
XIII congresso nazionale
simeu
GENOVA 30 MAG - 1 GIU 2024

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SOCIETÀ ITALIANA MEDICINA D'EMERGENZA-URGENZA · SIMEU ·

Vasi e Cuore

Una storia che comincia da lontano

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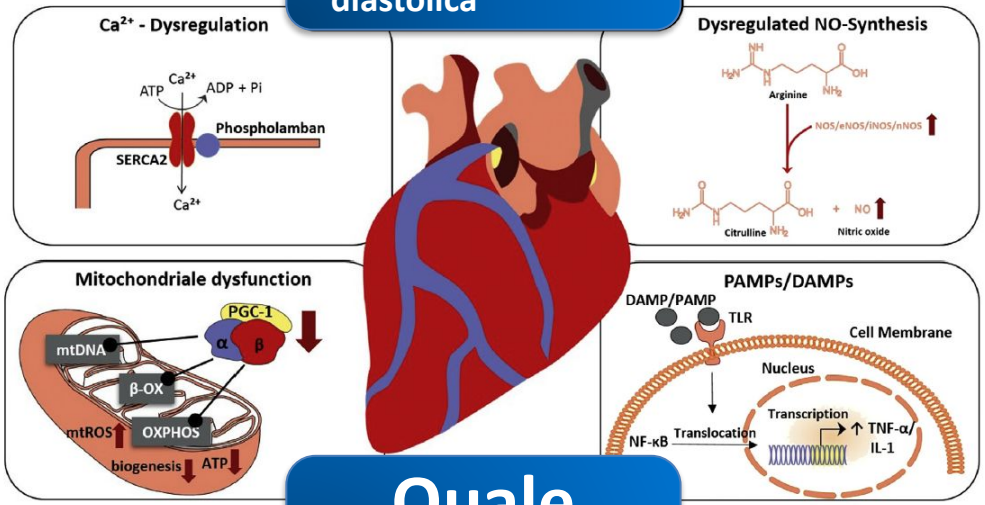
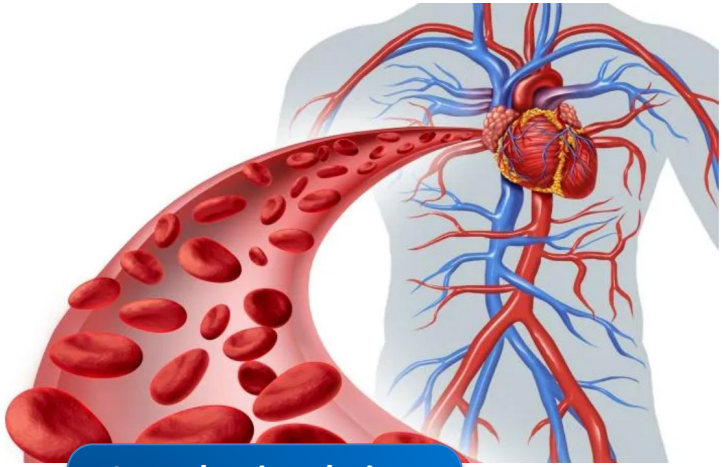
Cuore e vasi nella sepsi

- Ridotta contrattilità
- Alterata funzione diastolica



Quale terapia?



- Ipovolemia relativa
- Vasoplegia venosa e arteriosa

Linee guida

Bolo iniziale

- 30 ml/kg
- Entro 3 ore

Fluidi

- Basati su test dinamici
- Possibili 1-2 ulteriori boli

Vasopressori inotropi

- Se non responsivi ad almeno il primo bolo

Quanti fluidi?

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1554 pz,
770 in the restrictive-fluid group
and 784
in the standard-fluid group

