

Ecografia diaframmatica e sepsi

Lucia Morelli Giampiero Foccillo Antonio Ruvolo
Cosma Casaburi Imma Cortile Enrico Ruggiero
MU/PS/OBI Osp San Paolo Napoli



XI congresso nazionale

simeu

ROMA 24-26 MAGGIO 2018

IL TEATRO
DELLA
MEDICINA
DI EMERGENZA
URGENZA

FORMAZIONE
COMPETENZE
ORGANIZZAZIONE

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PROGRAMMA
CONGRESSO

BOOKZINE

Sala BRAMANTE 5 - SEPSI: IL DOCUMENTO DI CONSENSO SIMEU
SESSIONE INTRODUTTIVA

Moderatore: Andrea Fabbri

08:30 La sepsi: una sfida per la Medicina d'Urgenza
Rodolfo Sbrojavacca

08:50 Perché una Consensus Conference SIMEU
Fabio Causin

09:10 Il documento di Consenso sulla sepsi SIMEU
Mario Calci

LE RACCOMANDAZIONI DEL DOCUMENTO DI CONSENSO
SESSIONE I - L'APPROCCIO INIZIALE ALLA SEPSI

Moderatori: Riccardo Pini, Alessio Bertini

09:30 Riconoscimento precoce
Irene di Paco

09:50 Emocoltura e terapia antibiotica
Anna Maria Brambilla

10:10 Fluidi, inotropi, albumina in PS
Savino Russo

LE RACCOMANDAZIONI DEL DOCUMENTO DI CONSENSO
SESSIONE II - LA GESTIONE AVANZATA

Moderatori: Franco Aprà, Maurizio Chiesa

10:50 Ecografia in PS nel paziente settico
Maurizio Zanobetti

11:10 Monitoraggio del paziente in PS e SI
Germana Ruggiano

11:30 Stratificazione del rischio e definizione della sede di
cura del paziente settico
Francesca Innocenti

11:50 Modelli organizzativi e indicatori
Mario Calci

12:10 CONCLUSIONI
Fabio Causin, Mario Calci

IL TEATRO DELLA MEDICINA DI EMERGENZA URGENZA

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Critical Care Perspective

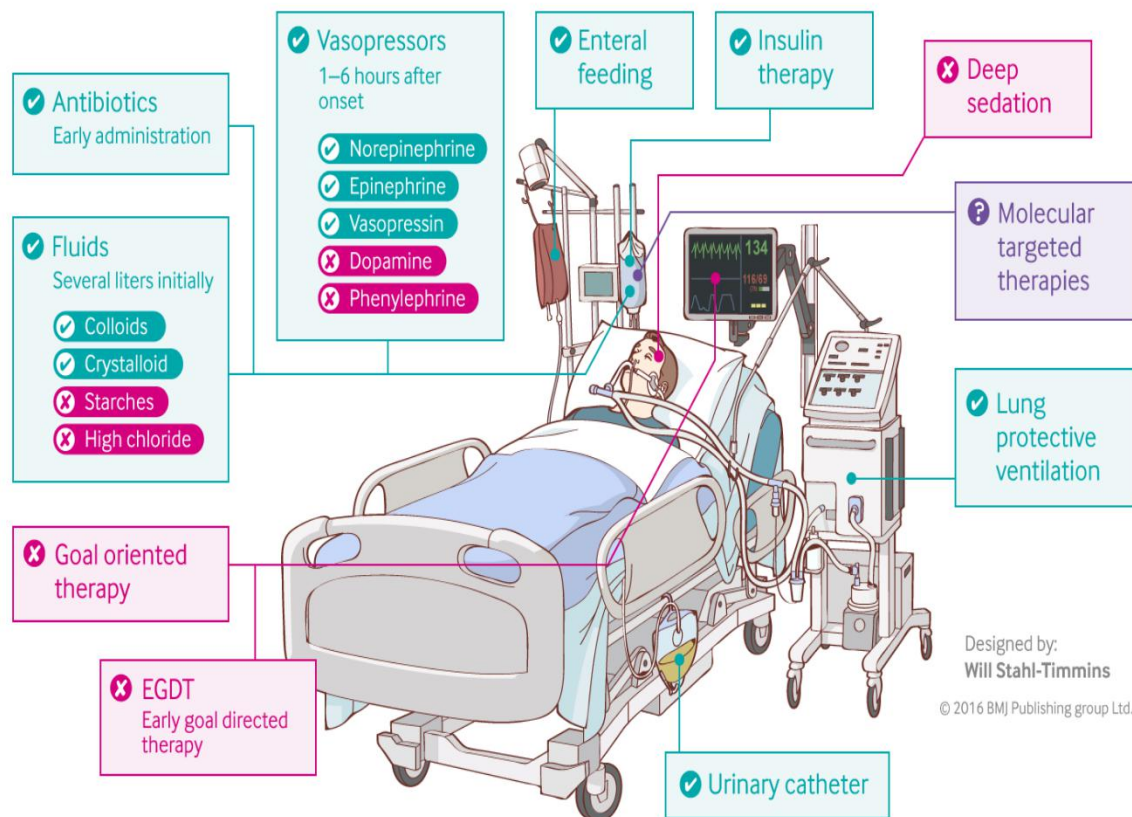
Monitoring of the Respiratory Muscles in the Critically Ill

