



GITMO *1000***miglia**

**IL TRAPIANTO E LE TERAPIE
CELLULARI: PRESENTE E FUTURO**

Istituto Oncologico Veneto IOV-IRCCS, Castelfranco Veneto

Sala Convegni dell'Ospedale S. Giacomo Apostolo

19 OTTOBRE 2026

Il Paziente Critico

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AUSL-IRCCS di Reggio Emilia

Disclosures of Name Surname

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

Complicanze

Italian Journal of Medicine (2011) 5, 238–248



Disponibile online all'indirizzo www.sciencedirect.com
SciVerse ScienceDirect

journal homepage: www.elsevier.com/locate/itjm

RASSEGNA

Le urgenze ematologiche

Hematologic emergencies

Daniele Vallisa*, Carlo F. Moroni



Associazione Italiana di Oncologia Medica

Cardiovascolari

- Tamponamento cardiaco
- Crisi ipertensiva
- Sindrome vena cava superiore
- Complicanze legate all'AVC
- Stravaso di farmaci antiblastici

Neurologiche

- Compressione midollare
- Localizzazioni menigee
- Ipertensione endocranica
- Emorragia intracranica

Epato/Renali

- IRA
- VOD

ICANS

Metaboliche

- Ipercalcemia
- Iponatriemia e SIADH
- Lisi tumorale

Respiratorie

- Dispnea e insufficienza respiratoria
- Emottisi e singhiozzo incoercibile
- ARF, ARDS

Immunologiche

- Neutropenia febbrile
- Sepsi & Shock settico
- Reazione trasfusionale
- Reazione da farmaci
- CID

CRS

Ricovero in ICU

Outcomes of Critically Ill Patients With Hematologic Malignancies: Prospective Multicenter Data From France and Belgium—A Groupe de Recherche Respiratoire en Réanimation Onco-Hématologique Study

Elie Azoulay, Djamel Mokart, Frédéric Pène, Jérôme Lambert, Achille Kouatchet, Julien Mayaux, François Vincent, Martine Nyunga, Fabrice Bruneel, Louise-Marie Laisne, Antoine Rabbat, Christine Lebert, Pierre Perez, Marine Chaize, Anne Renault, Anne-Pascale Meert, Dominique Benoit, Rebecca Hamidfar, Mercé Jourdain, Michael Darmon, Benoit Schlemmer, Sylvie Chevret, and Virginie Lemiale

Ricovero: 1011 pazienti onco-ematologici	N°	%
ARF	632	62.5
Shock	428	42.3
Danno renale acuto	308	30.5
Neurologico/Coma	226	22.3
Chemotherapy in high-risk patients†	71	7.1

Modalità: 1011 Onco-hematology patients	N°	%
Prima di 24h dal ricovero ospedaliero	451	44.6
Direttamente in ICU (da PS)	267	26.0
Proposta degli ematologi	105	10.4

Mortalità vs Diagnosi

Azoulay E et al. JCO, 2013

Table 3. Univariable Analysis of Impact of Each Diagnosis on Hospital Mortality

Diagnosis	Patient Cases		Mortality		Odds Ratio	95% CI	P
	No.	%	No.	%			
Sepsis							< .001
Septic shock	259	25.6	120	46.5	1		
Multiple organ failure	26	2.6	22	84.6	6.32	2.12 to 18.87	
No sepsis	377	37.3	133	35.4	0.63	0.46 to 0.87	
Severe sepsis	349	34.5	120	34.5	0.61	0.44 to 0.84	
Gram-positive infections	85	8.6	28	32.9	0.74	0.46 to 1.19	.24
Gram-negative infections	192	19.1	79	41.1	1.11	0.8 to 1.52	.56
Pneumonia	367	36.3	171	46.7	1.64	1.26 to 2.13	.00002
Invasive pulmonary aspergillosis	69	6.8	42	60.9	2.48	1.56 to 4.26	.0001
Urinary tract infection	46	4.5	18	39.1	1	0.54 to 1.83	1
Colitis and typhlitis	106	10.5	36	34.3	0.79	0.52 to 1.21	.29
Catheter-related infections	29	2.9	7	24.1	0.48	0.21 to 1.15	.12
Acute respiratory failure	632	62.5	273	43.2	1.46	1.13 to 1.49	.004
Acute kidney injury	204	20.2	83	40.7	1.08	0.79 to 1.48	.63
Cardiac events	138	13.6	57	41.3	1.11	0.77 to 1.60	.63
Cardiac pulmonary edema	56	5.5	15	26.8	0.55	0.3 to 1.01	.06
Admission after cardiac arrest	30	3.0	23	76.7	5.35	2.27 to 13.6	.0005
Organ infiltration by the malignancy	132	13.1	61	46.2	1.39	1.00 to 2.02	.05
Leukemic pulmonary infiltrates	38	3.8	20	52.6	1.48	1.04 to 3.10	.02
Hemophagocytic lymphohistiocytosis	21	2.1	14	66.7	3.18	1.27 to 7.96	.01
Tumor lysis syndrome	97	9.6	40	41.2	1.10	0.72 to 1.68	.66
Severe bleeding	50	4.9	18	36.0	0.87	0.48 to 1.57	.66
Severe metabolic disturbances	40	4.0	5	12.5	0.21	0.08 to 0.55	.0002
Coma	27	2.7	9	33.3	0.77	0.34 to 1.73	.69
Acute liver dysfunction	17	1.7	14	82.4	7.47	2.13 to 26.17	.0005
Admission to the ICU for safer chemotherapy initiation*	71	7.1	16	22.5	0.43	0.24 to 0.76	.002
Severe chemotherapy-related toxicity	37	3.7	12	32.4	0.74	0.37 to 1.48	.49

