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Σχολή Επιστημών Υγείας και Πρόνοιας
Πρόεδρος Ελληνικής Εταιρείας Καρδιοαναπνευστικής Αναζωογόνησης

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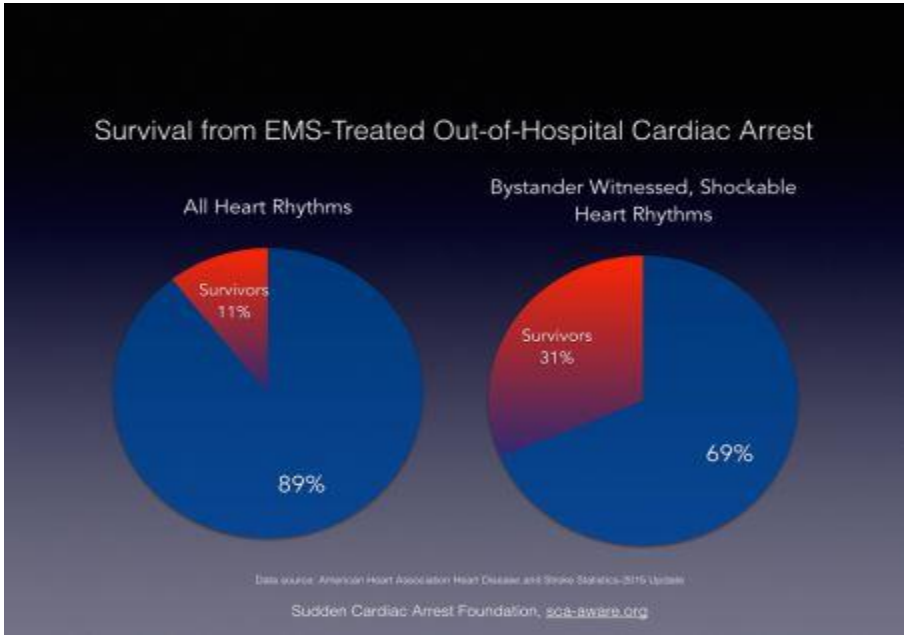

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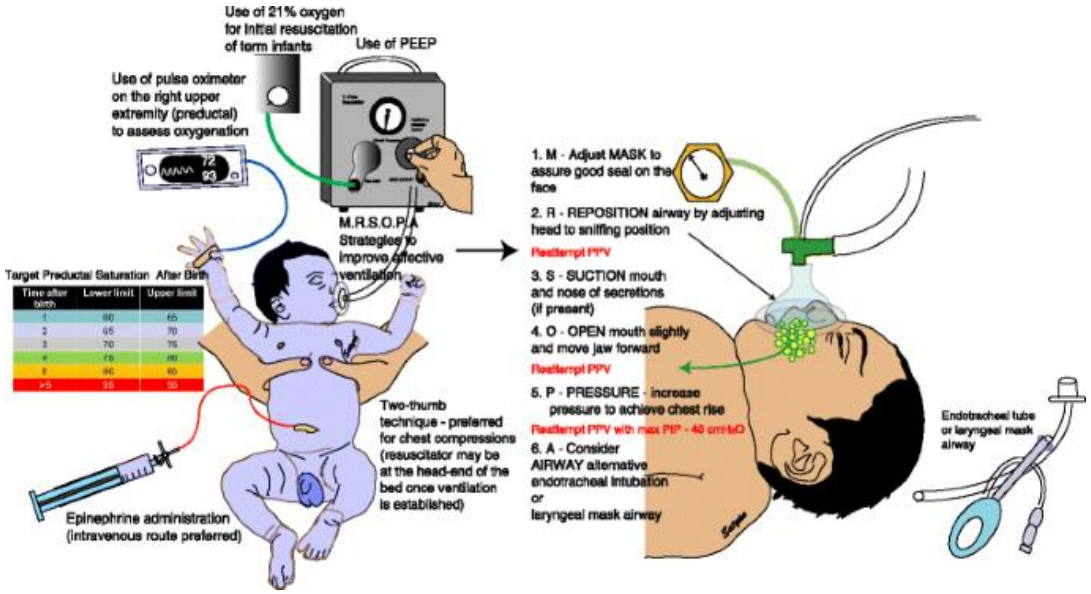