Jonne Doorduyn¹, Hieronymus W. H. van Hees², Johannes G. van der Hoeven¹, and Leo M. A. Heunks¹

¹Department of Critical Care Medicine and ²Department of Pulmonary Medicine, Radboud University Nijmegen Medical Centre, the Netherlands

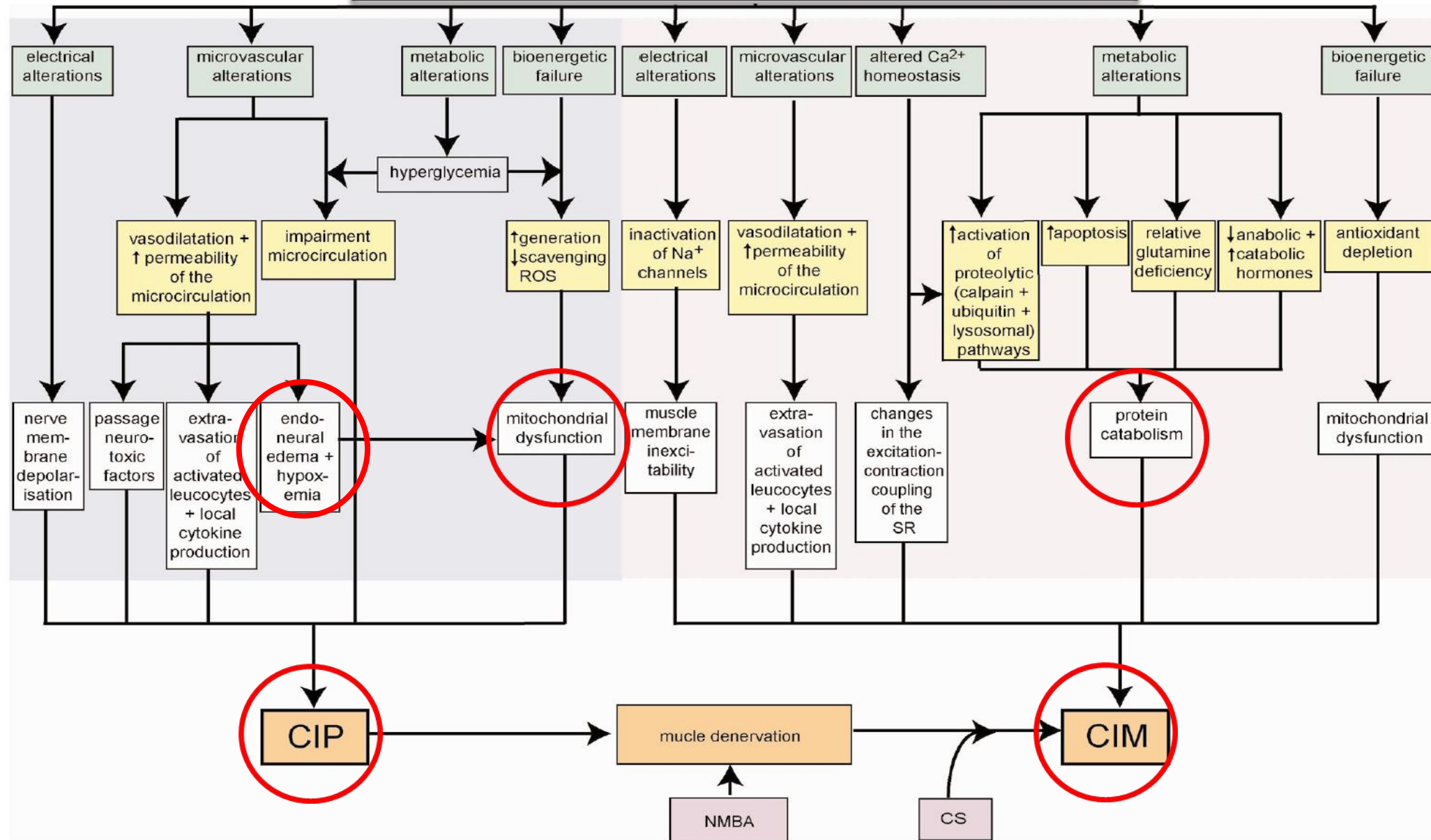


Treating sepsis: the latest evidence



Designed by:
Will Stahl-Timmins
