Utilizzo dei massaggiatori automatici esterni nel soccorso territoriale

Dott.ssa Silvia Orazio
Dott. Alessandro Forti

118 SUEM REGIONE DEL VENETO

TrevisoEmergenza

RCP meccanica: l'esperienza di Treviso e Pieve di Cadore

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PRESIDI PER LA RCP MECCANICA

PHYSIO CONTROL LUCAS®

ZOLL AUTOPULSE®

MICHIGAN INST. LIFE-STAT®

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ARRESTO CARDIACO

Review article

Extracorporeal resuscitation for refractory out-of-hospital cardiac arrest in adults: A systematic review of international practices and outcomes☆

Sudden cardiac arrest is the main cause of death worldwide in previously healthy people. The global incidence of OHCA in adults is 62 cases per 100,000 persons per year, from which 75 to 85% have a cardiac origin.[1] Despite recent improvements in enhancing successful resuscitation in the prehospital setting, overall outcomes remain poor in most venues.[1] The overall reported survival to hospital discharge is 6% in North America,[1] 9% in Europe, 11% in Australia and 2% in Japan.[2]

Resuscitation 101 (2016) 12–20

QUALITA' DELL' RCP

Hightower D. et al.
Decay in quality of closed-chest compressions over time. *Annals of Emergency Medicine*. 26(3):300-3, 1995 Sep.
18% of compressions effective after 5 minutes

Ashton A, et al.
Effect of rescuer fatigue on performance of continuous external chest compressions over 3 min. *Resuscitation* 2002; 55: 151–5
27 effective compressions/minute after 6 minutes
Worse with female rescuers

QUALITA' DELL' RCP

ERC Guidelines 2005

Interruptions to chest compressions must be minimised.

On stopping chest compressions, the coronary flow decreases substantially;

on resuming chest compressions, several compressions are necessary before the coronary flow recovers to its previous level

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QUALITA' DELL' RCP

ERC Guidelines 2015

Deliver compression "in the centre of the chest"

Depht of at least 5 cm but no more than 6 cm

Rate of 100-120/min

A few interruptions as possible

Allow the chest recolis completely after each compression

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Supporto meccanico durante CRP (LUCAS)

We suggest that automated mechanical chest compression devices are not used routinely to replace manual chest compressions. We suggest that automated mechanical chest compression devices are a reasonable alternative to high-quality manual chest compressions in situations where sustained high-quality manual chest compressions are impractical or compromise provider safety.[4] Interruptions to CPR during device deployment should be

pressions – CPR in a moving ambulance where safety is at risk, prolonged CPR (e.g. hypothermic arrest), and CPR during certain procedures (e.g. coronary angiography or preparation for extracorporeal CPR).[347,390,414,756–761] Data from the US American CARES

Resuscitation Guidelines 2015

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JAMA.2014;311(1): 53-62 The LINC Randomized Trial

CONCLUSIONS AND RELEVANCE Among adults with out-of-hospital cardiac arrest, there was no significant difference in 4-hour survival between patients treated with the mechanical CPR algorithm or those treated with guideline-adherent manual CPR. The vast majority of survivors in both groups had good neurological outcomes by 6 months. In clinical practice, mechanical CPR using the presented algorithm did not result in improved effectiveness compared with manual CPR.

Lancet 2015; 385: 947-955 The PARAMEDIC Trial

Interpretation We noted no evidence of improvement in 30 day survival with LUCAS-2 compared with manual compressions. On the basis of ours and other recent randomised trials, widespread adoption of mechanical CPR devices for routine use does not improve survival.

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There is limited evidence for recommending routine transport to hospital with ongoing CPR. The decision will depend on patient selection, availability of optimal methods for mechanical or circulatory support during and after transport to the hospital, management of underlying pathology, treatment after ROSC, complication rate and outcome. There are no large outcome studies available, but small case series suggest benefit in selected cases.[249]

Transport with ongoing CPR and immediate access to the catheterisation laboratory may be considered if a prehospital and in-hospital infrastructure is available with teams experienced in mechanical or haemodynamic support and rescue PPCI with ongoing CPR. Excellent cooperation is required between prehospital and in-hospital teams. A decision to transport with ongoing CPR should take into consideration a realistic chance of survival (e.g. witnessed cardiac arrest with initial shockable rhythm (VF/pVT) and bystander CPR). Intermittent ROSC also strongly favours a decision to transport.[251]

PERCHE' PROVARLO

DISPOSITIVO EFFICACE

QUALITA' COSTANTE DELLA RCP

NON TRAUMATICO

"MANI LIBERE"

TrevisoEmergenza

LA RCP SUL POSTO E' TUTTO QUELLO CHE ABBIAMO?