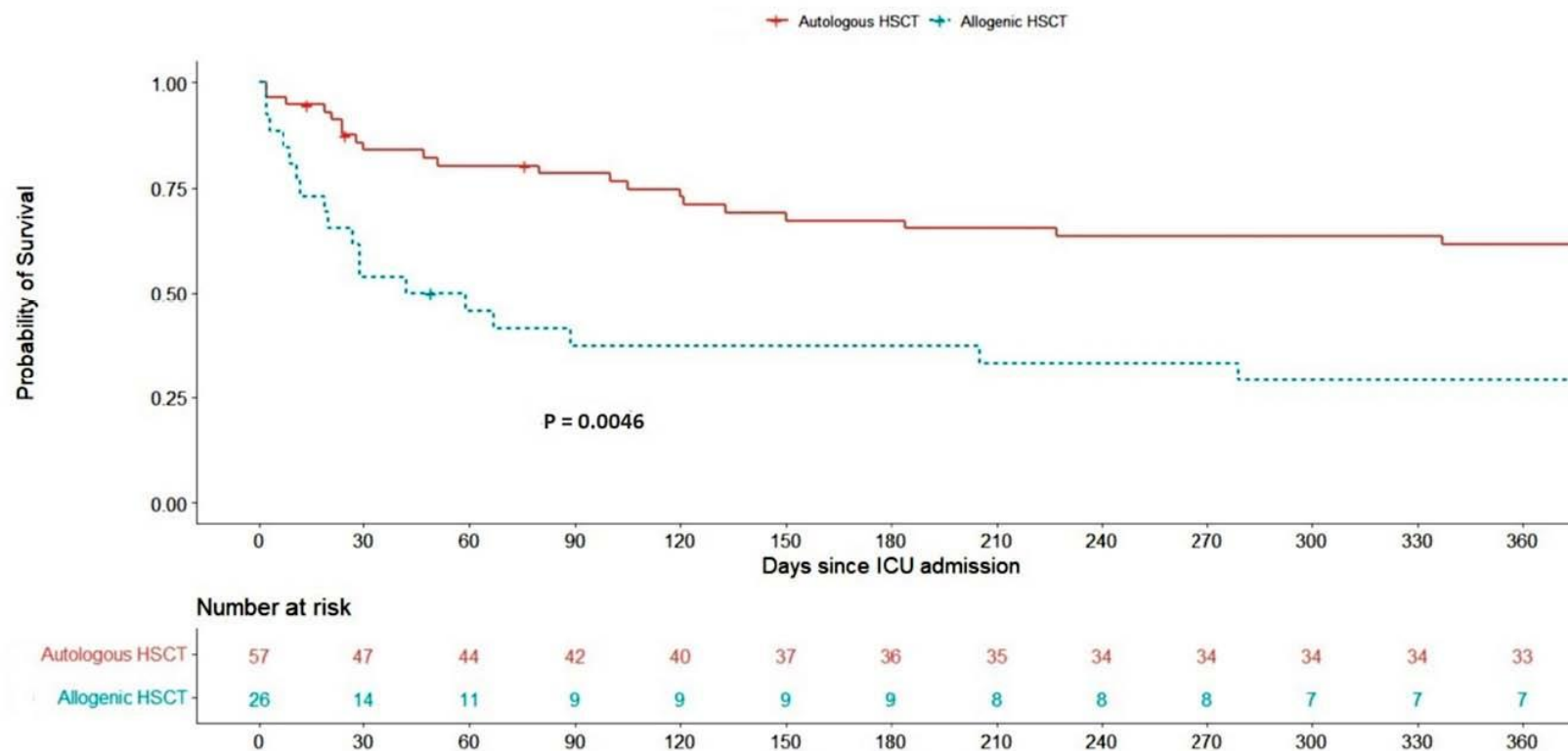
Abbreviation: ICU, intensive care unit.
*ICU admission for safer chemotherapy initiation was restricted to patients with high tumoral burden (hyperleukocytic leukemia or bulky lymphoma) who were at high risk for leukostasis, tumor lysis syndrome, or compression from bulk tumors.

One-year mortality of hematopoietic stem cell recipients admitted to an intensive care unit in a dedicated Brazilian cancer center: a retrospective cohort study

Leticia Vicentin Finencio Archanjo^I, Pedro Caruso^{II}, Antonio Paulo Nassar Junior^{III}

A.C. Camargo Cancer Center, São Paulo (SP), Brazil

Trapianto di Cellule Staminali Emopoietiche



TCSE

- Mortalità & Morbilità
 - Autologo = popolazione generale
 - Allogeneico → Alta prevalenza
- Ammessi in ICU il 10-50% di pazienti con complicanze severe
 - Polmonari = 40-60%
 - Settiche & Shock Settici = 30%
 - Neurologiche = 15%
 - Renali = 15%
 - Cardiache, Epatiche, Emorragiche, ecc....< 5%
- Fattori Prognostici di Mortalità in ICU
 - Ventilazione Meccanica = 87% → 93% dopo 10 gg
 - Emodializzati = 94%
 - Shock Settico (vasopressori) = 91%
 - IRA, Fallimento Epatico, GvHD non responsiva, MOD/MOF

Saillard C et al. BMT 2016

Schellongowski P et al. Haematologica 2011

Azoulay E et al. Blood Rev 2015

Soubani AO et al. Chest 2004

Mayer S et al. Leuk Lymphoma 2017

Escobar K et al. BBMT 2015

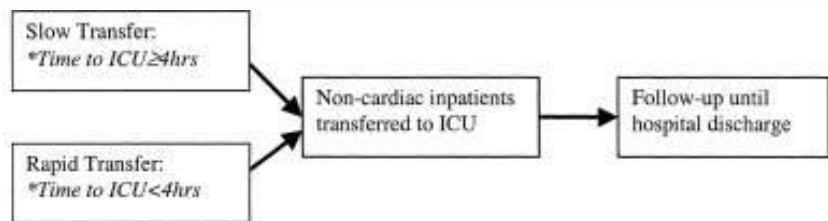
Péne F et al. JCO 2006

Boyaci N et al. Hematology 2014

Scales DC et al. Crit Care 2008

An K et al. BMC Pediatr. 2016

Mortalità VS precocità di trasferimento ICU



ORIGINAL ARTICLES

Inpatient Transfers to the Intensive Care Unit

Delays Are Associated With Increased Mortality and Morbidity

Michael P. Young, MD, MS, Valerie J. Gooder, RN, PhD, Karen McBride, RN,
Brent James, MD, MStat, Elliott S. Fisher, MD, MPH

J GEN INTERN MED 2003;18:77-83.

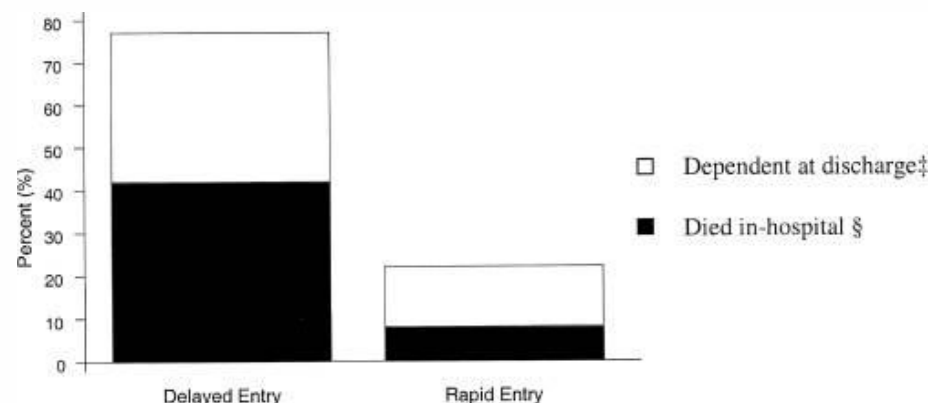


Table 3. Health Outcomes and Resources Consumed: Slow- Versus Rapid-ICU Transfer (Crude)

	Slow Transfer (N = 56)	Rapid Transfer (N = 35)	RR (95% CI)	P Value
Health outcomes				
Death in-hospital	41%	11%	3.5 (1.4 to 9.5)	.004
Survivors functionally dependent at hospital discharge*	11 (33%)	5 (16%)	1.5 (0.96 to 2.4)	.15
Hospital Resources†				
Hospital length of stay-median (interquartile range)	14 d (7 to 20)	9 d (5 to 15)		.03
Median/hospital costs‡ (interquartile range)	34 (18 to 58)	21 (11 to 34)		.01