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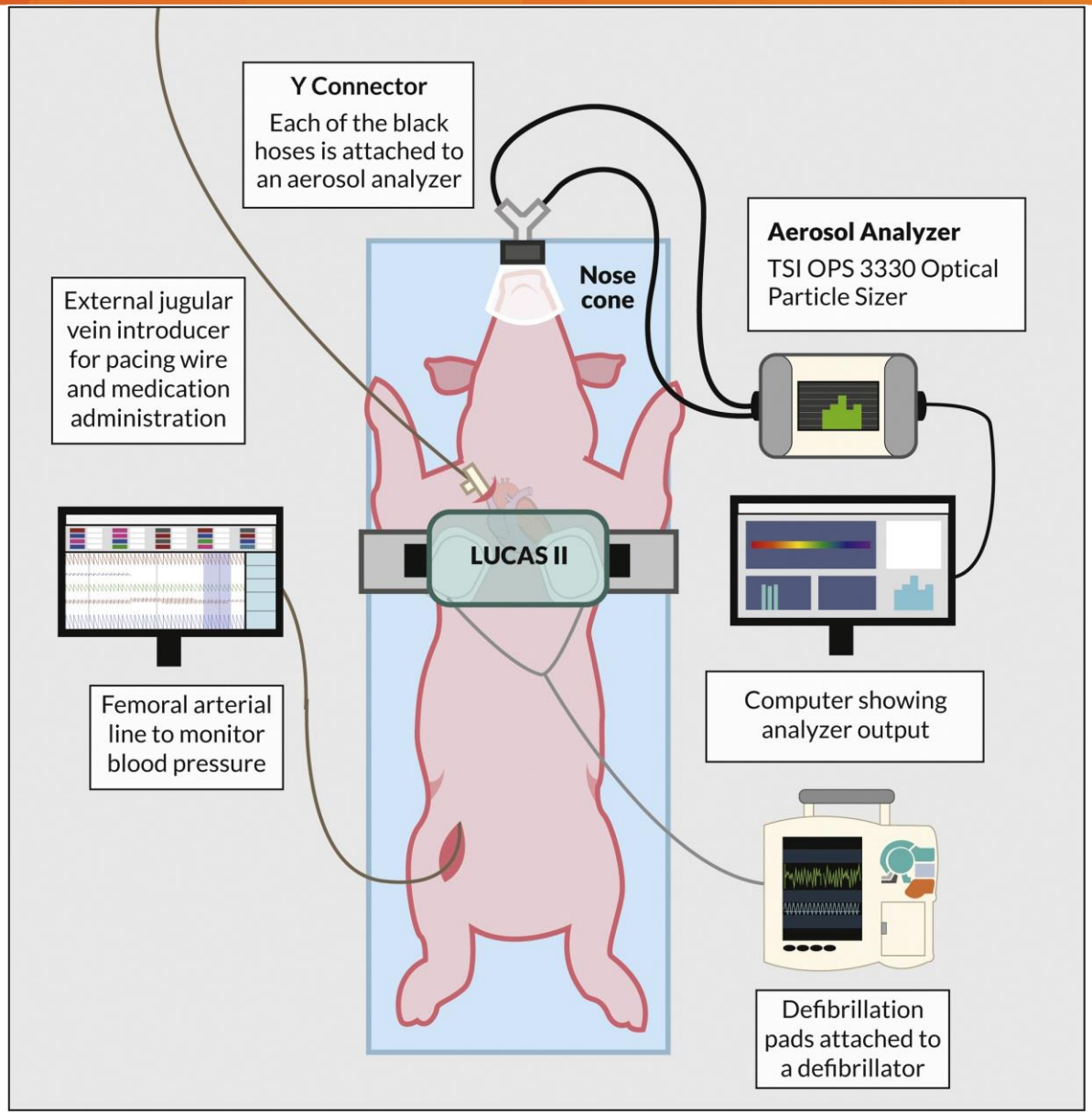

REVIEW ARTICLE

The use of mice and rats as animal models for cardiopulmonary resuscitation research

D Papadimitriou, T Xanthos, I Dontas, P Lelovas and D Perrea

Department of Experimental Surgery and Surgical Research, University of Athens Medical School, 15B Agiou Thoma Street, 11527 Athens, Greece

