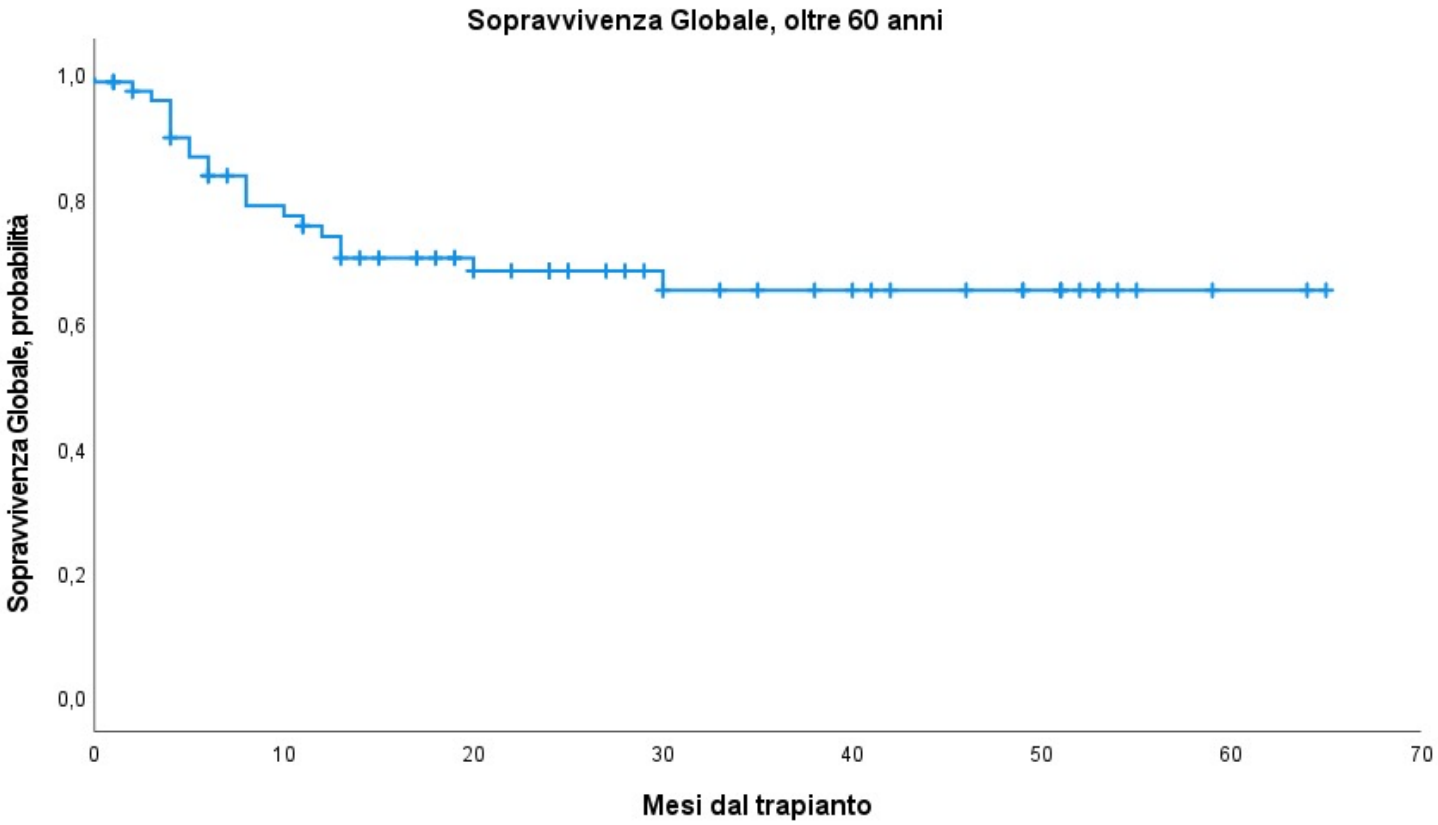
GRAFT FAILURE: 8 patients (11%) 6 APLO 2 MMUD → 4 DEATHS

aGVHD grade II – IV: 12 patients (17%)