*Time to ICU = interval from time physiologic criterion first met until time of transfer to the ICU

Effect of Early Intervention on Long-Term Outcomes of Critically Ill Cancer Patients Admitted to ICUs*

Dae-Sang Lee, MD¹; Gee Young Suh, MD, PhD^{1,2}; Jeong-Am Ryu, MD¹; Chi Ryang Chung, MD¹; Jeong Hoon Yang, MD, PhD^{1,3}; Chi-Min Park, MD, PhD^{1,4}; Kyeongman Jeon, MD, PhD^{1,2}



- Crit Care Med 2015
- Analisi retrospettiva di dati prospettici
- 60% pz ematologici

TABLE 6. Comparisons of Clinical Outcomes Between Early (≤ 1.5 Hours) and Late (> 1.5 Hours) Intervention Groups

Characteristics	Early Intervention Group (≤ 1.5 Hr, $n = 221$)	Late Intervention Group (> 1.5 Hr, $n = 304$)	<i>p</i>
Short-term outcomes			
ICU mortality	40 (18.1)	129 (42.4)	< 0.001
Length of stay in the ICU, d	4 (2–8)	5 (2–10)	0.013
In-hospital mortality	88 (39.8)	206 (67.8)	< 0.001
Length of stay in hospital, d	31 (19–51)	32 (18–56)	0.949
30-d mortality	64 (29.0)	168 (55.3)	< 0.001
Additional treatment after survival discharge from the ICU ($n = 356$)	77 (42.5)	84 (48.0)	0.301
Chemotherapy	68 (37.6)	69 (39.4)	0.718
Chemo-radiation	23	15	
Chemotherapy dose reduction	17	10	
Radiation only	7 (3.9)	13 (7.4)	0.145
Stem cell transplantation	9 (5.0)	10 (5.7)	0.756
Long-term outcomes			
Six-month mortality	123 (55.7)	224 (73.7)	< 0.001
One-year mortality	145 (65.6)	237 (78.0)	0.002

Data are presented as median and interquartile ranges or as numbers (%) of patients.

Mortalità vs Terapie di supporto vitale

Azoulay E et al. JCO, 2013

Table 2. Hospital Mortality Associated With the Use of Life-Supporting Intervention Therapies in Five Predefined Subgroups

Life-Supporting Intervention	Overall Cohort (N = 1,011)		Patients Age < 60 Years (n = 483)		Good Performance Status (n = 816)*		Partial or Complete Remission (n = 234)†		No Allogeneic BMT (n = 866)		Dysfunction of Zero or One Organ (n = 575)‡	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Total patients who died	397	39.3	169	34.9	284	34.8	78	33.3	319	36.8	115	20.0
Chemotherapy in the ICU	244		133		208		NA		244		141	
Patients who died	93	38.1	40	30.1	73	35.1			93	38.1	27	19.1
Noninvasive mechanical ventilation	318		148		244		71		260		142	
Patients who died	147	46.2	62	41.0	104	42.6	27	38.0	116	44.6	38	26.8
Invasive mechanical ventilation	484		228		378		106		415		73	
Patients who died§	293	60.5	126	55.0	214	56.6	57	53.8	244	58.8	23	31.5
Vasoactive drugs	518		233		394		126		438		101	
Patients who died§	298	57.5	122	52.4	213	54.1	57	45.2	247	45.9	22	21.8
Renal replacement therapy	262		126		206		20		231		64	
Patients who died§	155	59.2	73	58.0	111	53.9	11	55.0	131	56.7	12	18.8

Abbreviations: BMT, bone marrow transplantation; ICU, intensive care unit.

*Good performance status was defined as neither bedridden nor completely disabled.

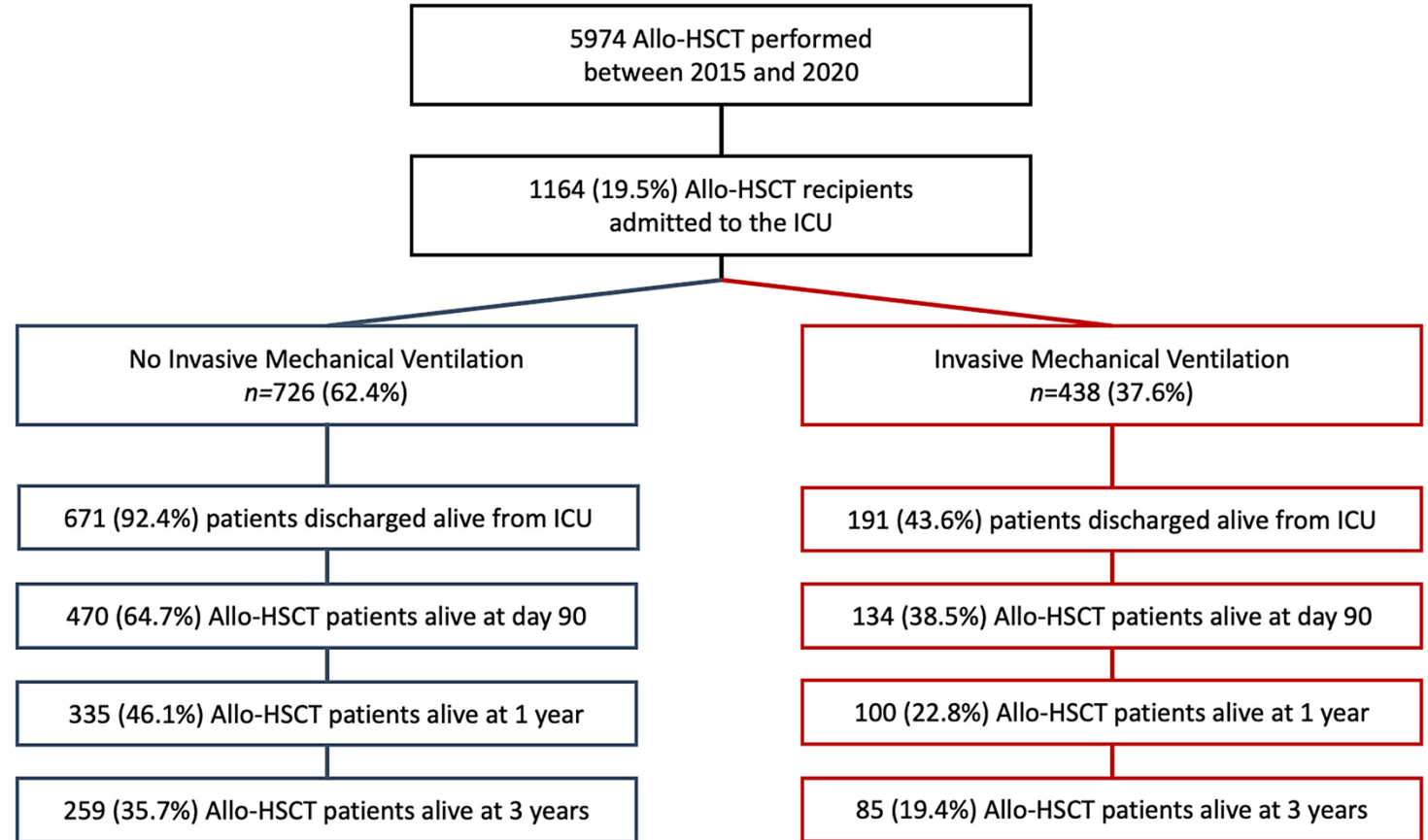
†BMT patients were all considered in partial or complete remission.