ERC Guidelines 2005

It is generally accepted that ongoing asystole for more than 20 min (…) with all ALS measures in place, constitutes grounds for abandoning the resuscitation attempt

Patients with primary cardiac arrest, who require ongoing CPR without any return of a pulse during transport to hospital, rarely survive neurologically intact

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IMPRESSIONI D'UTILIZZO

HAI OTTENUTO COMPRESSIONI EFFICACI?	SI – 100%
HAI DOVUTO INTERROMPERE L'USO?	NO – 100%
HAI AVUTO DIFFICOLTA' A VENTILARE?	NO – 100%
POSIZIONAMENTO E' STATO RAPIDO?	SI – 100%
POSIZIONAMENTO E' STATO SEMPLICE?	SI – 100%

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CONCLUSIONE DELLA "SPERIMENTAZIONE"

DISPOSITIVO DI FACILE IMPIEGO

EFFICACIA RCP NEL TRASPORTO

ESECUZIONE PTCA E' POSSIBILE

SOPRAVVIVENZA DOPO RCP PROLUNGATA

PROTOCOLLO PER IL TRASPORTO IN ACC

TrevisoEmergenza

INDICAZIONI AL TRASPORTO DEL PZ IN A.C.C.

ACC TESTIMONIATO

DISPONIBILITA' LUCAS

ALS ENTRO 10'

ETA' < 75 aa

RITMO INIZIALE FV

Table 2
Commonly cited ECPR inclusion and exclusion criteria and bundle treatments performed.

Inclusion criteria
- Age cutoffs, usually <75 years (low end: 10 years; high end: no upper age)
- Rhythm at the time of CPR (when included, specified as favorable to ventricular arrhythmias or "shockable" rhythms)
- Time interval from collapse to initiation of resuscitation (no flow), generally ≤5 mins (up to <15 mins)
- Witnessed cardiac arrest
- Etiology of arrest, to be of "presumed", "assumed", or "suspected" cardiac etiology
- No ROSC despite optimal CPR, usually by 30 mins (as low as 10 mins) – refractory cardiac arrest definition

Exclusion criteria
- Do not resuscitate order
- Severe activities-of-daily-living disability
- Non-cardiac causes of arrest such as severe trauma, uncontrollable bleeding, irreversible brain damage, drug overdose, poisoning, submersion, etc.
- Severe comorbidities (e.g. Often specify as those that would preclude admission to ICU, i.e. terminal illnesses, malignancies, etc.)
- Hypothermia

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Table 1
Characteristics and outcomes of included studies.

Study country, region	Study design	Time period	LOE (quality)	Sample size	Age[a] (years) male %	Cardiac rhythm no. (%)	No flow[b] period (min)	Low flow[b] period (min)	Survival at discharge (or as indicated) no. (%)	Neurological outcome at discharge (or as indicated) no. (%)	Organ donor no. (potential/actual)
Shin et al.[37] Korea, Seoul	Case report	2006	4 (fair)	1	37 (100)	1 (100) VF	0	approx 120	1 (100)	1 (100) CPC-1	NA
Nagao et al.[33,c] Japan, Tokyo	Prospective observational	November 2000 December 2007	4 (good)	171	MR	143 (84) VF/VT 18 (10) PEA 10 (6) AS	MR	MR	33(19)	21 (12) CPC-1,2	NR
Lebreton et al.[21] France, Paris	Case report	2010	4 (fair)	1	48 (100)	1 (100) AS	<1	<59	0 (0)	NA	NR
Le Guen et al.[20,c] France, Paris	Prospective observational	January 2008 August 2010	4 (good)	51	42 (90)	32 (63) VF 15 (29) AS 4 (8) PEA	3	NR	2 (4) **at 28 d**	2 (4) GOS 4,5 **at 6 months**	NR
Megarbane et al.[22] France, Paris	Prospective observational	2005–2008	4 (good)	47	MR	MR	MR	MR	1 (2)	1 (2) CPC-1	NR
Avalli et al.[28,c] Italy, Monza	Retrospective database review	January 2006 February 2011	4 (good)	18	46 (94)	16 (89) VF/VT 2 (11) AS/PEA	1	77	1 (5) **at 28 d**	1 (5) GOS ≤4 **at 6 months**	10 DBD/NR
Haneya et al.[26,c] Germany, Riesenburg	Retrospective database review	January 2007 January 2012	4 (good)	26	48 (65)	12 (46) VF/VT 2 (8) PEA 12 (46) AS	NR	70 (55–110)	4 (15)	NR for OHCA alone	NR
Shinar et al.[38] US/San Diego	Case report	2011	4 (fair)	1	59 (100)	1 (100) VF	0	61	1 (100)	1 (100) CPC-1	NA
Fagnoul et al.[24,t] Belgium, Brussels	Prospective observational	January 2012 December 2012	4 (good)	7	MR	MR	MR	MR	2 (29)	2 (29) CPC-1	3 DBD, 1 DCD/1 DBD, 1DCD
Lamhaut et al.[19] France, Paris	Pilot prospective observational	January 2011 January 2012	4 (fair)	7	42 (86)	5 (71) VF/VT	4 (mean)	72 (mean)	2 (28) **at 7 d**	1 (14%) CPC 1 **at 90 d**	3 DBD/2 DBD
Leick et al.[25] Germany, Bad Nauheim	Retrospective chart review	January 2010 December 2011	4 (good)	28	MR	MR	MR	MR	11 (39)	8 (29) CPC-1	NR
Maekawa et al.[13] Japan, Sapporo	Post hoc analysis of prospective observational	January 2000 September 2004	3 (good)	53	54 (83)	31(60) VF/VT	2	49	17 (32)	8 (15) CPC-1,2 **at 90 d**	44/0[d]
Mojoli et al.[29] Italy, Pavia	Prospective observational	January 2008 June 2011	4 (fair)	7	55	NR	7	93 (no flow included)	0 (0)	NA	3 DBD, 1 DCD/2 DBD, 1 DCD
Tazarourte et al.[23,f] France, Ile de France region	Retrospective observational	2008–2010	4 (good)	27	39 (56)	VF 7 (26) PEA 6 (22) AS 14 (52)	2	140 (no flow included)	1 (4)	1 (4) CPC-1	10 DBD/10 DBD
Kim et al.[12,c] Korea, Seoul	Post hoc analysis of prospective observational	May 2006 December 2013	3 (good)	55	53 (75)	31 (56) VF/VT 14 (26) AS 10 (18) PEA	7	62	9 (16)	8 (15) CPC-1,2 1 (2) CPC-4	NR