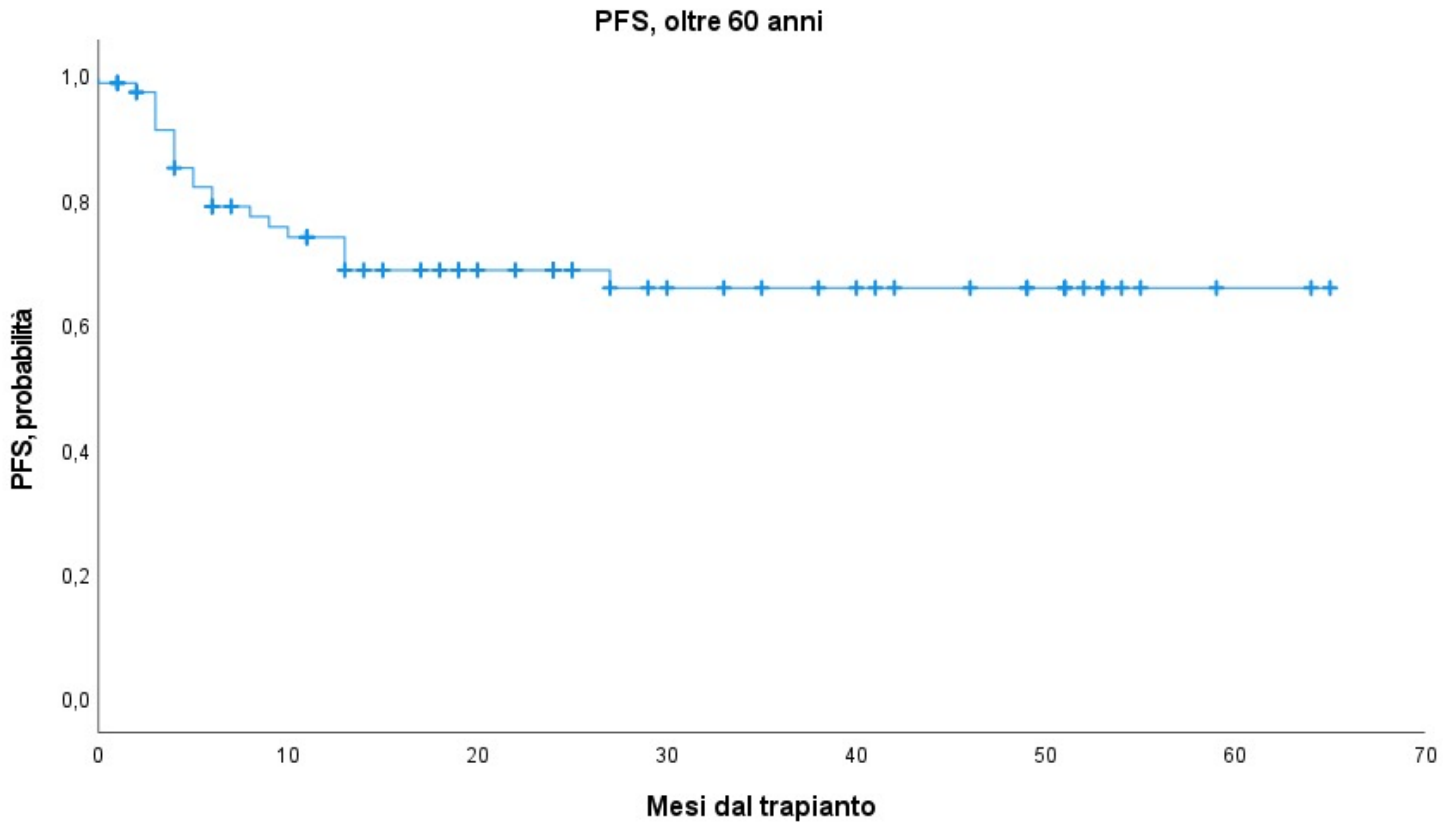
cGVHD moderate/severe: 9 patients (13%)