The Journal of Maternal-Fetal and Neonatal Medicine, 2012; 25(S5): 44–46
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DOI: 10.3109/14767058.2012.714633

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healthcare

REVIEW

Research in human resuscitation: what we learn from animals

Dimitrios Barouxis, Athanasios Chalkias, Aggeliki Syggelou, Nicoletta Iacovidou & Theodoros Xanthos

National and Kapo

Aim: It was not unti
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Resuscitation (2007) 73, 459–466

ELSEVIER

EXPERIMENTAL PAPER

RESUSCITATION

www.elsevier.com/locate/resuscitation

Cardiopulmonary arrest and resuscitation in Landrace/Large White swine: a research model

T Xanthos[1], P Lelovas[1], I Vlachos[1], N Tsirikos-Karapanos[2], E Kouskouni[3], D Perrea[1] and I Dontas[1]

[1]Department of Experimental Surgery and Surgical Research, Medical School University of Athens; [2]Hippokrateion Hospital, Athens, Medical School; [3]Aretaieio General Hospital, University of Athens, Medical School, Greece

Summary

Sudden cardiac death (SCD) is a field of continuous research. In order to answer various questions regarding SCD, several animal models have been developed. The aim of the present study is to describe ac arrest in Landrace/ Large White pigs, and then Guidelines on

167%

Research

Open Access

Vasopressin and epinephrine in the treatment of cardiac arrest: an experimental study

Konstantinos Stroumpoulis, Theodoros Xanthos, Georgios Rokas, Vassiliki Kitsou, Dimitrios Papadimitriou, Ioannis Serpetinis, Despina Perrea, Lila Papadimitriou and Evangelia Kouskouni

University of Athens, Medical School, Department of Experimental Surgery and Surgical Research, Agiou Thoma Street, Athens, Greece

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Received: 22 Oct 2007 Revisions requested: 13 Dec 2007 Revisions received: 4 Jan 2008 Accepted: 14 Mar 2008 Published: 14 Mar 2008

Critical Care 2008, **12**:R40 (doi:10.1186/cc6838)
This article is online at: http://ccforum.com/content/12/2/R40

Abstract

Background Epinephrine remains the drug of choice for cardiopulmonary resuscitation. The aim of the present study is to assess whether the combination of vasopressin and epinephrine, given their different mechanisms of action, provides better results than epinephrine alone in cardiopulmonary resuscitation.

Methods Ventricular fibrillation was induced in 22 Landrace/Large-White piglets, which were left untreated for 8 minutes before attempted resuscitation with precordial compression, epinephrine (0.02 mg/kg) (Vaso-Epi group). Electrical defibrillation was attempted after 10 minutes of ventricular fibrillation.

Results Ten of 11 animals in the Vaso-Epi group restored spontaneous circulation in comparison to only 4 of 11 in the Epi group ($p = 0.02$). Aortic diastolic pressure, as well as, coronary perfusion pressure were significantly increased ($p < 0.05$) during cardiopulmonary resuscitation in the Vaso-Epi group.

American Journal of Emergency Medicine (2009) **27**, 651–659

The American Journal of Emergency Medicine

www.elsevier.com/locate/ajem

ELSEVIER

Original Contribution

Combination pharmacotherapy in the treatment of experimental cardiac arrest☆

Theodoros Xanthos PhD*, Eleni Bassiakou MD, Eleni Koudouna MD, Georgios Rokas MD, Sotirios Goulas MD, Ismene Dontas PhD, Evaggelia Kouskouni PhD, Despina Perrea PhD, Lila Papadimitriou PhD

Department of Experimental Surgery and Surgical Research, University of Athens, Medical School, 11527 Athens, Greece

Received 5 April 2008; revised 8 May 2008; accepted 13 May 2008

American Journal of Emergency Medicine (2011) **29**, 665–669

The American Journal of Emergency Medicine

www.elsevier.com/locate/ajem

ELSEVIER

Original Contribution

Abdominal compressions do not achieve similar survival rates compared with chest compressions: an experimental study

Theodoros Xanthos PhD[a,*], Eleni Bassiakou PhD[a], Ismene Dontas PhD[a], Ioannis Pantazopoulos MSc[a], Pavlos Lelovas MSc[a], Evangelia Kouskouni PhD[b], Lila Papadimitriou PhD[a]