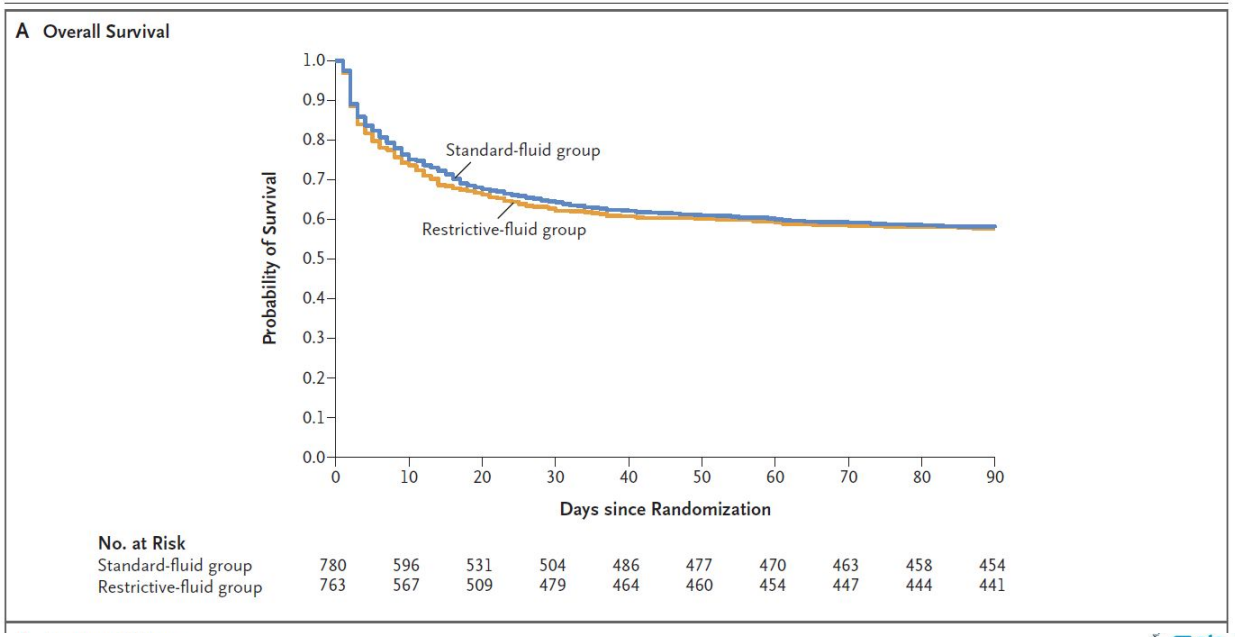
CLASSIC trial

(ICU)

Primo bolo: almeno 1000 ml

Indicazione a fluidi nel gruppo con apporto controllato:

- Ipoperfusione severa
- Ripristino di perdite



CLASSIC Trial Group, NEJM 2022

1563 pz,
782 in the restrictive-fluid group and 781 in the standard-fluid group

CLOVERS study

(ED and ICU)

Primo bolo: 1000-300 ml

2657 vs 3400 ml

Nelle prime 24 ore, solo fluidi per terapia

Indicazione a fluidi nel gruppo con apporto controllato:

- Ipoperfusione severa o refrattaria
- LAC >4
- Frequenza cardiaca >130 b/min
- Evidenza ecocardiografica di ipovolemia
- Giudizio clinico

APPROCCIO GUIDATO ANCHE NEL GRUPPO «LIBERAL»

NESSUNA DIFFERENZA DI MORTALITA': 14% IN ENTRAMBI I GRUPPI

CLASSIC Trial Group, NEJM 2022

DIFFICOLTA’

Difficile stabilire nel paziente settico l’esatta quantità di fluidi: non solo il reintegro volemico, ma anche tutti i fluidi per somministrare terapia e nutrizione.

NELLO STUDIO CLASSIC RAPPORTO DI 1:4

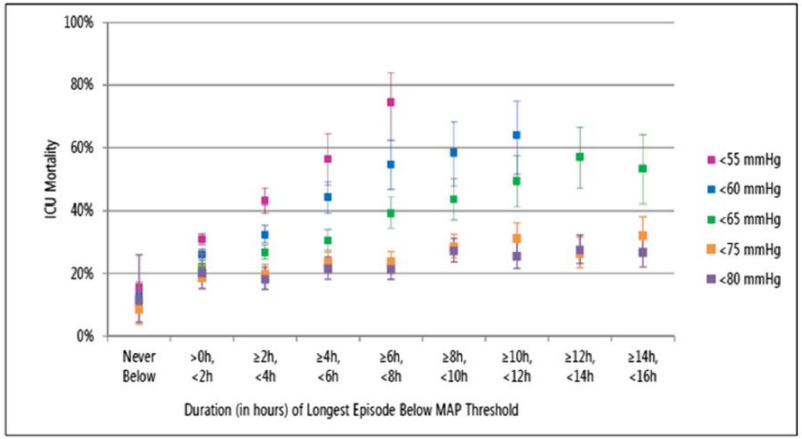
MA …..

- **Entrambi gli studi prevedevano un protocollo anche per il braccio standard**
- **In nessuno dei due studi veniva presa in considerazione alcuna valutazione di fluid-responsiveness e fluid-tolerance**

ATTENZIONE
MESSAGGIO
IMPORTANTE

- Somministrare il primo bolo …..
- …. dopo grande attenzione, selezionando in modo appropriato i pazienti in cui è opportuno mantenere un approccio restrittivo o liberale nella terapia con fluidi
  - Misure di fluidoresponsività e fluidotolleranza
  - Valorizzare patologie pregresse (SCC, IRC)
  - Valorizzare fonte settica
  - Protocollo terapeutico

Quando i vasopressori?