‡Requiring invasive mechanical ventilation, vasoactive drugs, or renal replacement therapy.

§These patients received only one of the three following life-supporting interventions: invasive mechanical ventilation, vasoactive drugs, and renal replacement therapy.

TCSE: ventilazione meccanica

Lafarge A et al. Am J Respir Crit Care Med. 2024 Oct 15;210(8):1017-1024. doi: 10.1164/rccm.202401-0135OC.

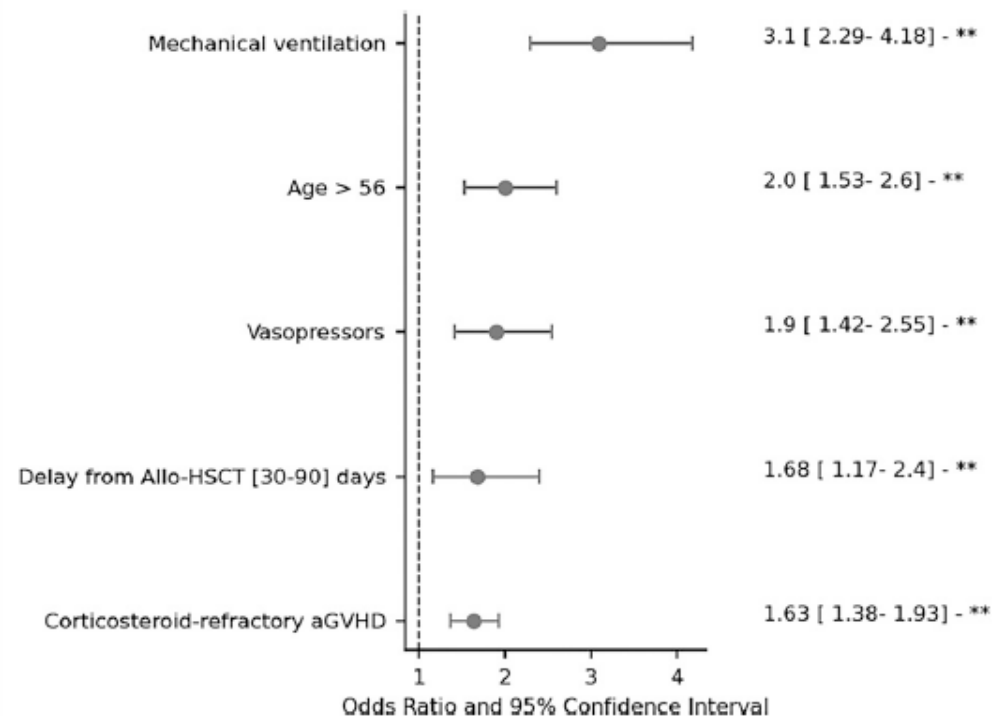


TCSE: fattori predittivi indipendenti di mortalità

Studio retrospettivo multicentrico (1164 pts)

Mortality rate, %

ICU	302 (25.9)
28 d	402 (34.5)
90 d	560 (48.2)
1 yr	729 (62.6)
3 yr	820 (70.4)



** p value <0,001

ORIGINAL ARTICLE

Outcomes in Critically Ill Allogeneic Hematopoietic Stem-Cell Transplantation Recipients

Antoine Lafarge¹, Thibault Dupont¹, Emmanuel Canet³, Anne-Sophie Moreau⁵, Muriel Picard⁶, Djamel Mokart⁸, Laura Platon⁹, Julien Mayaux¹⁰, Florent Wallet¹¹, Nahema Issa¹², Jean-Herlé Raphalen¹³, Frédéric Pène¹⁴, Anne Renault¹⁵, Régis Peffault de la Tour², Christian Récher⁷, Patrice Chevallier⁴, Lara Zafrani¹, Michael Darmon¹, Naïke Bigé¹⁶, and Elie Azoulay¹

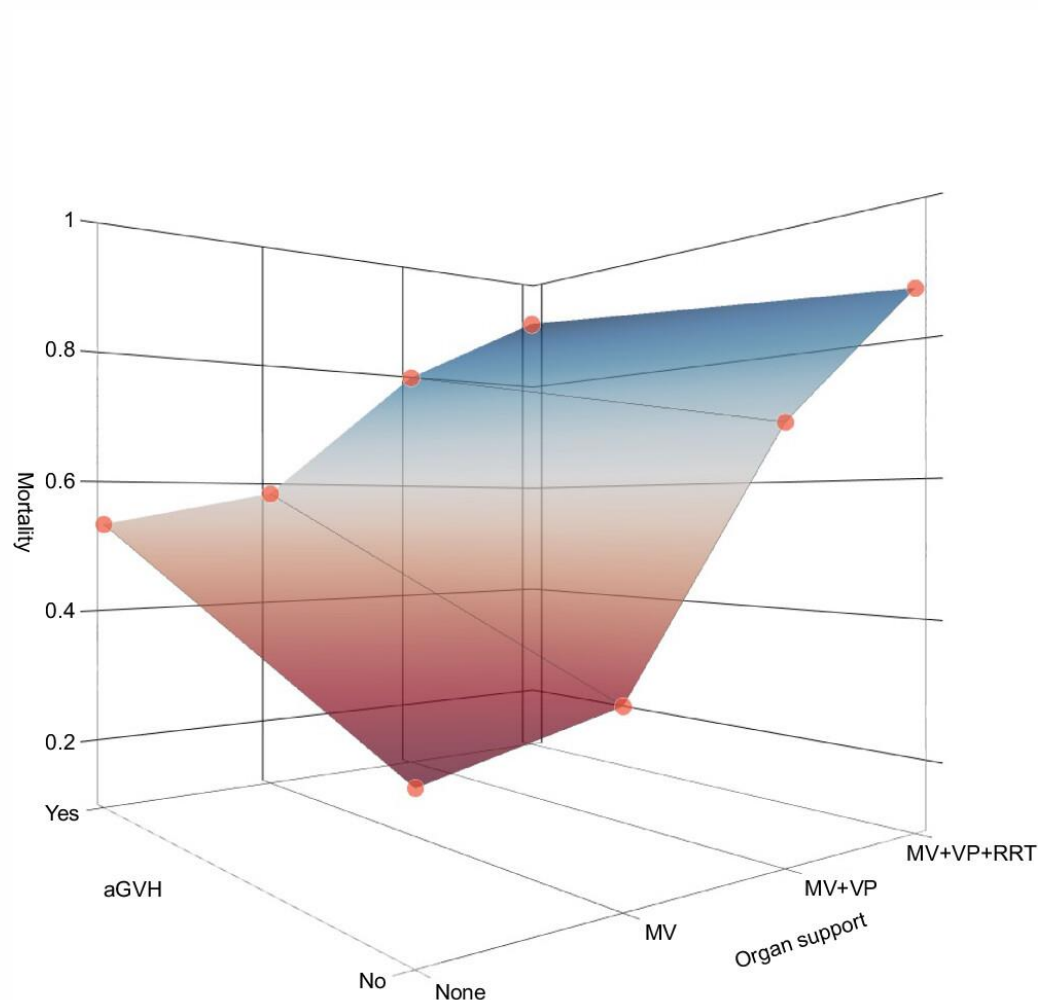
Am J Respir Crit Care Med. 2024 Oct 15;210(8):1017-1024