Resuscitation 81 (2010) 591–595

Contents lists available at ScienceDirect

Resuscitation

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

ELSEVIER

Experimental paper

Ischaemia-modified albumin predicts the outcome of cardiopulmonary resuscitation: An experimental study☆

Theodoros Xanthos[a,*], Nicoletta Iacovidou[b], Ioannis Pantazopoulos[a], Ioannis Vlachos[a], Eleni Bassiakou[a], Konstantinos Stroumpoulis[a], Evagelia Kouskouni[c], Andreas Karabinis[d], Lila Papadimitriou[a]

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Comparative Medicine
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Vol 61, No 2
April 2011
Pages 158–162

A Model of Hemorrhagic Shock and Acute Lung Injury in Landrace–Large White Swine

Theodoros T Xanthos,[1,*] Xanthippi A Balkamou,[1] Kostantinos I Stroumpoulis,[1] Ioannis N Pantazopoulos,[2] Georgios I Rokas,[1] Georgios D Agrogiannis,[3] Georgios T Troupis,[1] Theano D Demestiha,[1] and Panagiotis N Skandalakis[1]

Traumatic injury is a leading cause of death worldwide for people between 5 and 44 y of age, and it accounts for 10% of all deaths. The incidence of acute lung injury, a life-threatening complication in severely injured trauma patients remains between 30% and 50%. This study describes an experimental protocol of volume-controlled hemorrhage in Landrace–Large White swine. The experimental approach simulated the clinical situation associated with hemorrhagic shock in the trauma patient while providing controlled conditions to maximize reproducibility. The duration of the protocol was 8 h and was divided into 5 distinct phases—stabilization, hemorrhage, maintenance, resuscitation, and observation—after which the swine were euthanized. Lung tissue samples were analyzed histologically. All swine survived the protocol. The hemodynamic responses accurately reflected those seen in humans, and the development of acute lung injury was consistent among all swine. This experimental protocol of hemorrhagic shock and fluid resuscitation in Landrace–Large White swine may be useful for future study of hemorrhagic shock and acute lung injury.

Hemorrhage, a leading cause of morbidity and mortality, is encountered frequently in hospital emergency rooms, operating rooms, and intensive care units. Marked loss of intravascular volume subsequently may lead to hemodynamic instability, decreased tissue perfusion, impaired delivery of O_2 and nutrients, cellular hypoxia, organ damage, and eventually death.[11] Gastrointestinal bleeding and trauma are the most common causes of hemorrhagic shock.[6]

One life-threatening consequence of traumatic hemorrhage is acute lung injury, which is associated with pulmonary edema due to increased capillary permeability and infiltration of inflammatory cells into the interstitium and airspaces. The incidence of acute lung injury in severely injured trauma patients remains between 30% and 50%, and associated mortality has been estimated to be 10%, depending on the severity of pulmonary dysfunction.[13]

The continuous emergence of alternative resuscitative strat-

Original Article

Asphyxial cardiac arrest, resuscitation and neurological outcome in a Landrace/Large-White swine model

G Varvarousi[1], T Xanthos[2], T Lappas[1], N Lekka[1], S Goulas[1], I Dontas[1], D Perrea[1], Ch Stefanadis[3] and L Papadimitriou[1]

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Abstract

The vast majority of laboratory studies on animals have focused on ventricular fibrillation (VF) and not on cardiac arrest (CA) resulting from asphyxia. The aim of this study was to develop a clinically relevant animal model in

Heart Fail Rev (2012) 17:117–128
DOI 10.1007/s10741-011-9255-1

Pathophysiology and pathogenesis of post-resuscitation myocardial stunning

Athanasios Chalkias · Theodoros Xanthos

Published online: 17 May 2011

Review article

Redox-mediated programed death of myocardial cells after cardiac arrest and cardiopulmonary resuscitation

Athanasios Chalkias, Theodoros Xanthos

Department of Anatomy, Medical School, National and Kapodistrian University of Athens, Athens, Greece