Number of Cases

MAP <55 mmHg	1731	2696	597	133	59	–	–	–	–
MAP <60 mmHg	874	2546	1114	374	154	84	61	–	–
MAP <65 mmHg	352	1682	1441	723	395	221	144	93	75
MAP <75 mmHg	71	412	725	756	651	543	368	311	258
MAP <80 mmHg	35	193	451	516	568	528	394	371	295

Fig. 1 ICU mortality by duration of longest episode with mean arterial pressure (MAP) < 80 mmHg (mauve), < 75 mmHg (orange), < 65 mmHg (green), 60 mmHg (blue) and 55 mmHg (pink) in all patients with distributive shock

Vincent et al, 2018

TIMIMG DELLA SOMMINISTRAZIONE DI AMINE

Table 3 Definitions of early and late norepinephrine group in studies included in the meta-analysis

Study	Early group	Late group
Bai et al. 2014 [24]	Time from the onset of septic shock to initial norepinephrine administration < 2 h	Time from the onset of septic shock to initial norepinephrine administration ≥ 2 h
Permpikul et al. 2019 [29]	Median time from emergency room arrival to norepinephrine administration was 93 min	Median time from emergency room arrival to norepinephrine administration was 192 min
Elbouhy et al. 2019 [30]	Patients received initial resuscitation as simultaneous administration of crystalloid fluids (the target was 30 mL/kg) together with norepinephrine infusion in a starting dose of 5 μg/min administered in an external jugular peripheral cannula	Patients' resuscitation included crystalloid fluids (the target was 30 mL/kg) and immediate ICU transfer where the norepinephrine infusion was administered only to patients with mean arterial pressure < 65 mmHg after fluids resuscitation via a central venous catheter
Colon Hidalgo et al. 2020 [25]	The time when vasopressors were initiated ≤ 6 h	The time when vasopressors were initiated > 6 h
Ospina-Tascón et al. 2020 [26]	Vasopressor support initiated within the next hour or even before the first fluid load with resuscitative intention (FRLoad)	Patients in whom vasopressor support was started > 1 h after the FRLoad