Istituto Oncologico Veneto IOV-IRCCS, Castelfranco Veneto

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TCSE: R/R aGvHD vs Terapie di supporto



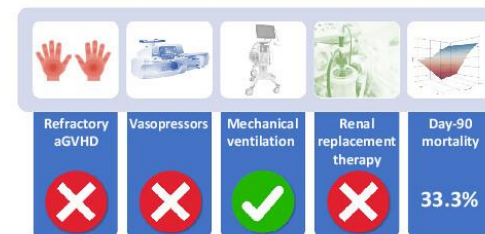
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ORIGINAL ARTICLE

Outcomes in Critically Ill Allogeneic Hematopoietic Stem-Cell Transplantation Recipients

Antoine Lafarge¹, Thibault Dupont¹, Emmanuel Canet³, Anne-Sophie Moreau⁵, Muriel Picard⁶, Djamel Mokart⁸, Laura Platon⁹, Julien Mayaux¹⁰, Florent Wallet¹¹, Nahema Issa¹², Jean-Herlé Raphalen¹³, Frédéric Pène¹⁴, Anne Renault¹⁵, Régis Peffault de la Tour², Christian Récher⁷, Patrice Chevallier⁴, Lara Zafrani¹, Michael Darmon¹, Naïke Bigé¹⁶, and Elie Azoulay¹

Mortalità a 90gg



Skills
(advanced)

&

Tools

EARLY

diagnosis, recognition, detection, treatment, ICU transfer

Nursing Ematologico

Parametri vitali

TC (iper-ipo)
PA (ipotensione)
FC (tachicardia)
FR (polipnea/dispnea)
SpO₂ (desaturazione)
Dolore (sede/intensità/tipo)

Strumenti

Scale di valutazione
Strumenti di assessment
Documentazione clinica

Segni-Sintomi

Sintomi respiratori (tosse, espettorato...)
Sintomi gastrointestinali (diarrea, vomito, mucosite...)
Sintomi uro-genitali (disuria, stranguria, ematuria, secrezioni....)
Lesioni cutanee/mucose
Emergenza Accessi vascolari
Eventuali dispositivi a permanenza: PEG, nefrostomia, drenaggi, cateteri
Fatigue

Diagnostica

Colturali
Biochimici
Strumentali

Paziente

Compliance
Livello di autonomia
Stato psico/emotivo
Care Givers
Altre facilities

Esame obiettivo sistematico

Addome/Organi ipocondriaci
Torace
Cuore
Stato neurologico
Cute/annessi
Idratazione
Mucosa Orale
Faringe/seni paranasali
Tono muscolare

EVOLUZIONE CLINICA



Proattività

Risk Assessment

Monitoraggio
evoluzione
clinica

Strumenti
validati

Sistemi di
warning

Adattamento
assistenza

Misurare il grado di instabilità clinica: Early Warning Score

Score	3	2	1	0	1	2	3
FR	>35	31–35	21–30	9–20			<7
SpO2 (%)	<85	85–89	90–92	>92			
Temperatura		>38.9	38–38.9	36–37.9	35–35.9	34–34.9	<34
PA sistolica		>199		100–199	80–99	70–79	<70
FC	>129	110–129	100–109	50–99	40–49	30–39	<30
Stato di coscienza				Sveglia	Stimoli verbali	Stimoli dolorosi	Non risponde

Varianti:

- **PEWS** (pediatrico)
- **MEWS** (modificato per uso su varie popolazioni)
- **MEOWS** (ostetrico)
- **NEWS** (standards UK)

Williams B (ed). (2017). National Early Warning Score (NEWS) 2 – Standardising the assessment of acute illness severity in the NHS. ISBN 978-1-86016-682-2.