RCP DURANTE ANGIOPLASTICA

Continuous Mechanical Chest Compressions During Cardiac Arrest to Facilitate Restoration of Coronary Circulation With Percutaneous Coronary Intervention

Haakon Kiil Grogaard, MD*, Lars Wik, MD, PhD[1], Morten Eriksen, Engineer, Magne Brekke, MD and Kjetil Sunde, MD, PhD[2]

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Clinical Communications: Adult

FULL RECOVERY AFTER PROLONGED CARDIAC ARREST AND RESUSCITATION WITH MECHANICAL CHEST COMPRESSION DEVICE DURING HELICOPTER TRANSPORTATION AND PERCUTANEOUS CORONARY INTERVENTION

Alessandro Forti, MD,*†‡ Giovanna Zilio, MD,*†‡ Paolo Zanatta, MD,*† Marialuisa Ferramosca, MD,‡ Cristiano Gatto, PN,‡ Antonio Gheno, PN,‡ and Paolo Rosi, MD‡

CASE REPORT 1

Chiamata CO TV per A.C.C

Maschio 53 aa

RCP iniziata dalla cugina

Invio ambulanza ALS e equipaggio HEMS

Ambulanza ALS sul target dopo 10 min

Ritmo di presentazione FV media ampiezza

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HEMS

Sbarco in Hovering dell’equipaggio HEMS 10 min dopo l’arrivo dell’ambulanza

Equipaggio HEMS applica LUCAS 2 sul paziente

Già scaricato 3 volte e somministrati 3 mg di adrenalina

Riassunto: 10 min di MCE da parte della cugina

+

12 min di MCE ambulanza ALS

Dopo 22 min di MCE inizia LUCAS 2

TrevisoEmergenza

PEA

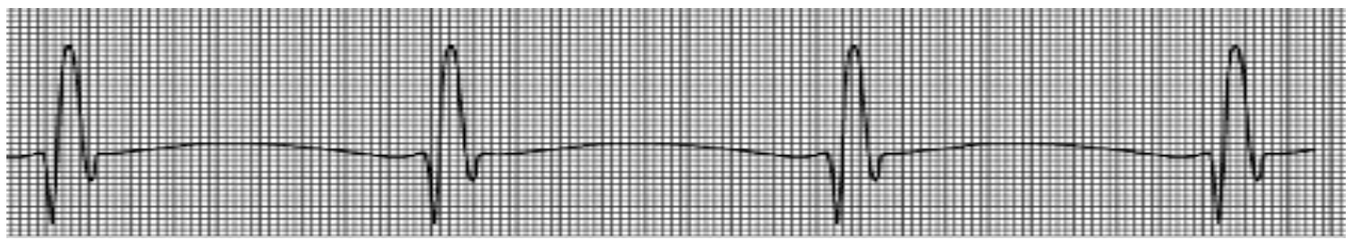
Dopo 18 min di MCE con LUCAS (40 totali) cambio ritmo da FV a PEA