Li et al, Crit Care 2020

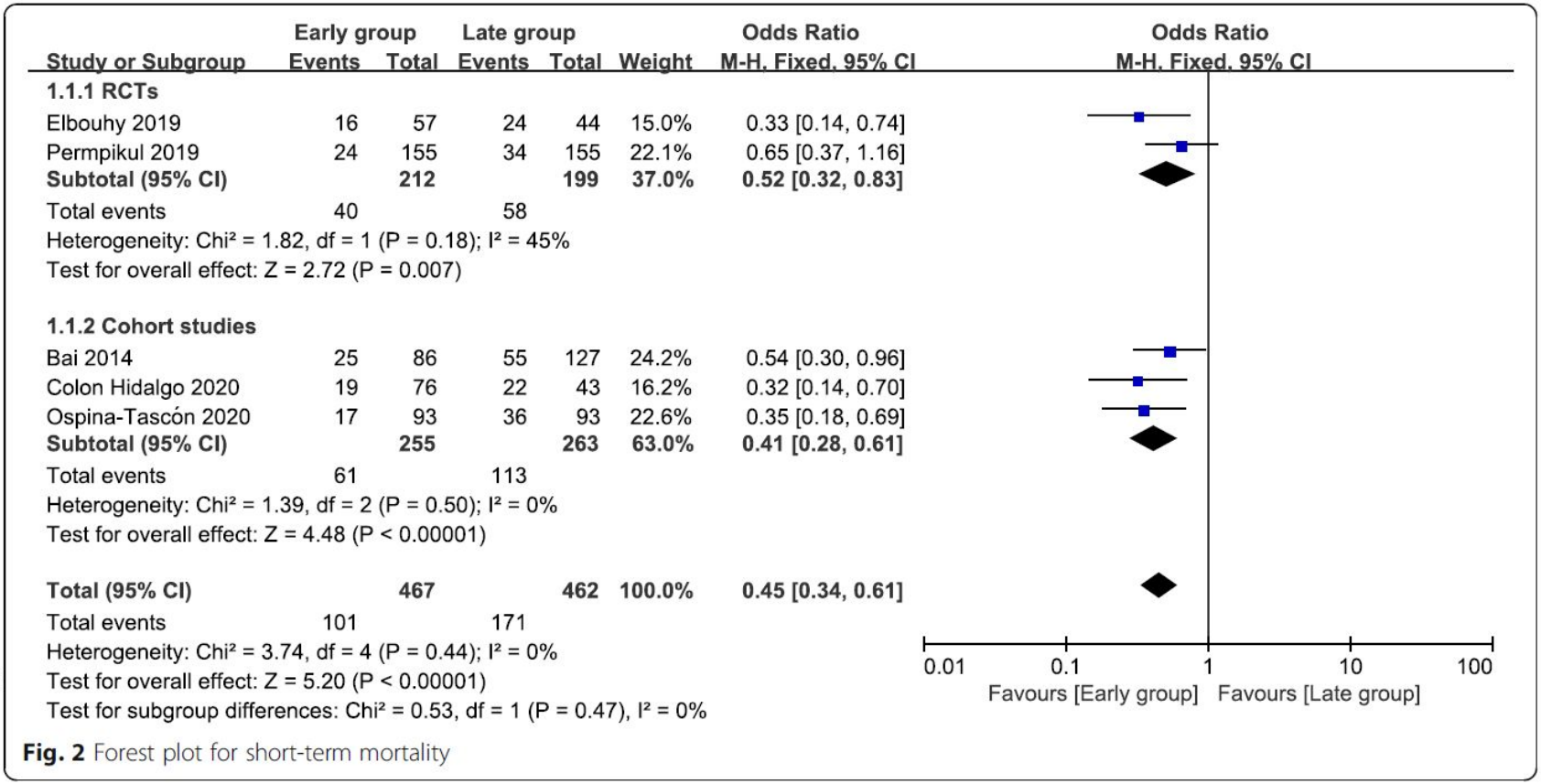
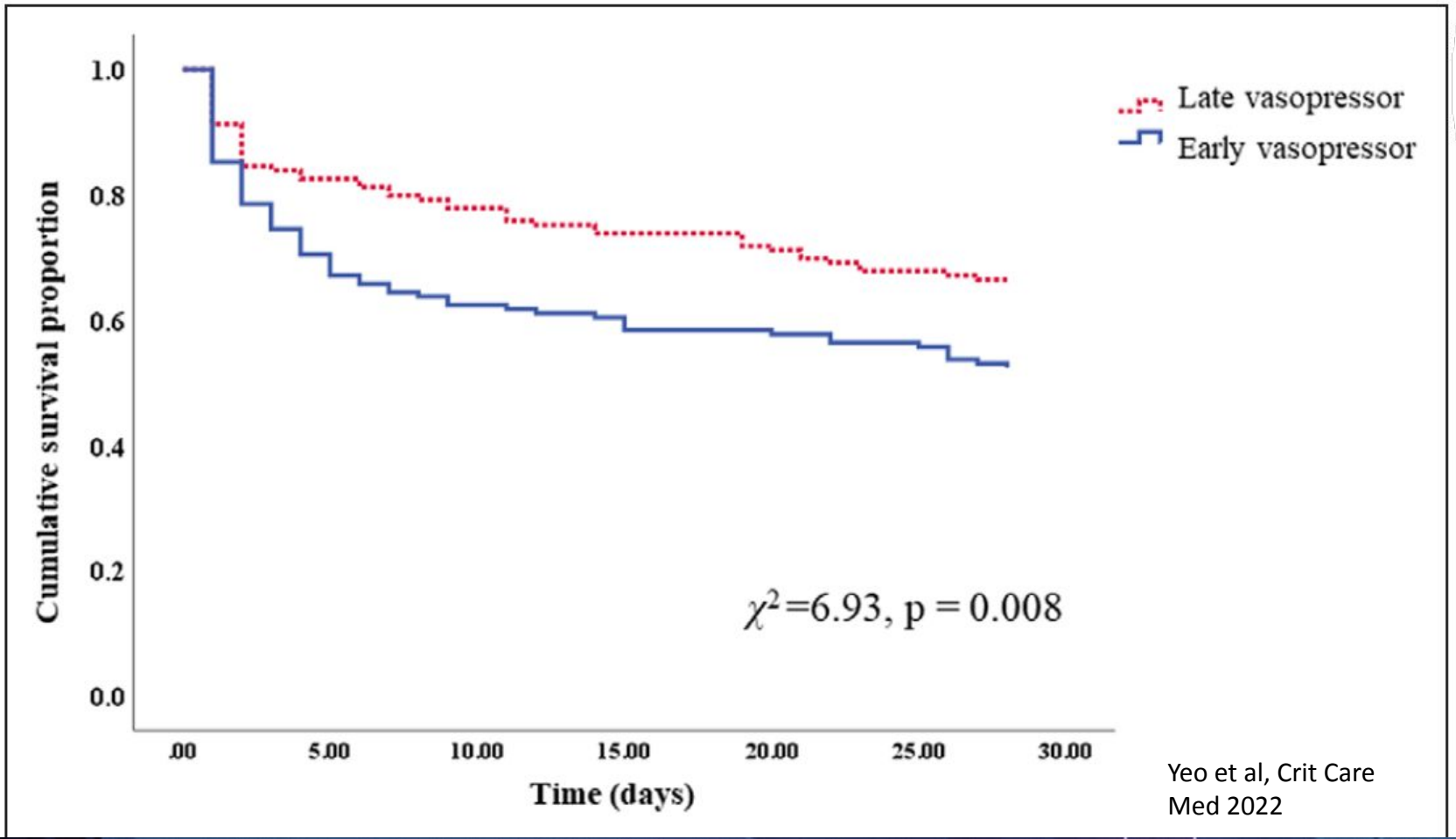
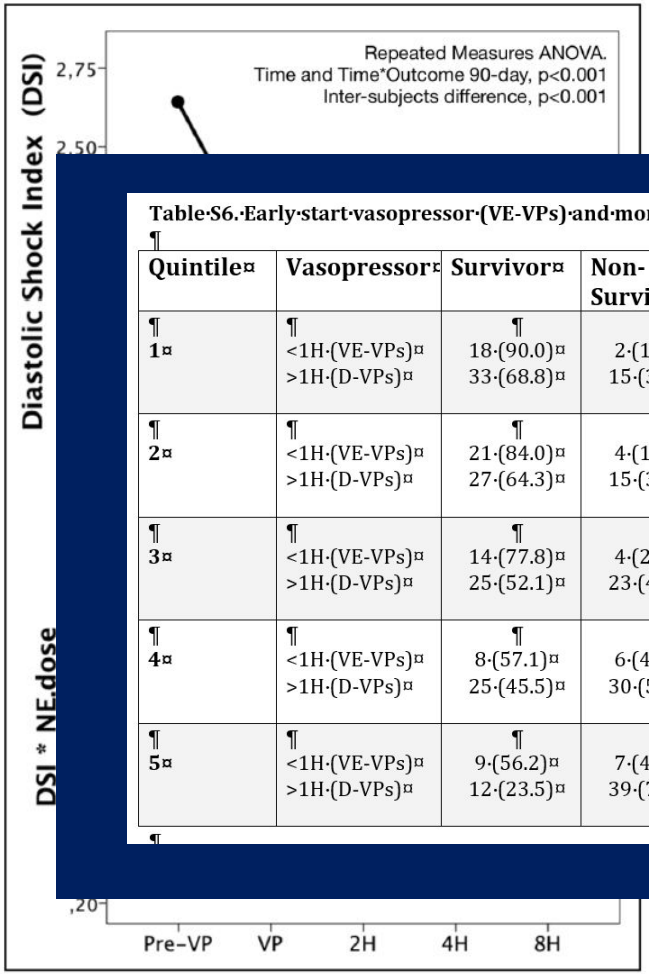