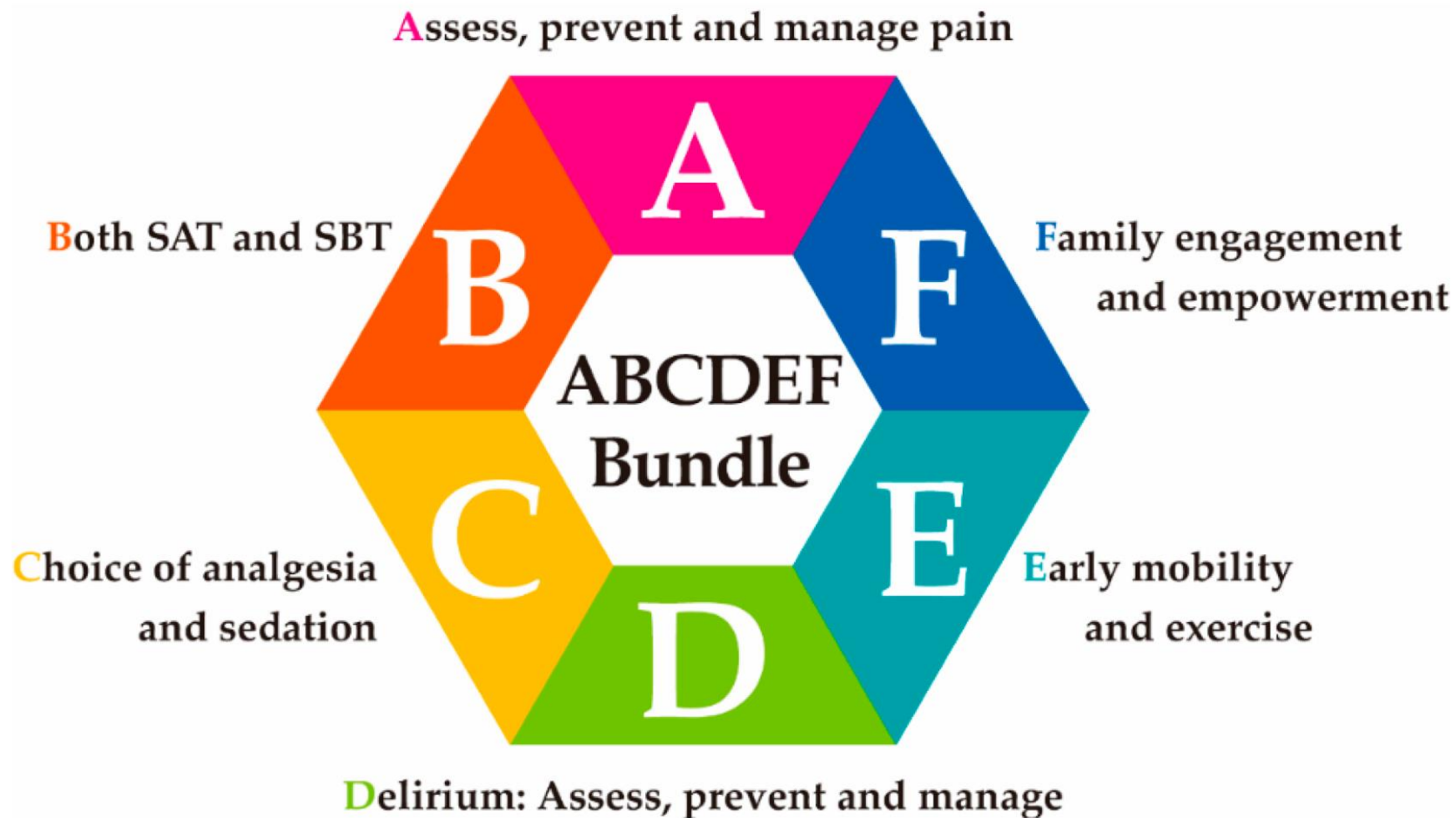
Scores ≥ 5 → ↑ Mortalità
↑ ICU

- ☐ La frequenza del monitoraggio deve essere adattata alla severità del quadro clinico
- ☐ Migliorano i tempi e appropriatezza della risposta clinica
- ☐ Migliorano gli esiti sui pazienti a rischio

Wright MM et al. (1997). Clin Intensive Care. 8: 100. doi:10.3109/tcic.8.2.93.110

Subbe CP et al. (2001). Quarterly Journal of Medicine. 94 (10): 521–6. doi:10.1093/qjmed/94.10.521

Douw G et al. Critical Care (London, England). 19: 230. doi:10.1186/s13054-015-0950-5

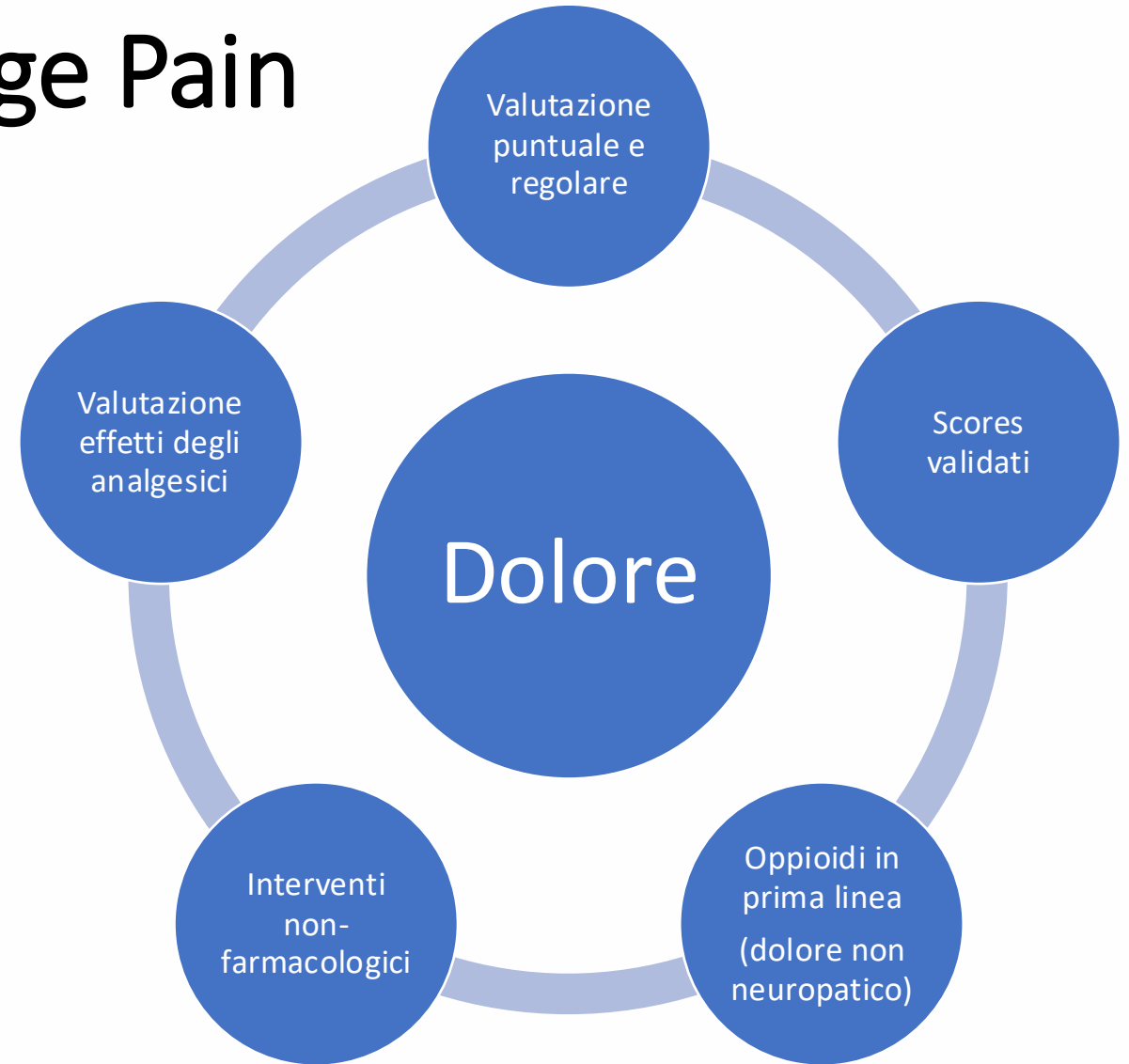


Assess, Prevent and Manage Pain

- E' considerato sintomo clinico di importanza fondamentale
- Richiede approccio sistematico per la valutazione e il trattamento

Strumenti per l'assessment

- NRS (paziente cosciente)
- Behavioural Pain Scale (BPS)
- Critical Care Pain Observation Tool (CPOT)



Chanques G et al. Pain, 2010; Barr J et al. Crit Care Med, 2013; Chanques G et al. Crit Care Med, 2006; Erstad BL et al. Chest, 2009

Behavioural Pain Scale (BPS)

	Description	Score
Facial expression	Relaxed	1
	Partially tightened	2
	Fully tightened	3
	Grimacing	4
Upper limbs	No movement	1
	Partially bent	2
	Fully bent with finger flexion	3
	Permanently retracted	4
Compliance with ventilation	Tolerating movement	1
	Coughing but tolerating ventilation for most of the time	2
	Fighting ventilator	3
	Unable to control ventilation	4

Pain grade: presence of pain ≥ 6 / unacceptable pain > 7 / objective < 6 .