Diametro pupillare iso/iso debolmente fotoreagente

Colore cutaneo migliorato in corso di MCE

Si decide per trasporto verso OC Treviso

Si avverte CO e si allerta sala Emodinamica



EMODINAMICA

Arrivo OC Treviso dopo 10 minuti di volo

In emodinamica viene eseguito cateterismo sotto MCE LUCAS
(pz ancora in PEA)

Subocclusione DA e CX

Posizionato Stent nudo su DA e CX

Ripresa polso periferico dopo **115 min di MCE con LUCAS**

EGA: pO2 51, pCO2 81, pH7.05, HCO3 15.6, BE -10.6, latt
11.1, Gluc 80, Hb 13.6

Posizionato IABP

Trasferito presso TICCH

TrevisoEmergenza

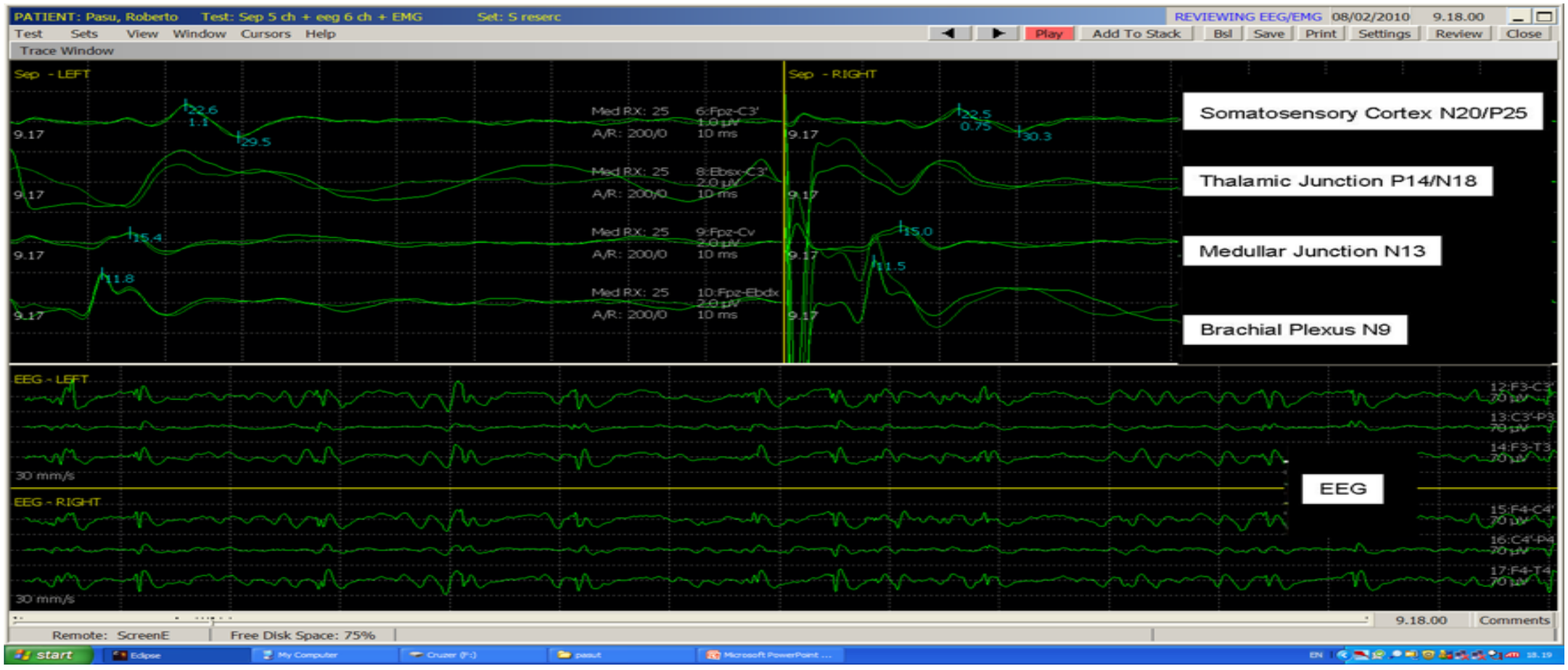
ANGIOGRAFIA e IPOTERMIA TERAPEUTICA

Eseguita AngioTAC per ematoma pettorale sx
Trasferito in angiografia.
Eseguita embolizzazione di ramo arterioso
Trasferito nuovamente in TICCH
Inizio Ipotermia terapeutica per 24 h

TrevisoEmergenza

PESS

Eseguiti PESS
Presenti ma ipovoltati bilateralmente
Dopo 48h inizio CRRT
Rimozione IABP dopo 3gg