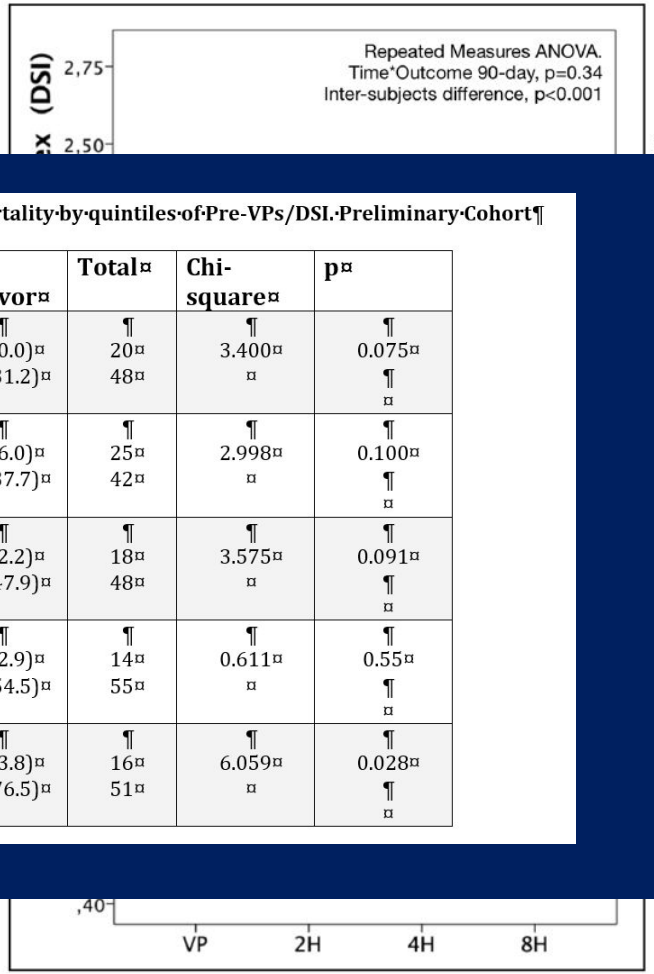
Fig. 2 Forest plot for short-term mortality



Yeo et al, Crit Care Med 2022



Preliminary Cohort



ANDROMEDA-SHOCK

Table S6. Early start vasopressor (VE-VPs) and mortality by quintiles of Pre-VPs/DSI. Preliminary Cohort

Quintile	Vasopressor	Survivor	Non-Survivor	Total	Chi-square	p
1	<1H (VE-VPs) >1H (D-VPs)	18 (90.0) 33 (68.8)	2 (10.0) 15 (31.2)	20 48	3.400	0.075
2	<1H (VE-VPs) >1H (D-VPs)	21 (84.0) 27 (64.3)	4 (16.0) 15 (37.7)	25 42	2.998	0.100
3	<1H (VE-VPs) >1H (D-VPs)	14 (77.8) 25 (52.1)	4 (22.2) 23 (47.9)	18 48	3.575	0.091
4	<1H (VE-VPs) >1H (D-VPs)	8 (57.1) 25 (45.5)	6 (42.9) 30 (54.5)	14 55	0.611	0.55
5	<1H (VE-VPs) >1H (D-VPs)	9 (56.2) 12 (23.5)	7 (43.8) 39 (76.5)	16 51	6.059	0.028