NRM: 11 patients (15%)
MEDIAN TIME: +143 from HSCT

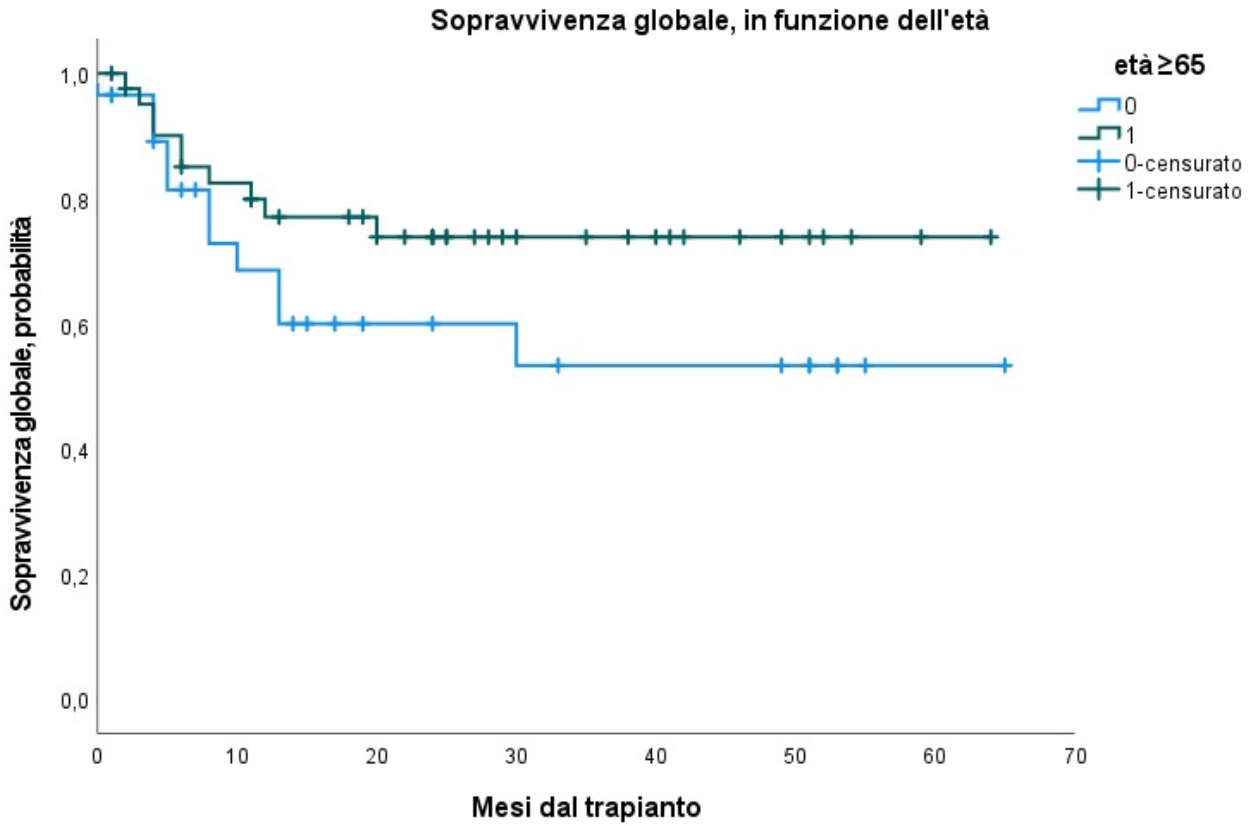
RELAPSE: 11 patients (15%) RELAPSE related DEATH: 10 patients (14%)



36 months OS: 65% (95% CI: 53 - 78)