TrevisoEmergenza

OUTCOME

In V giornata paziente viene estubato
GCS 15
Dimesso in XVI giornata
Dopo 1 aa CABG OC Mestre
A distanza di 3 aa dall'evento paziente ancora vivo in ottime condizioni e nessun deficit neurologico

TrevisoEmergenza

OGGI

CASE REPORT 2

- 04/2015
- PS Pieve di Cadore. Pz 68 aa
- Chiamata per trasferimento a BL UCIC. per pz con IMA inferiore. Al mio arrivo pz obnubilato E2V2M5
- Ipoteso non responsivo al riempimento volemico
- All'eco : acinesia Vdx
- Non risponde alla somministrazione idi inotropi
- Il pz va in FV

- Si inizia ALS
- IOT + MCE con LUCAS
- PEA
- Si contatta CO per trasferimento pz a TV (Emodinamica)
- All’arrivo in emodinamica a TV 58 min LUCAS
- All’eco si conferma ipo/acinesia VDx
- Pressione cruenta (PAO 55-60 mHg)
- Si decide per CNG + aspirazione trombo + stent
- Il pz viene estubato il giorno dopo senza alcun deficit neurogico

CASE REPORT 3

- 05/2015
- ore 01.20: dolore toracico in albergo
- Chiamata SUEM: arrivo soccorsi dopo circa 8 min
- Gasping, FV a basso voltaggio
- LUCAS
- 18 shock
- Adrenalina 9 mg
- Stabilizzato. Trasportato in emodinamica
- Aspirazione trombo su DA + stent nudo
- IABP

IPOTERMIA TERAPEUTICA

PESS ED EEG

- Presenti
- Ipovoltati bilateralmente di più a dx
- In III giornata estubato
- Lieve deficit di forza emisoma sx
- Amnesia retrograda riguardo all'evento
- Trasferito in VIII giornata in UTIC per proseguimento cure

CASE REPORT 4

- PS Pieve di Cadore. Pz 57 aa
- Chiamata per pz da trasferire in UCIC BL per sospetto IMA
- Al mio arrivo pz post CVE per TV sostenuta
- Ritmo di presentazione FA ad alta risposta V, ipotesa

- non responsiva al riempimento volemico con cristalloidi + colloidi (500+500)
- Si segue eco (sottocostale e parasternale)
- Vsx discinetico con grave ipocinesia diffusa maggiormente medio apicale Vsx e al Vdx
- Si esegue nuova CVE
- DEM
- ALS+ LUCAS
- Si contatta CO e si decide per trasporto verso OC TV (protocollo operativo LUCAS /FV-PEA)

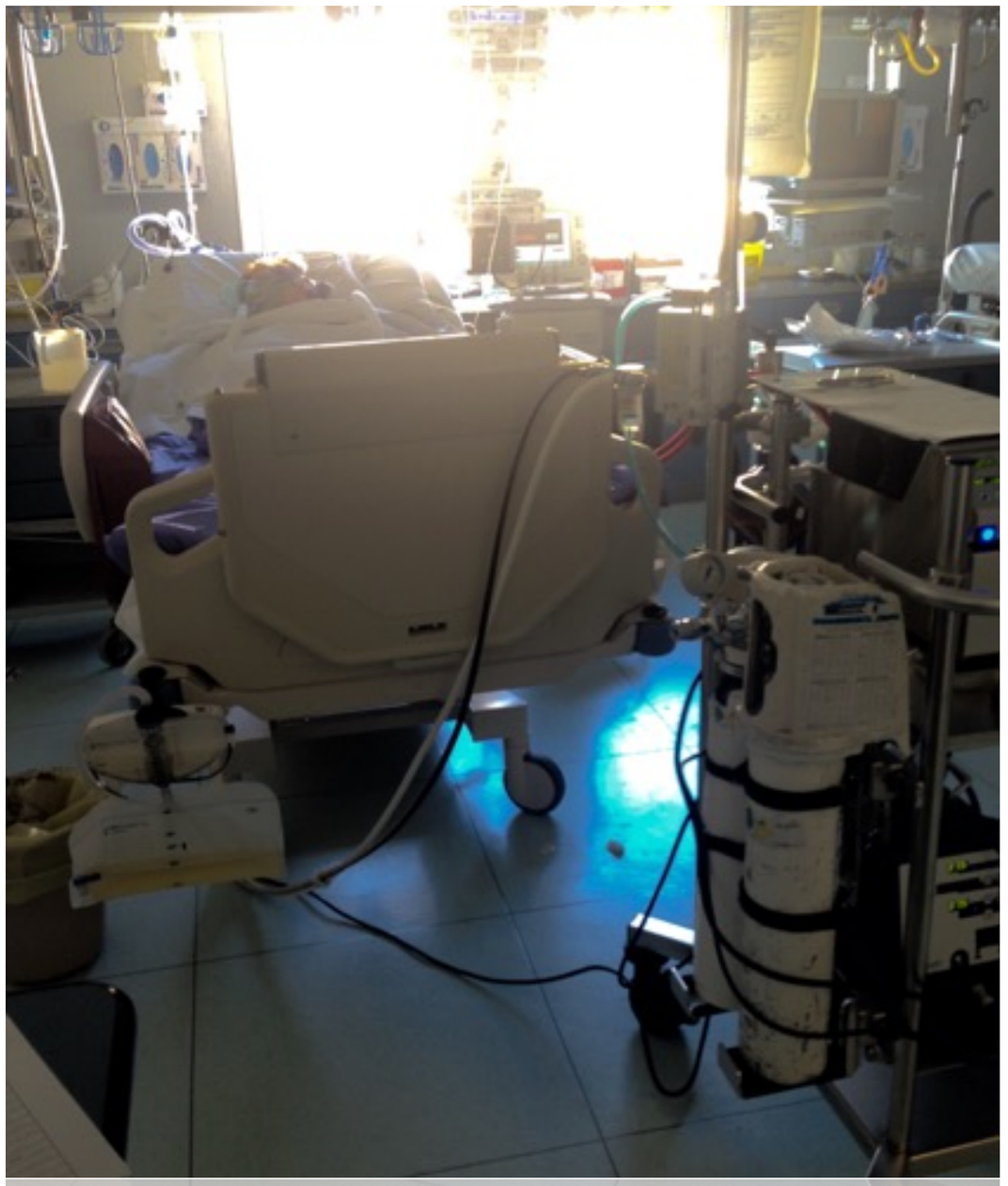
- tot min LUCAS fino alla sala di emodinamica di TV : 60 min.
- Pupille iso-iso normo fotoregenti
- Viene sostituito LUCAS 2 con LUCAS 1 in emdinamica
- Inizio ECMO VA 30 min
- Tot min LUCAS : 90
- PAOS invasiva 55mmHg