Ospina-Tascon et al, Ann Int Care 2020

Evaluation of Vasopressor Exposure and Mortality in Patients With Septic Shock*

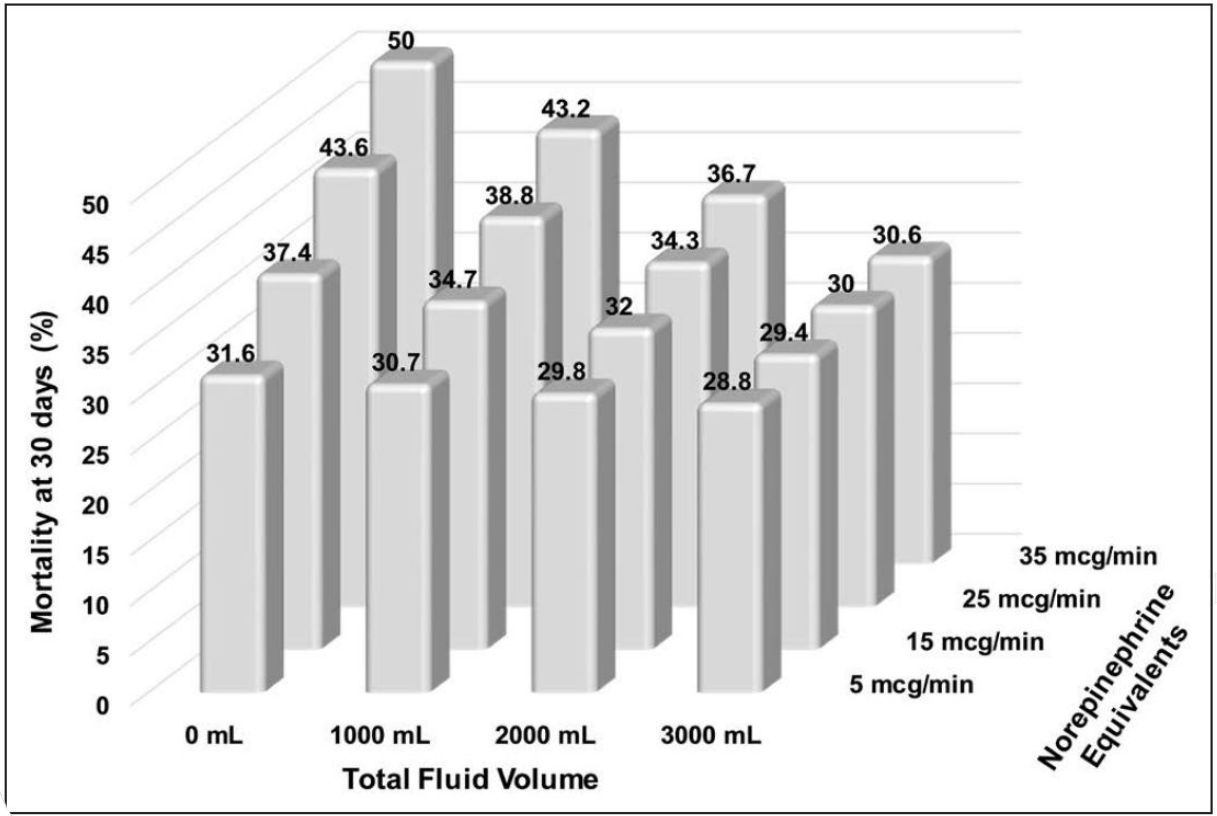
Obiettivi

1) Determinare l'associazione tra il dosaggio dei vasopressori durante le prime 6/24 ore dalla diagnosi di shock settico e la mortalità ospedaliera a 30 giorni

2) Determinare se l'effetto del dosaggio del vasopressore varia in base al volume di fluidi