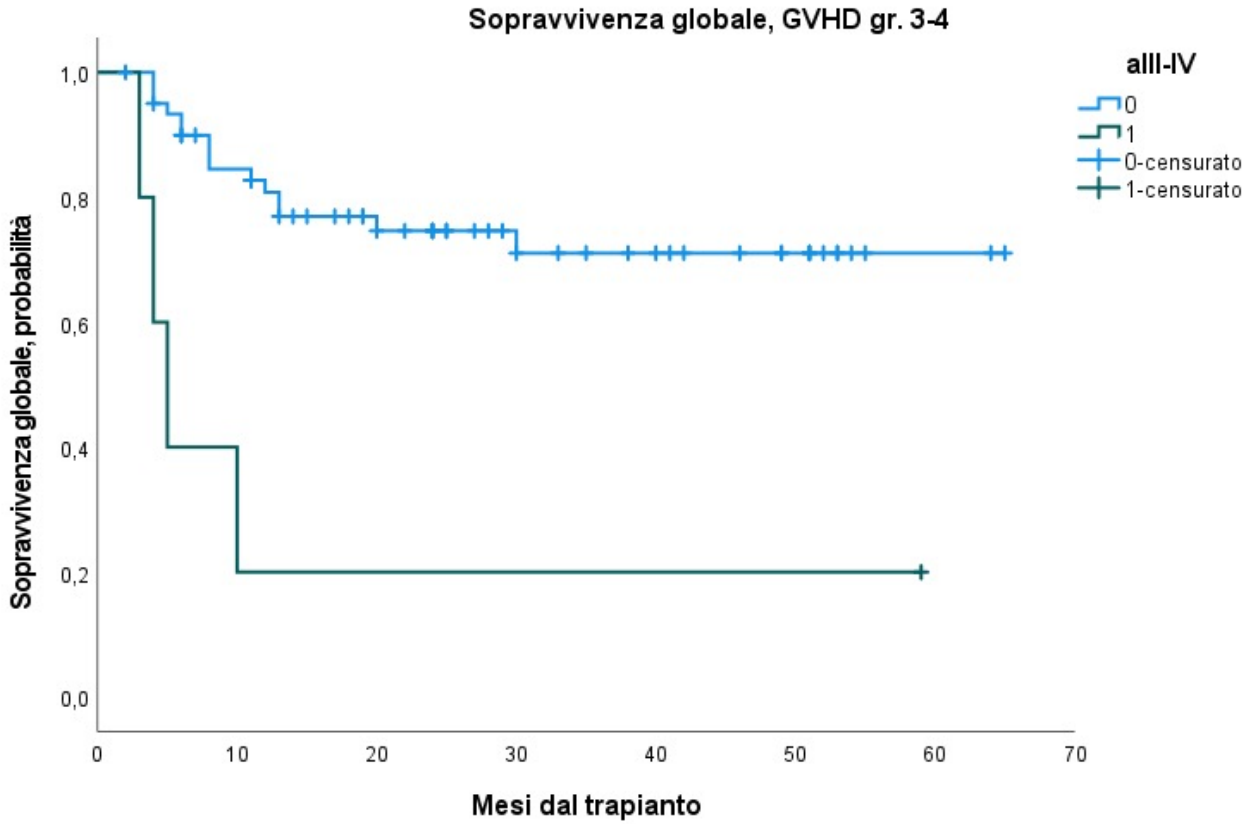
36 months PFS: 65% (95% CI: 52 – 77)



≥65 yrs, 36 months OS: 73% (95% CI: 59 – 87)

<65 yrs, 36 months OS: 53% (95% CI: 32 – 74)

