Is adrenaline in our future?

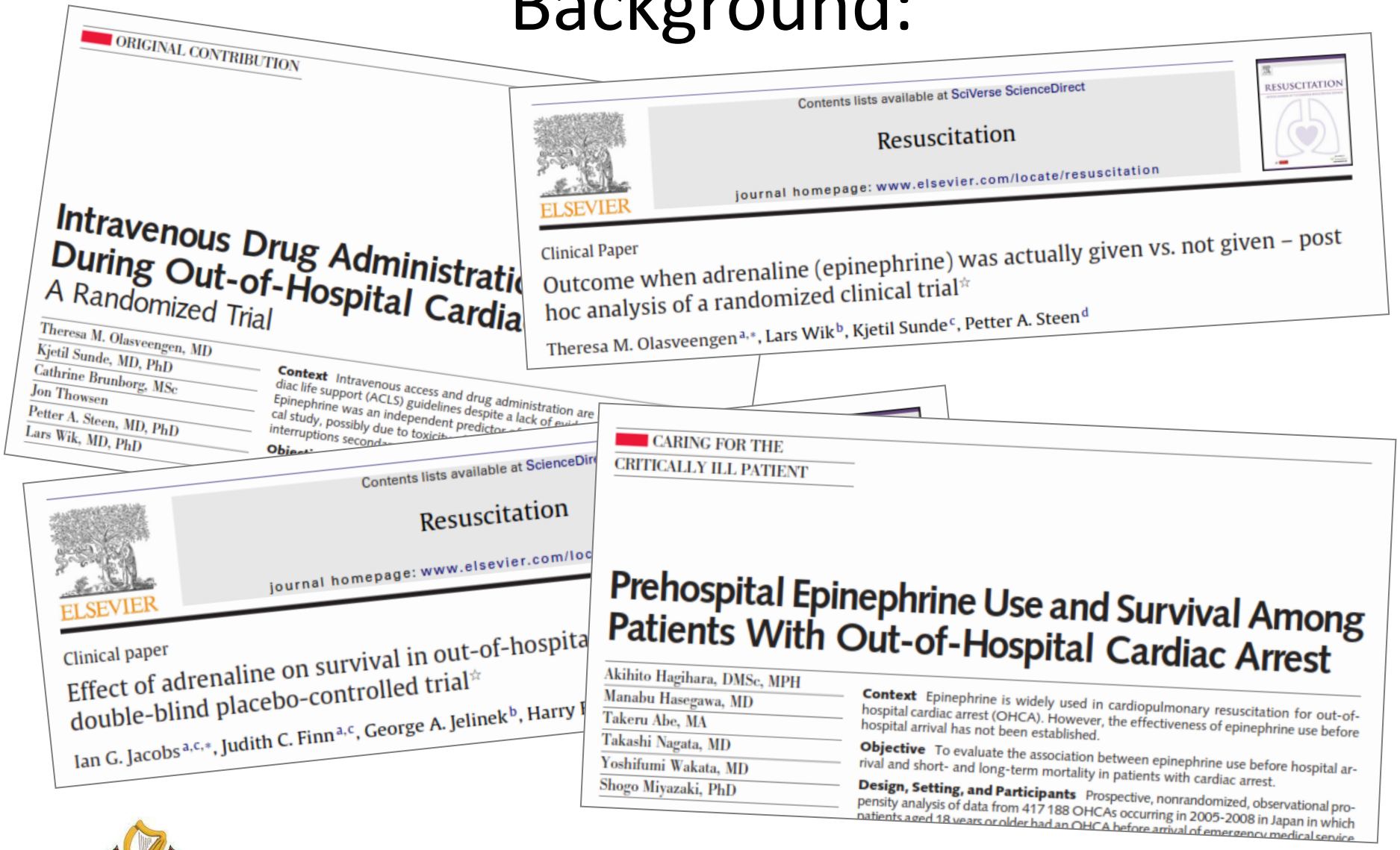
Dr Siobhán Maguire

Ms Siobhán Masterson

Dr Akke Vellinge

Dr Niamh Collins

Background:



ORIGINAL CONTRIBUTION

Intravenous Drug Administrati
During Out-of-Hospital Cardia
A Randomized Trial

Theresa M. Olasveengen, MD
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Context Intravenous access and drug administration are
diac life support (ACLS) guidelines despite a lack of
Epinephrine was an independent predictor
cal study, possibly due to toxici
interruptions seconda
Objec