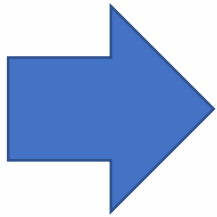
COPT score

Indicator	Description	Score
Facial expressions	No muscle tension observed	Relaxed, neutral 0
	Presence of frowning, brow lowering, orbit tightening and levator contraction or any other change (e.g. opening eyes or tearing during nociceptive procedures)	Tense 1
	All previous facial movements plus eyelid tightly closed (the patient may present with mouth open or biting the endotracheal tube)	Grimacing 2
Body movements	Does not move at all (doesn't necessarily mean absence of pain) or normal position (movements not aimed toward the pain site or not made for the purpose of protection)	Absence of movements or normal position 0
	Slow, cautious movements, touching or rubbing the pain site, seeking attention through movements	Protection 1
	Pulling tube, attempting to sit up, moving limbs/thrashing, not following commands, striking at staff, trying to climb out of bed	Restlessness/Agitation 2
Muscle tension	No resistance to passive movements	Relaxed 0
Evaluation by passive flexion and extension of upper limbs when patient is at rest or evaluation when patient is being turned	Resistance to passive movements	Tense, rigid 1
	Strong resistance to passive movements or incapacity to complete them	Very tense or rigid 2
Compliance with the ventilator (intubated patients)	Alarms not activated, easy ventilation	Tolerating ventilator or movement 0
	Coughing, alarms may be activated but stop spontaneously	Coughing but tolerating 1
OR	Asynchrony: blocking ventilation, alarms frequently activated	Fighting ventilator 2
Vocalization (extubated patients)	Talking in normal tone or no sound	Talking in normal tone or no sound 0
	Sighing, moaning	Sighing, moaning 1
	Crying out, sobbing	Crying out, sobbing 2
Total		0-8

Gélinas C, Fillion L, Puntillo KA, et al. Validation of the critical-care pain observation tool in adult patients. Am J Crit Care. 2006; 15(4): 420-427, indexed in Pubmed: 16823021. Table 1. Available at: <http://ajcc.aacnjournals.org/content/15/4/420.short>
CPOT Polish Translation: 16.10.2016, Katarzyna Kotfis MD, PhD

Both SAT and SBT

- Spontaneous Awakening Trials (SAT)
- Spontaneous Breathing Trials (SBT)
- Minimizzazione dell'uso di sedativi



↑ Tempo in respiro spontaneo
↓ Dipendenza dal ventilatore
↓ Permanenza in ICU
↓ Mortalità e Morbilità

Kress JP et al. N Engl J Med, 2000
Girard TD et al. Lancet, 2008

Coscienza



Valutazione stato coscienza:
Glasgow Coma Scale (GCS)

Valutazione stato di sedazione:
Richmond Agitation Sedation
Scale (RASS)

Respiratorio



Gestione ventilazione invasiva/non invasiva

- Check vie aeree naturali e artificiali
- Prevenzione problematiche di CO2
- Umidificazione dei gas

Prevenzione VAP

- Aspirazione secrezioni tracheali
- Igiene orale

Monitoraggio dinamica respiratoria, SPO2, EGA
Interventi posturali

Cardiocircolatorio



Perfusione tissutale

- Assessment parametri circolatori
- Parametri vitali, MAP, ECG, PVC

Monitoraggio emodinamico

- Frazione eiezione, Trasporto O2

Gestione AVC, circuiti di trasduzione, accessi arteriosi

Gestione infusioni

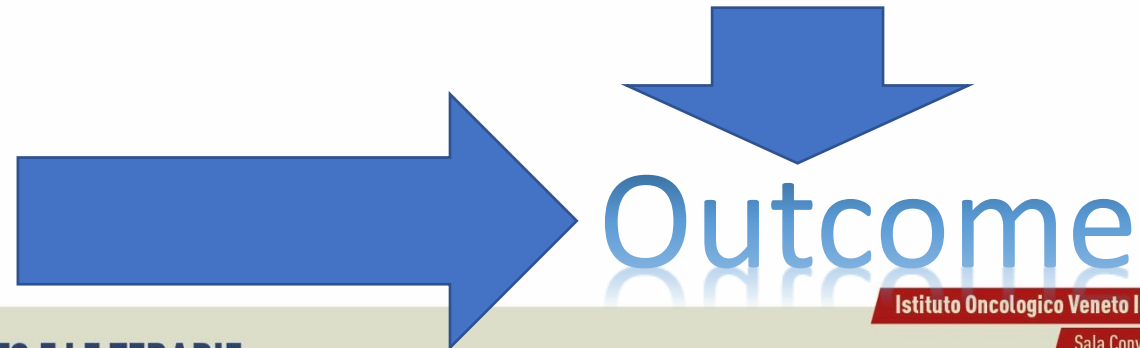
- Vasopressori, NA, trasfusioni, elettroliti

Sanguinamenti

Prelievi ematici

ECMO, Emodialisi, Dispositivi intra-aortici

Choice of analgesia and sedation



Delirium assessment, prevention, and management

- Impatto su outcome primari
- Frequentemente sottostimato
- Evidenze conflittuali in prevenzione e trattamento
 - Igiene del sonno
 - Riabilitazione precoce

Intensive Care Delirium Screening Checklist (ICDSC)				
1. Altered level of consciousness Deep sedation/coma over entire shift [SAS = 1,2; RASS = -4,-5] = Not assessable Agitation [SAS = 5,6 or 7; RASS = 1-4] at any point = 1 point Normal wakefulness [SAS = 4; RASS = 0] over the entire shift = 0 point Light sedation [SAS = 3; RASS = -1,-2,-3] = 1 point (if no recent sedatives) = 0 points (if recent sedatives)	No	0	1	Yes
2. Inattention Difficulty following instructions or conversation; easily distracted by external stimuli Will not reliably squeeze hands to spoken letter "A": S A V E A H A A R T	No	0	1	Yes
3. Disorientation In addition to name, place, and date, does the patient recognize ICU caregivers? Does patient know what kind of place they are in? (list examples such as dentist's office, home, work, hospital.)	No	0	1	Yes
4. Hallucination, delusion, or psychosis Ask the patient if they are having hallucinations or delusions (e.g., trying to catch an object that isn't there). Are they afraid of the people or things around them?	No	0	1	Yes
5. Psychomotor agitation or retardation EITHER: Hyperactivity requiring the use of sedative drugs or restraints to control potentially dangerous behavior (e.g., pulling IV lines out or hitting staff). OR: Hypoactive or clinically noticeable psychomotor slowing or retardation.	No	0	1	Yes
6. Inappropriate speech or mood Patient displays inappropriate emotion, disorganized or incoherent speech, sexual or inappropriate interactions, or is apathetic or overly demanding.	No	0	1	Yes
7. Sleep-wake cycle disturbance EITHER: frequent awakening /<4 hours sleep at night. OR: Sleeping during much of the day	No	0	1	Yes
8. Symptom fluctuation Fluctuation of any of the above symptoms over a 24-hours period.	No	0	1	Yes
Total shift score (Min 0 - Max 8)				