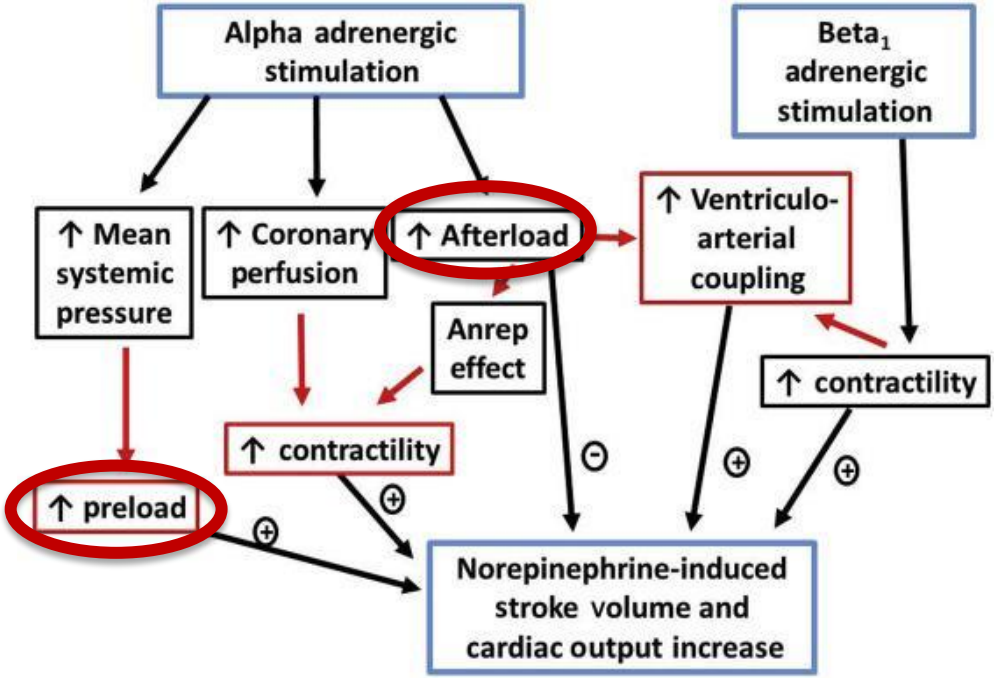
3) Determinare se l'effetto del dosaggio del vasopressore varia in base alla titolazione del dosaggio stesso.

Evaluation of Vasopressor Exposure and Mortality in Patients With Septic Shock*

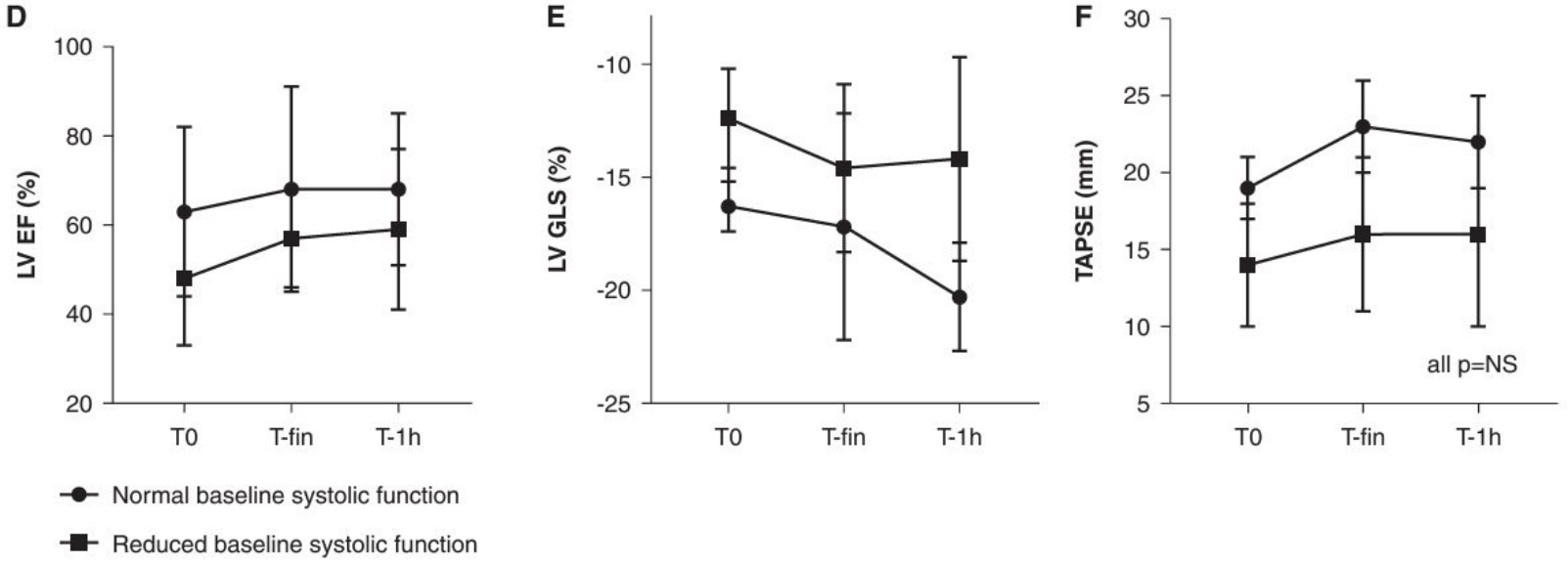


Russell et al, Crit Care Med, 2020

EFFETTI DELLA NORADRENALINA SULLA CIRCOLAZIONE



Change in Myocardial Contractility in Response to Treatment with Norepinephrine in Septic Shock



Innocenti et al, AJRCCM 2021

Table 4 Summary of the expert's recommendations and its degree of consensus and grade of recommendation