TICCH

- All’arrivo in TICCH: lattati 1.3

- Già dopo 2 ore paziente vigile e collaborante

- Estubata in 1 giornata.



COMPLICANZE…

- In II giornata: sanguinamento art femorale sede dell'ECMO
- Portata in SO CCH di notte per revisione
- Posizionata protesi TT su A fem comune
- Conversione ECMO da VA a VV
- Cinetica biventricolare migliorata
- Scambi respiratori con PF <70

ESTUBAZIONE

- Riestubata in IV giornata
- Non deficit neurologici
- Esegue cicli di NIV - RS con maschera facciale
- Stop in VIII giornata ECMO VV

Resuscitation 101 (2016) 12–20

Contents lists available at ScienceDirect

Resuscitation

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

Review article

Extracorporeal resuscitation for refractory out-of-hospital cardiac arrest in adults: A systematic review of international practices and outcomes☆

Iván Ortega-Deballon[a,b,c,d,e,*], Laura Hornby[f,g], Sam D. Shemie[g,h,i], Farhan Bhanji[h,i,j], Elena Guadagno[k]

REVIEW 04/2016

itations, ECPR is feasible for refractory OHCA of cardiac origin in adult patients. ECPR may increase the neurologically good survival in selected patients. Prospective studies are required to clarify patient selection and modifiable outcome variables. Further investigation is needed to determine whether ECPR cannulation is more effective when performed in pre-hospital or in-hospital settings. A cost-effectiveness analysis of the ECPR strategy is required to inform policy. The deceased organ donation option may be considered a secondary outcome when patient survival with quality of life is not achieved.

12%
good neurological outocome

practice and heterogeneity of outcomes, these interventions yield a good neurological survival in 12% of adults suffering a refractory OHCA. Importantly, prior to ECPR strategy implementation, these patients would not have had practically any chance for survival. Moreover, this strategy has the potential to increase the pool of solid organs available for transplant from non-survivors. This secondary outcome should not be disregarded, from a cost-effectiveness point of view, in a global context of organ shortage; it may be a more comprehensive approach to the end-of-life scenario drawn by sudden cardiac arrest events, a major public health burden worldwide.

Resuscitation 86 (2015) 88–94

Contents lists available at ScienceDirect

Resuscitation

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

Clinical Paper

Refractory cardiac arrest treated with mechanical CPR, hypothermia, ECMO and early reperfusion (the CHEER trial)☆

Dion Stub[c,f,g], Stephen Bernard[a,b,d,*], Vincent Pellegrino[a], Karen Smith[b,d,e], Tony Walker[d], Jayne Sheldrake[a], Lisen Hockings[a], James Shaw[a,b,c], Stephen J. Duffy[a,b,c], Aidan Burrell[a,b], Peter Cameron[a,b], De Villiers Smit[a], David M. Kaye[a,b,c]

Patients with refractory OHCA were eligible for the CHEER protocol if the following criteria were met: (a) aged 18–65 years; (b) cardiac arrest due to suspected cardiac etiology; (c) chest compressions commenced within 10 min by bystanders or EMS; (d) initial cardiac arrest rhythm of ventricular fibrillation (VF); and (e) mechanical CPR machine available.