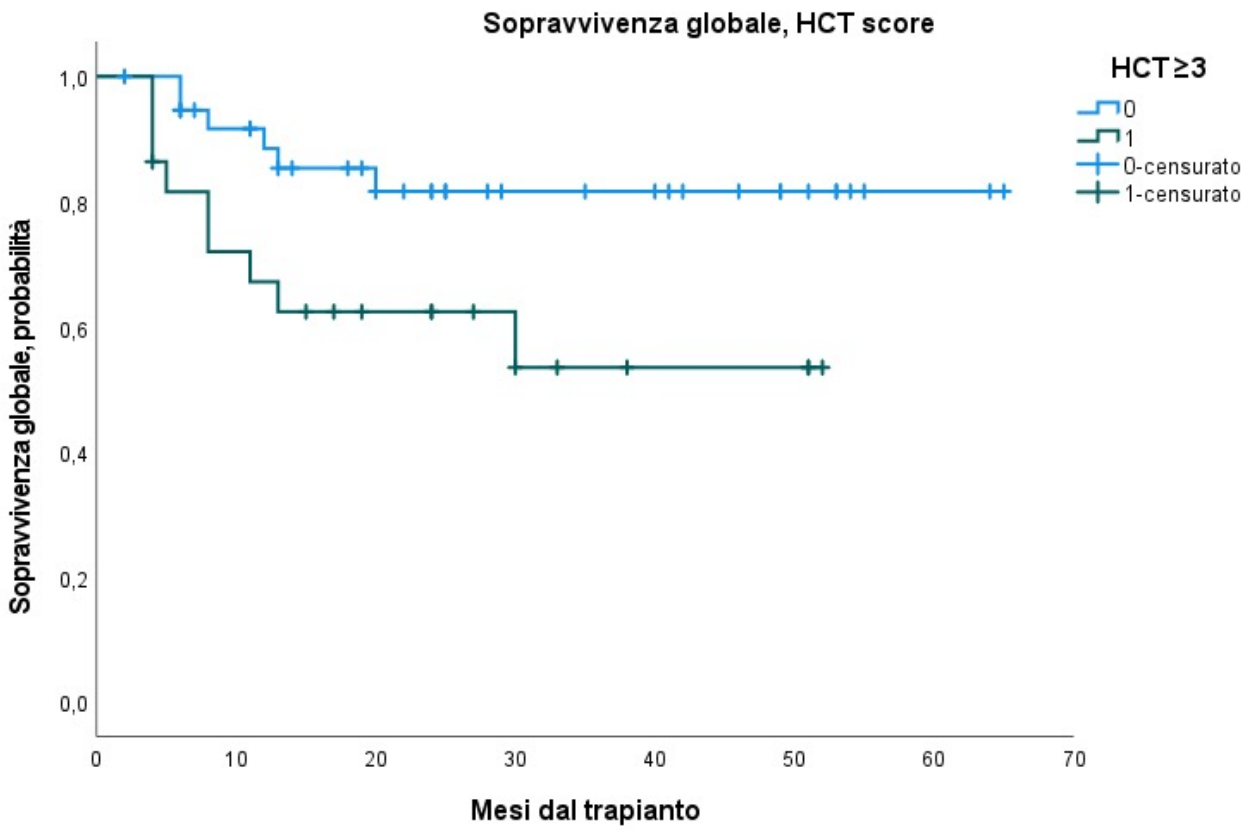
p = n.s.



No Gr. 3-4 GVHD, 36 months OS: 71% (95% CI: 58 – 83)

Gr. 3-4 GVHD, 36 months OS: 20% (95% CI: – 55)