Statement	Degree of consensus	Grade of recommendation
Blood pressure monitoring		
1. In patients with shock, arterial blood pressure should be monitored invasively and continuously via an arterial catheter	Perfect	Strong
Ideal moment to start vasopressor therapy in treating circulatory shock		
2. Vasopressors should be started early, before (complete) completion of fluid resuscitation	Reasonable	Conditional
3. MAP or the combination of MAP and DAP should be considered as trigger to start vasopressor treatment	Good	Strong
Vasopressor of first choice		
4. Norepinephrine should be used as vasopressor of first choice	Perfect	Strong
Target of vasopressor treatment		
5. The target of vasopressor therapy should be a MAP of 65 mmHg	Good	Strong
6. Lower MAPs are tolerated in case of refractory hypotension despite adequate fluid and vasopressor treatment	Good	Strong
Treatment options in refractory hypotension		
7. Adding a second vasopressor in case of refractory hypotension	Good	Strong
8. Using vasopressin or terlipressin as second vasopressor	Good	Strong
Reason to stop vasopressor treatment		
9. Vasopressor treatment should be reduced/stopped when the patient improves clinically, when side effects occur, or in case of ineffectiveness	Perfect	Strong
Use of steroids to reach target		
10. Steroids should be considered in septic shock	Good	Strong

Definitions of degree of consensus and grades of recommendations based on the RAND algorithm. All 34 experts in agreement defined a perfect consensus and experts ≥ 80% agreement defined good consensus; both were considered as strong recommendation. Reasonable consensus was defined as 70–80% agreement among experts, and the recommendation was considered to be conditional

ZIONE
GGIO
NTE

Inotropi

- Dobutamina
- Ca – sensitizer levosimendan
- Milrinone

- 30 ml/kg
- Entro 3 ore

OK

Bolo iniziale

Fluidi

- Basati su test dinamici
- Possibili 1-2 ulteriori boli

Stabilire criteri per identificare i pazienti che necessitano regime restrittivo

- Se non responsivi ad almeno il primo bolo

Vasopressori inotropi

Stabilire criteri per identificare i pazienti che necessitano inizio precoce

?

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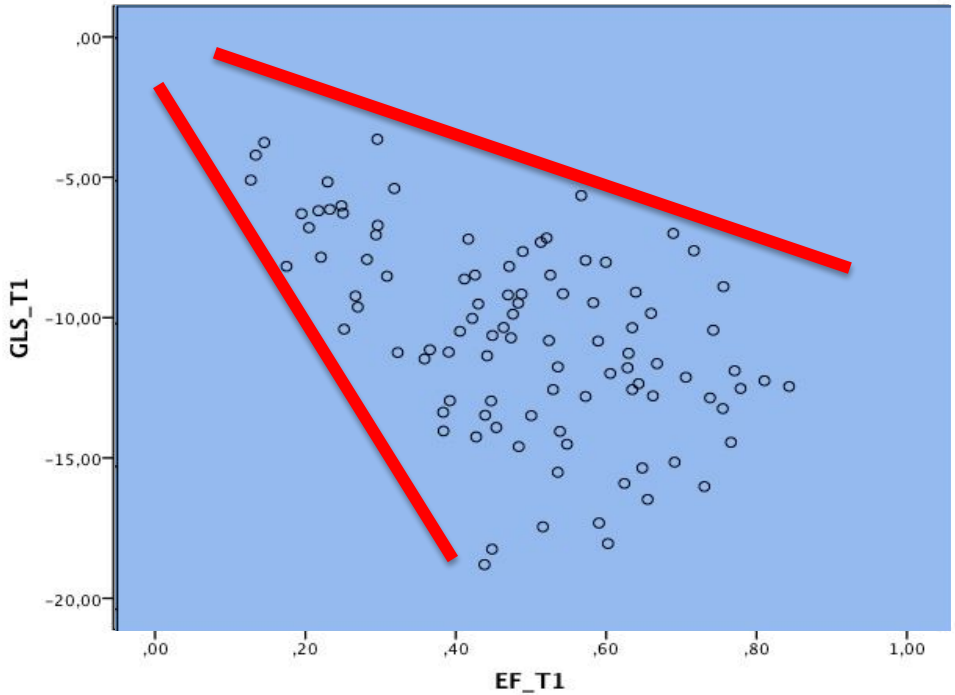
Confronto fra ecocardiografia tradizionale e metodica Strain

Left Ventricular Systolic Longitudinal Function as Predictor of Outcome in Patients With Sepsis

Vittorio Palmieri, MD, PhD; Francesca Innocenti, MD; Aurelia Guzzo, MD;
Elisa Guerrini, MD; Damiano Vignaroli, MD; Riccardo Pini, MD



Come valutare la funzione cardiaca?

Portata cardiaca e frazione di eiezione

- Indici di performance di camera

Global longitudinal strain

- Indice di contrattilità, relativamente indipendente da precarico e post-carico