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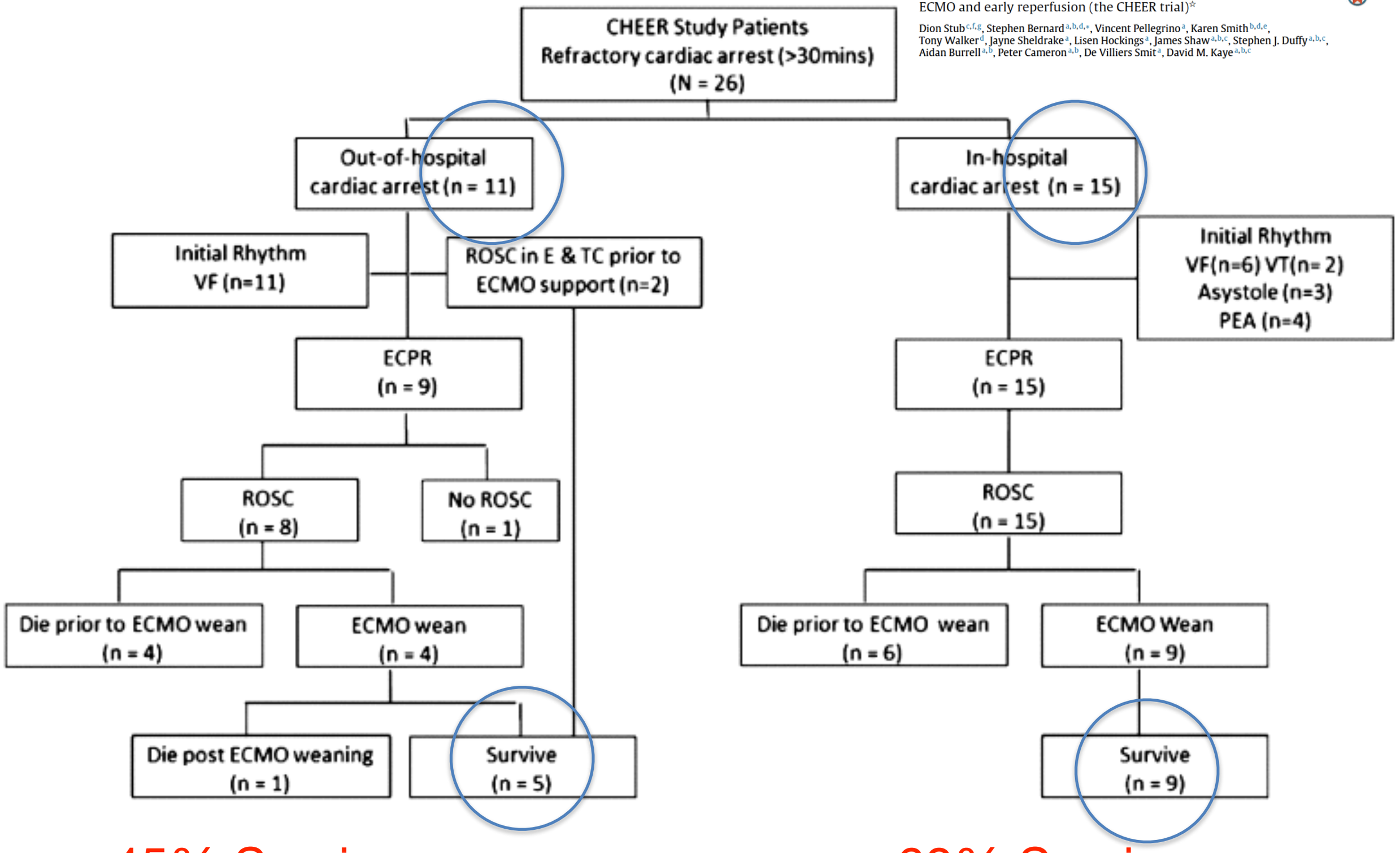

45% Survive

60% Survive

Resuscitation 86 (2015) 88–94

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Table 3
Outcomes and complications.