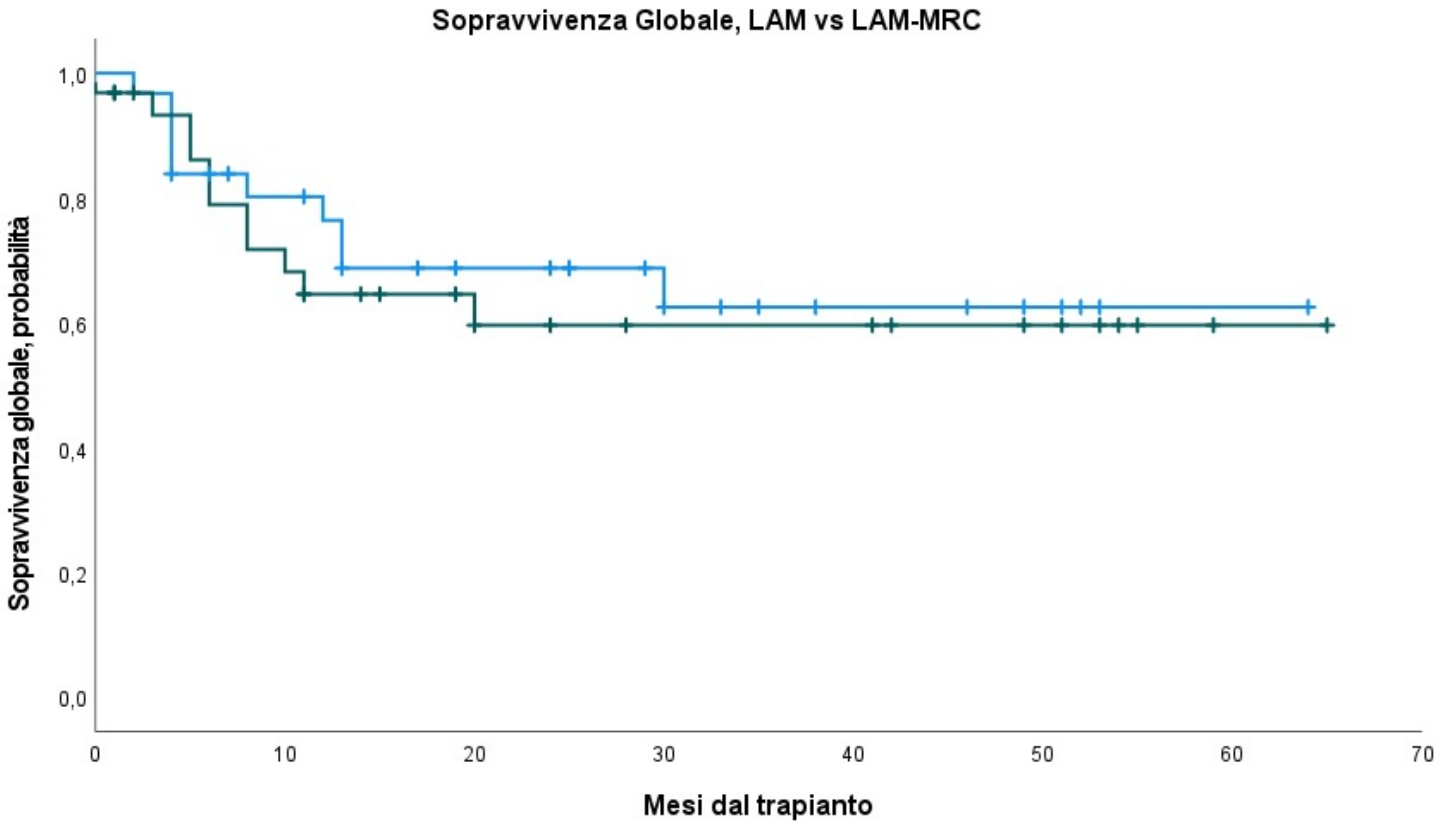
p = <0.001



HCT <3, 36 months OS: 81% (95% CI: 68 – 94)

HCT ≥3, 36 months OS: 53% (95% CI: 30 – 76)