The CAM-ICU-7 Delirium Severity Scale

CAM-ICU		
Items	Grading	Score
1. Acute Onset or Fluctuation of Mental Status Is the patient different than his/her baseline mental status? OR Has the patient had any fluctuation in mental status in the past 24 hours as evidenced by fluctuation on a sedation/level of consciousness scale (i.e. RASS/SAS), GCS, or previous delirium assessment?	0 absent 1 present	
2. Inattention Say to patient: "I am going to read you a series of 10 letters. Whenever you hear the letter 'A', indicate by squeezing my hand." Read letters from the following letter list in a normal tone: S A V E A H A A R T (Errors are counted when patient fails to squeeze on the letter "A" and when the patient squeezes on any letter other than "A")	0 absent (correct ≥ 8) 1 for inattention (correct 4-7) 2 for severe inattention (correct 0-3)	
3. Altered Level of Consciousness Present if the Actual RASS score is anything other than alert and calm (zero)	0 absent (RASS 0) 1 for altered level (RASS 1, -1) 2 for severe altered level (RASS >1, <-1)	
4. Disorganized Thinking <u>Yes/No Questions</u> 1. Will a stone float on water? 2. Are there fish in the sea? 3. Does one pound weigh more than two pounds? 4. Can you use a hammer to pound a nail? Errors are counted when the patient incorrectly answers a question. <u>Command:</u> Say to patient "Hold up this many fingers" (Hold two fingers in front of patient). "Now do the same with the other hand" (Do not repeat number of fingers) An error is counted if patient is unable to complete the entire command.	0 absent (correct ≥ 4) 1 for disorganized thinking (correct 2, 3) 2 for severe disorganized thinking (correct 0, 1)	
Total Score		

CAM-ICU: Confusion Assessment Method for the Intensive Care Unit; RASS: Richmond Agitation Sedation Scale; SAS: Sedation-Agitation Scale; GCS: Glasgow Coma Scale

Early mobility and exercise

Perdita muscolare
Immobilità
Calo ponderale



Precoci in ICU



Outcome primari
Disabilità

Infermiere

- **Assessment riabilitativo**
- **Programma riabilitativo dai primi giorni di ICU**
- **Prevenzione lesioni da pressione e postural**
- **Wound care**
- **Gestione di drenaggi, AVC, ferite chirurgiche**

Caregiver

Fisioterapista

Freeman R et al. Crit Care Nurs Q. 2013; Dammeyer J et al. Crit Care Nurs Q. 2013; Kleyweg RP et al. Muscle Nerve. 1991

Family engagement and empowerment



Education (patient/family)
Family involvement
Safe access
Psychosocial support
Cultural mediation

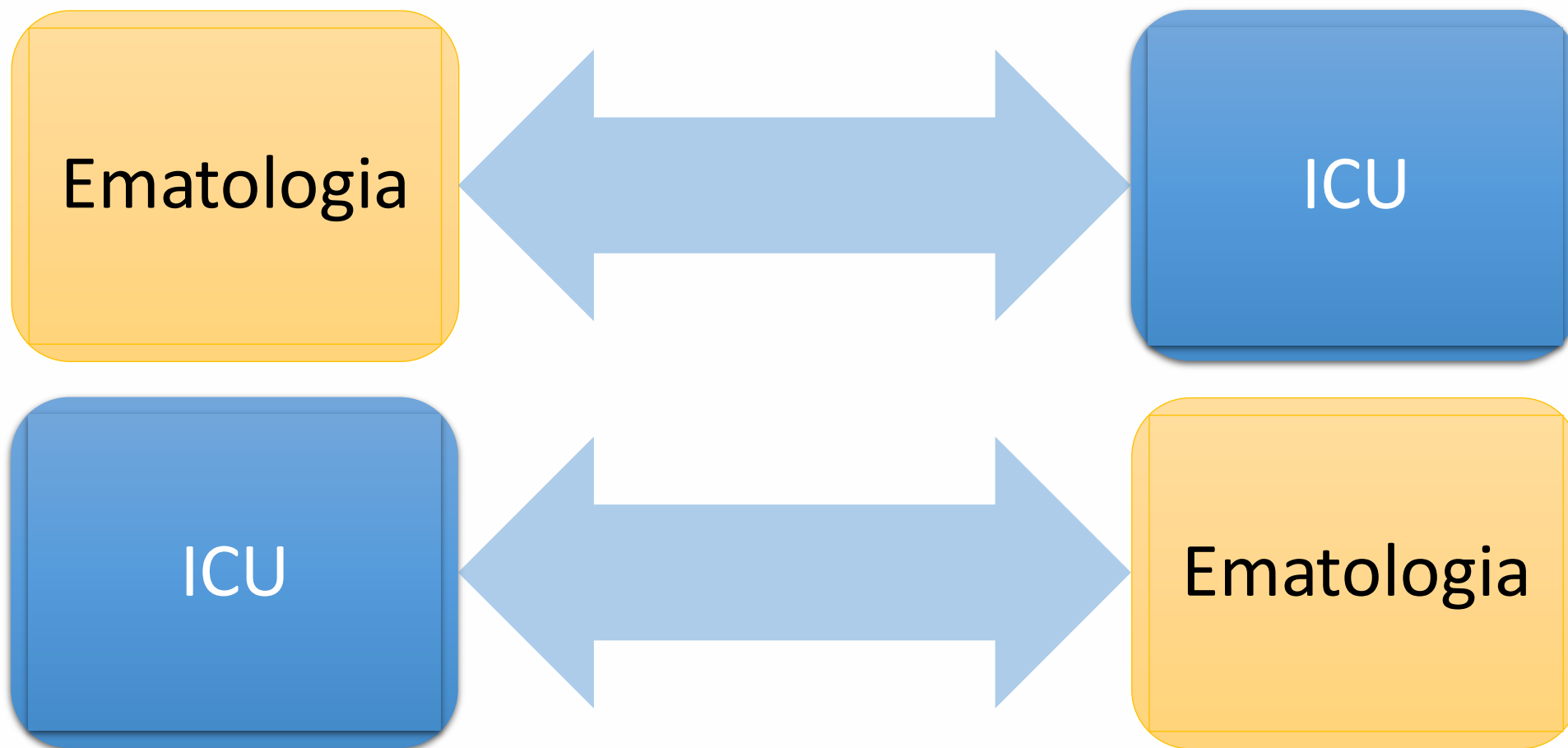


Patient/Relatives
preference



Correct Input
to Physicians

Transition Management (to/from ICU)



Multidisciplinarietà

EMATOLOGIA
Protezione
(Proattività)

TERAPIA
INTENSIVA
(DEF Bundle)

zione NIV, alti flussi, C-pap, gestione infusione
sori, monitoraggio pressione invasiva, monitoraggio
ices invasivi, ecc....

Externe
Vasopressor

Gestione chemioterapia, immunosoppressori, gestione
mucosite orale, segni e sintomi di GvHD, rischio infettivo,
neutropenia febbrile, isolamento, ecc....



Grazie