Outcomes	All $N=26$	Survivors $N=14$	Non-survivors $N=12$	P value
Survival to hospital discharge, n (%)	14(54)			
CPC 1–2, n (%)	14(54)	14(100)		
ROSC, n (%)	25(96)	14(100)	11(92)	0.27
Wean off ECMO[a]	13/24(54)	12/12(100)	1(7)	0.01
Median time on ECMO, days (IQR)	2(1–5)	3(1.8–5)	1(1–5)	0.32
Median time in ICU, h (IQR)	134(39–291)	230(118–320)	30(4–134)	0.01
Median hospital length of stay, days (IQR)	13(1.3–22)	20(12–26)	1(1–8)	<0.01
Bleeding, n (%)	18(70)	10(71)	8(67)	0.79
Renal replacement therapy, n (%)	10(39)	4(29)	6(50)	0.29
Peripheral vascular issues, n (%)	10(39)	5(36)	5(42)	0.75
Stroke, n (%)	6(23)	2(14)	4(33)	0.25

ECMO – extra corporeal membrane oxygenation, CPC – cerebral performance category, ROSC – return of spontaneous circulation.

[a] From patients requiring ECMO.

Stroke: 2

RIASSUMENDO…

IL TRASPORTO IN ACC E' FATTIBILE

IL MASSIMO SFORZO RIANIMATORIO SUL LUOGO NON ESAURISCE TUTTE LE POSSIBILI TERAPIE

IN ALCUNI PAZIENTI L'ACC E' SOSTENUTO DA UNA CAUSA CHE PUO' ESSERE RIMOSSA IN AMBITO OSPEDALIERO

MIGLIORARE LA COLLABORAZIONE TRA TEAM

RCP MECCANICA>RCP MANUALE OUTCOME NEUROLOGICO MIGLIORE

ECLS TEAM

\

TrevisoEmergenza

..E NEL FUTURO?

Resuscitation 82 (2011) 1243–1245

Contents lists available at ScienceDirect

Resuscitation

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

Case report

Out-of-hospital extracorporeal life support for cardiac arrest—A case report☆

M. Arlt[a,*], A. Philipp[b], S. Voelkel[a], B.M. Graf[a], C. Schmid[b], M. Hilker[b]

[a] Department of Anesthesiology, Aeromedical Service, University Hospital Regensburg, Franz-Josef-Strauss-Allee 11, 93042 Regensburg, Germany

[b] Department of Cardiothoracic Surgery, University Hospital Regensburg, Regensburg, Germany

2011

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[a] Department of Anesthesiology, Aeromedical Service, University Hospital Regensburg, Franz-Josef-Strauss-Allee 11, 93042 Regensburg, Germany
[b] Department of Cardiothoracic Surgery, University Hospital Regensburg, Regensburg, Germany

no signs of malignant cerebral oedema. Despite the use of mild hypothermia (35 °C blood temperature), on day 1 on ECMO, the ultrasonic bedside evaluation of the cerebral blood flow showed poor cerebral perfusion. The child also had multiple organ failure, despite extracorporeal assistance. The prognosis was poor and further therapy was limited, in agreement with the parents, and the girl died.

Resuscitation 82 (2011) 1239–1242

Contents lists available at ScienceDirect

Resuscitation

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

Case report

Out-of-hospital extra-corporeal life support implantation during refractory cardiac arrest in a half-marathon runner☆

2011

Guillaume Lebreton[a], Matteo Pozzi[a], Charles-Edouard Luyt[b], Jean Chastre[b], Pierre Carli[c], Alain Pavie[a], Pascal Leprince[a], Benoît Vivien[c,*]

[a] Service de Chirurgie Cardio-Thoracique, Hôpital Pitié-Salpêtrière, Université Pierre et Marie Curie – Paris 6, Paris, France
[b] Service de Réanimation Médicale, Hôpital Pitié-Salpêtrière, Université Pierre et Marie Curie – Paris 6, Paris, France
[c] SAMU de Paris, Département d'Anesthésie Réanimation, Hôpital Necker – Enfants Malades, Université Paris Descartes – Paris 5, Paris, France

NO FLOW< 1MIN
START ECLS 60 MIN

Resuscitation 82 (2011) 1239–1242

Contents lists available at ScienceDirect

Resuscitation

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Case report

Out-of-hospital extra-corporeal life support implantation during refractory cardiac arrest in a half-marathon runner☆

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the patient presented in a persistant vegetative state (Glasgow Outcome Scale = 4). Neurophysiological investigations confirmed the severe post-anoxic encephalopathy. According to the patient's next-of-kin wishes, limitation of care was decided, and the patient died on day 18.

Muore lentamente
Chi evita le passioni
Chi non rischia l'incertezza per inseguire un sogno
Lentamente muore chi diventa schiavo dell'abitudine
Chi non rischia mai
Essere vivi richiede uno sforzo di gran lunga maggiore del semplice fatto di respirare

P. Neuruda

LIVE LONG AND PROSPER

Grazie per l'attenzione!