Besides the fact that prolonged whole-body ischemia causes tissue and organ injury during cardiac arrest, additional damage occurs after the restoration of spontaneous circulation, during which the reperfusion activates a host of intracellular responses. These responses may lead to an increased threshold of oxidant-mediated injury and redox-mediated programed cell death in the stunned myocardium. The aim

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wjccm@wjgnet.com
doi:10.5492/wjccm.v1.i1.4

World J Crit Care Med 2012 February 4; 1(1): 4-9
ISSN 2220-3141 (online)

EDITORIAL

Post-cardiac arrest syndrome: Mechanisms and evaluation of adrenal insufficiency

Athanasios Chalkias, Theodoros Xanthos

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Received: July 12, 2011 Revised: October 18, 2011
Accepted: December 21, 2011

Medical Sciences and GTB Hospital, Delhi 110095, India; Juan Antonio Llompart-Pou, MD, PhD, Intensive Care Unit, Hospital Universitari Son Espases, Carretera Valldemossa, 79, Palma de Mallorca 07010, Spain

Chalkias A, Xanthos T. Post-cardiac arrest syndrome: Mechanisms and evaluation of adrenal insufficiency. *World J Crit Care Med* 2012; 1(1): 4-9 Available from: URL: http://www.wjgnet.com/2220-3141/full/v1/i1/4.htm DOI: http://dx.doi.org/10.5492/wjccm.v1.i1.4

Resuscitation 83 (2012) 803–805

Contents lists available at SciVerse ScienceDirect

Resuscitation

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

Commentary and concepts

Magnetically targeted drug delivery during cardiopulmonary resuscitation and the post-resuscitation period☆

Theodoros Xanthos[a], Michael Chatzigeorgiou[b], Elizabeth O. Johnson[a], Athanasios Chalkias[a,*]

[a] National and Kapodistrian University of Athens, Medical School, Department of Anatomy, Athens, Greece
[b] National Technical University of Athens, Postgraduate Program "Automation Systems", Athens, Greece

ARTICLE INFO

Article history:

ABSTRACT

Treatment with pharmacological agents is frequently required during cardiopulmonary resuscitation

Journal of the Neurological Sciences 315 (2012) 1–8

Contents lists available at SciVerse ScienceDirect

Journal of the Neurological Sciences

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

Post-cardiac arrest brain injury: Pathophysiology and treatment

Athanasios Chalkias *, Theodoros Xanthos

National and Kapodistrian University of Athens, Medical School, Department of Anatomy, Greece

ARTICLE INFO

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Accepted 19 December 2011
Available online 16 January 2012

ABSTRACT

Cardiac arrest is a leading cause of death that affects more than a million individuals worldwide every year. Despite the recent advancement in the field of cardiac arrest and resuscitation, the management and prognosis of post-cardiac arrest brain injury remain suboptimal. The pathophysiology of post-cardiac arrest brain injury involves a complex cascade of molecular events, most of which remain unknown. Considering that a

ACTA PHYSIOLOGICA

Acta Physiol 2012, 205, 3–5

Editorial

Potent biomechanical and molecular behaviour of cardiac adipose tissue during cardiopulmonary resuscitation and post-resuscitation period

The heart is a muscular organ covered by cardiac adipose tissue (CAT) that can be divided into two distinct parts, epicardial (EAT) and pericardial adipose tissue. Although CAT has been repeatedly related to cardiac pathology (Corradi *et al.* 2004), it remains a neglected component of the heart which has not been thoroughly studied.

During cardiopulmonary resuscitation (CPR), the

modifies the initial pressure generated after each compression. Also, as myocytes may integrate to extracellular load and sense increased strain levels, the effect of CAT on cardiac mechanotransduction and especially on myocardial mechanoelectric feedback has to be studied thoroughly both during CPR and during post-resuscitation period.