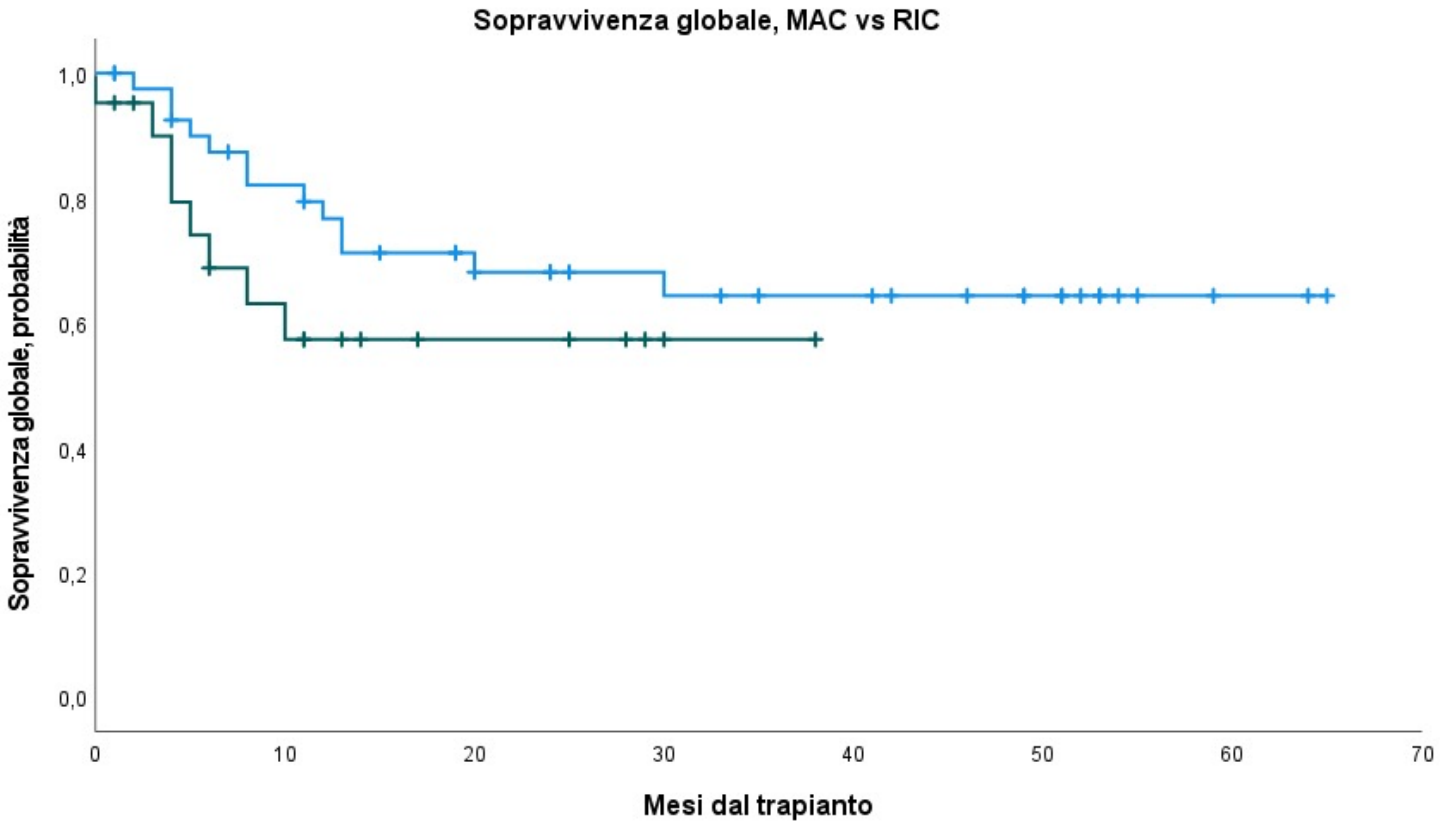
p = 0.003



LAM, 36 months OS: 62% (95% CI: 43 - 81)

LAM-MRC, 36 months OS: 59% (95% CI: 40 - 78)

p = n.s.



MAC, 36 months OS: 64% (95%CI: 49 - 79)

RIC, 36 months OS: 57% (95% CI: 35 - 79)

p = n.s.

- **INDICAZIONE ED IDONEITA' AL TRAPIANTO APPENA POSSIBILE: ESSENZIALE PER L'IDENTIFICAZIONE DI UN DONATORE IN TEMPO UTILE.**

- **LA «COSTRUZIONE» DEL PERCORSO TRAPIANTOLOGICO E' ELABORATA E DECISA VALUTANDO IL SINGOLO PAZIENTE.**

- **I PERCORSI PRE – TRAPIANTO/TRAPIANTO DOVREBBERO COINVOLGERE DIVERSI SPECIALISTI (NUTRIZIONISTA, GERIATRA, ETC) ED ESSERE CONDIVISI IL PIU' POSSIBILE CON IL PAZIENTE E LA SUA FAMIGLIA.**

- **MANCANO PROTOCOLLI PER L'UTILIZZO DEI NUOVI FARMACI, CON O SENZA DLI, PER LA PROFILASSI E/O TERAPIA PRE EMPTIVE E/O TERAPIA PER LA RECIDIVA POST TRAPIANTO.**

Transplantation and Cellular Therapy

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The Bottom Line

Transplantation for Older Adults-More Questions than Answers

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…….Transplant programs cannot ignore the changing demographic of HCT recipients, and while post-transplant outcomes for older adults are improving, we have a long way to go……

Ematologia e trapianto di cellule staminali e terapie cellulari
Centro Cellule Staminali
Clinica Ematologica

sas