Contents lists available at SciVerse ScienceDirect

Resuscitation

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

ELSEVIER

Clinical Paper

Outcome when adrenaline (epinephrine) was actually given vs. not given – post hoc analysis of a randomized clinical trial☆

Theresa M. Olasveengen[a,*], Lars Wik[b], Kjetil Sunde[c], Petter A. Steen[d]

Contents lists available at ScienceDir

Resuscitation

journal homepage: www.elsevier.com/loc

ELSEVIER

Clinical paper

Effect of adrenaline on survival in out-of-hospita
double-blind placebo-controlled trial☆

Ian G. Jacobs[a,c,*], Judith C. Finn[a,c], George A. Jelinek[b], Harry

CARING FOR THE
CRITICALLY ILL PATIENT

Prehospital Epinephrine Use and Survival Among Patients With Out-of-Hospital Cardiac Arrest

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Shogo Miyazaki, PhD

Context Epinephrine is widely used in cardiopulmonary resuscitation for out-of-hospital cardiac arrest (OHCA). However, the effectiveness of epinephrine use before hospital arrival has not been established.

Objective To evaluate the association between epinephrine use before hospital arrival and short- and long-term mortality in patients with cardiac arrest.

Design, Setting, and Participants Prospective, nonrandomized, observational propensity analysis of data from 417 188 OHCAs occurring in 2005-2008 in Japan in which patients aged 18 years or older had an OHCA before arrival of emergency medical service

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Aims:

Analysis of Irish Out of Hospital Cardiac Arrest Registry (OHCAR) data was performed to assess the impact of adrenaline on:

- ROSC
- Survival to hospital discharge
- Neurological outcome

Methods:

Retrospective, Observational Study

Study Period: 02/11/07 to 20/02/12

Outcome measures:
- ROSC at any stage
- ROSC on arrival to hospital
- Survival to hospital discharge
- CPC score

A propensity Score analysis performed for each outcome

>18yrs, non-traumatic, out of hospital Cardiac Arrest

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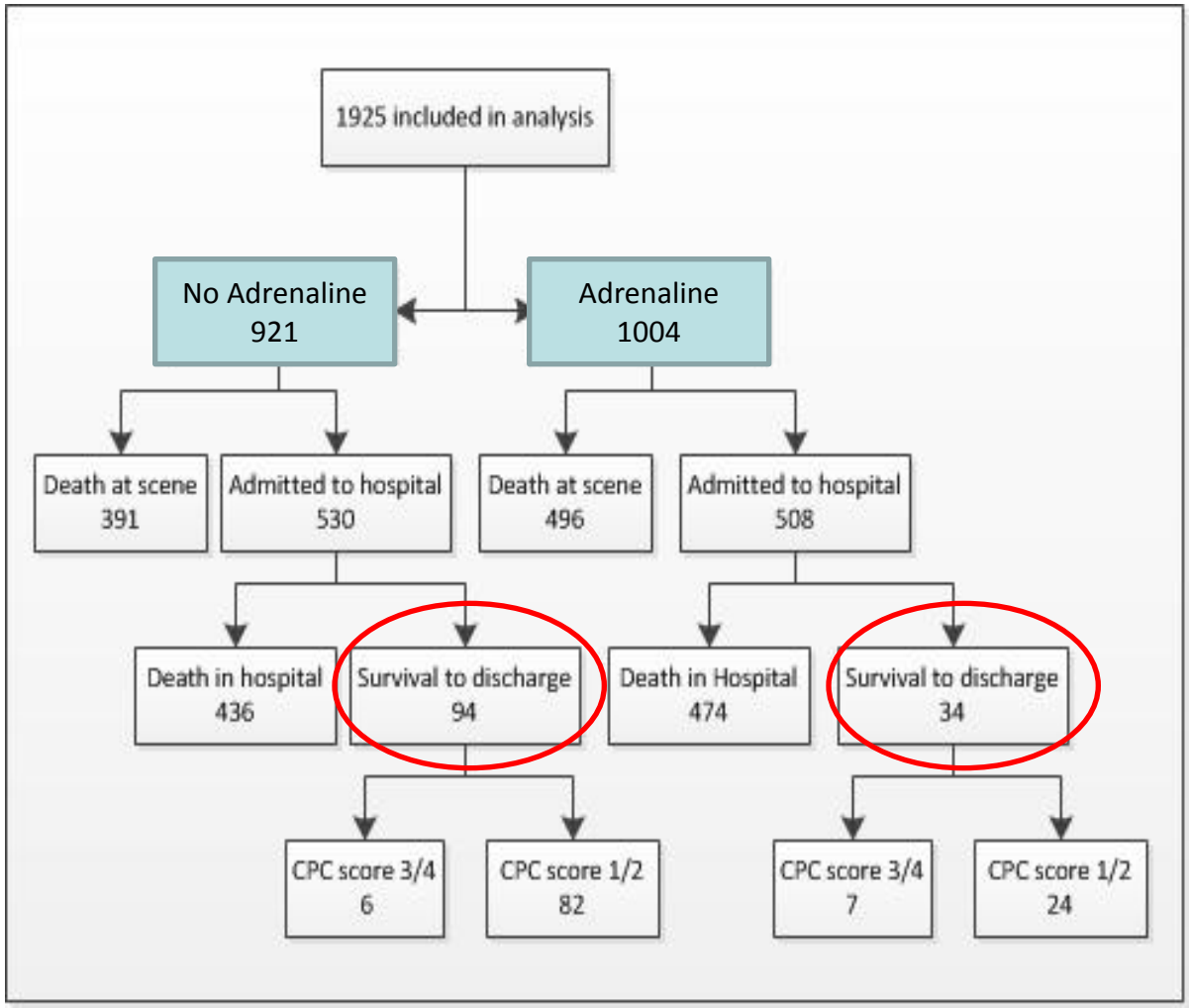
Results:



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Baseline characteristics of both groups

	Adrenaline not administered (N=921)		Adrenaline administered (N=1004)		Significance
	N	%	N	%	
Male	599	65	674	67.1	ns
Age (mean)	63.6		66.8		ns
Location	914		998		ns
Private	710	77.1	794	79.1	
Public	204	22.1	204	20.3	
Bystander CPR	406	44.1	505	50.3	<0.05
Initial rhythm shockable	218	23.7	278	28.7	ns
Time to scene mins	13.5		13.7		ns

Results:

	ROSC any stage	ROSC on arrival	Survival to hospital discharge	Death
Adrenaline crude OR	1.4 (1.1-1.8)	0.8 (0.6-1.1)	0.3 (0.2-0.5)	3.3 (2.2-4.9)
Adrenaline adjusted OR	1.4 (1.1-1.9)	0.9 (0.7-1.3)	0.3 (0.2-0.4)	3.7 (2.3-6.0)
Adrenaline propensity matched OR	1.4 (1.1-1.9)	0.9 (0.6-1.3)	0.3 (0.2-0.5)	3.6 (2.2-5.8)

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Results:

	Shockable				Non-Shockable			
	ROSC any stage	ROSC on arrival	Survival to hospital discharge	Death	ROSC any stage	ROSC on arrival	Survival to hospital discharge	Death
Adrenaline crude OR	0.5	0.4		4.9	3.5	2.0		3.6
Adrenaline adjusted OR	0.6	0.6	0.3	3.8	3.1	1.8	0.3	3.2
Adrenaline propensity matched OR	0.7	0.6	0.3	3.8	3.1	1.6	0.4	1.1

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Discussion:

- OHCAR data seems to suggest a negative association between adrenaline use and overall long term survival
- In keeping with international research from both RCTs and observational studies which show increased ROSC but no long term survival benefit from adrenaline
- Subgroup analysis of shockable vs non shockable initial rhythms show that there is increased ROSC at any stage in the non shockable group vs the shockable group. There is no difference in longterm survival between the subgroups.
- The Jacobs and Olasveengen groups showed similar results in their RCTs

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Conclusion:

- Our registry study shows a inverse correlation between adrenaline use and overall survival.
- When the initial rhythm is considered in propensity matched patients, there is no increased mortality for patients with non- shockable rhythms.
- Survival is reduced in patients with an initial shockable rhythm who receive adrenaline. This may be a reflection of shock refractory rhythms.
- Registry studies are not designed to show cause-effect