Another important issue that has to be elucidated is the effect of EAT on cardiac circulation. It is known that EAT surrounds the coronary vessels in a way that buffers the vessels against the torsion induced by the arterial pulse wave and cardiac contraction, permits coronary vessel expansion, offsets the rapid changes in the vessels' width with arterial pulse and functions as a

American Journal of Emergency Medicine 32 (2014) 139–143

Contents lists available at ScienceDirect

American Journal of Emergency Medicine

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

Original Contribution

Addition of glucagon to adrenaline improves hemodynamics in a porcine mod prolonged ventricular fibrillation☆,☆☆

Violetta Raffay, MD [a], Athanasios Chalkias, PhD [b,*], Pavlos Lelovas, PhD [b], Georgios Karlis, MSc [b], Anastasios Koutsovasilis, MSc [b], Apostolos Papalois, PhD [c], Jasna Jevdjic, PhD [d], Zlatko Fiser, MD [a], Theodoros Xanthos, PhD [b]

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[d] University of Kragujevac, Medical School, Center for Anesthesiology and Resuscitation, Clinical Center Kragujevac, Kragujevac, Serbia

Resuscitation 85 (2014) 595–601

Contents lists available at ScienceDirect

Resuscitation

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

Review article

^{1}H NMR-metabolomics: Can they be a useful tool in our understanding of cardiac arrest?☆

Athanasios Chalkias [a,b,*], Vassilios Fanos [c], Antonio Noto [c], Maaret Castrén [d], Anil Gulati [e], Hildigunnur Svavarsdóttir [f], Nicoletta Iacovidou [b,g], Theodoros Xanthos [a,b]

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[b] Hellenic Society of Cardiopulmonary Resuscitation, Athens, Greece
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[e] Midwestern University, Downers Grove, IL, USA

International Journal of Cardiology 167 (2013) 1703–1711

Contents lists available at ScienceDirect

International Journal of Cardiology

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

Review

Recommendations for resuscitation after ascent to high altitude and in aircrafts

Athanasios Chalkias [a,1,*], Marios Georgiou [b,1], Bernd Böttiger [c,1], Koenraad G. Monsieurs [d,1], Hildigunnur Svavarsdóttir [e,1], Violetta Raffay [f,1], Nicoletta Iacovidou [a,1], Theodoros Xanthos [a,1]

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[c] University of Cologne, University Hospital, Department of Anaesthesiology and Intensive Care Medicine, Cologne, Germany
[d] Antwerp University Hospital, Department of Emergency Medicine, Antwerp, Belgium
[e] School of Health Sciences, University of Akureyri, Akureyri, Iceland
[f] Municipal Institute for Emergency Medicine, Novi Sad, Serbia

Resuscitation 95 (2015) 302–311

Contents lists available at ScienceDirect

Resuscitation

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

European Resuscitation Council Guidelines for Resuscitation 2015 Section 11. The ethics of resuscitation and end-of-life decisions

Leo L. Bossaert[a,*], Gavin D. Perkins[b,c], Helen Askitopoulou[d,e], Violetta I. Raffay[f], Robert Greif[g], Kirstie L. Haywood[h], Spyros D. Mentzelopoulos[i], Jerry P. Nolan[j], Patrick Van de Voorde[k,l], Theodoros T. Xanthos[m,n], on behalf of The ethics of resuscitation and end-of-life decisions section Collaborators[1]

[a] University of Antwerp, Antwerp, Belgium
[b] Warwick Medical School, University of Warwick, Coventry, UK
[c] Critical Care Unit, Heart of England NHS Foundation Trust, Birmingham, UK
[d] Medical School, University of Crete, Heraklion, Greece

Review > Circulation. 2015 Dec 22;132(25):2448-56. doi: 10.1161/CIR.0000000000000313. Epub 2015 Oct 4.

Temperature Management After Cardiac Arrest: An Advisory Statement by the Advanced Life Support Task Force of the International Liaison Committee on Resuscitation and the American Heart Association Emergency Cardiovascular Care Committee and the Council on Cardiopulmonary, Critical Care, Perioperative and Resuscitation

Michael W Donnino, Lars W Andersen, Katherine M Berg, Joshua C Reynolds, Jerry P Nolan, Peter T Morley, Eddy Lang, Michael N Cocchi, Theodoros Xanthos, Clifton W Callaway, Jasmeet Soar, ILCOR ALS Task Force

Collaborators + expand

PMID: 26434495 DOI: 10.1161/CIR.0000000000000313

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Applicant(s):	UNIV DEGLI STUDI CAGLIARI [IT] +
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	- cooperative: **A61K47/6911 (EP)**; **A61K47/6915 (EP, US)**; **A61K9/0019 (EP)**; **A61K9/1271 (EP, US)**; A61K9/0019 (US)
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