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Critical Illness + cytokine production

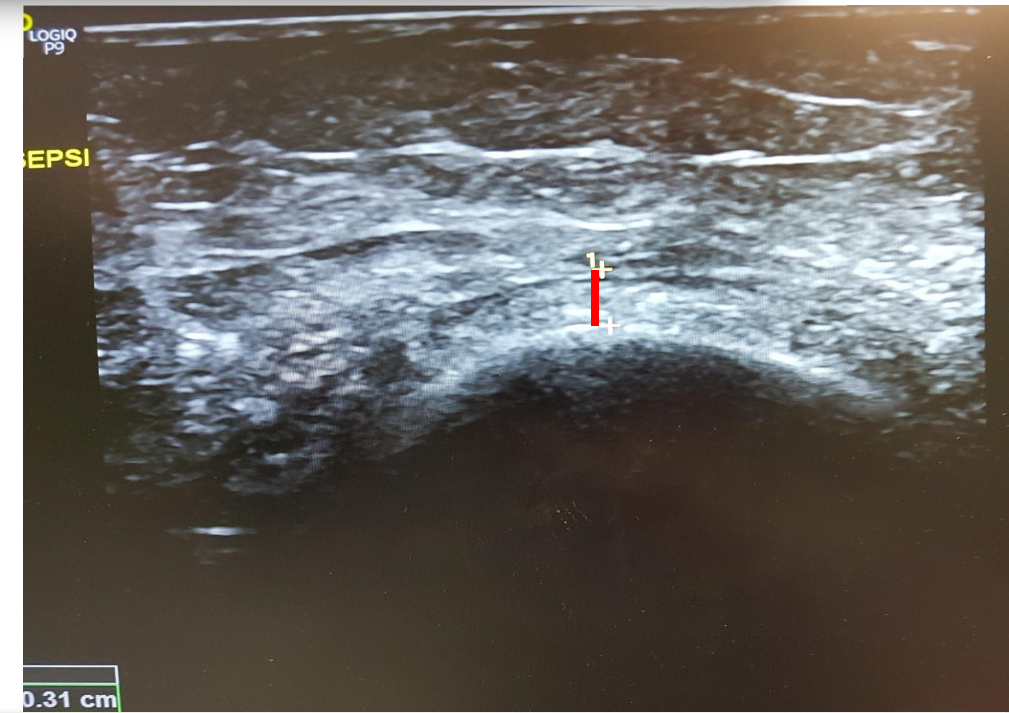


RESEARCH

Open Access

Muscle ultrasound for early assessment of critical illness neuromyopathy in severe sepsis

Alexander Grimm^{1,2}, Ulrike Teschner^{1,2}, Christine Porzelius^{2,3}, Katrin Ludewig², Jörg Zielske^{2,4}, Otto W Witte^{1,2}, Frank M Brunkhorst^{2,5†} and Hubertus Axer^{1,2*†}



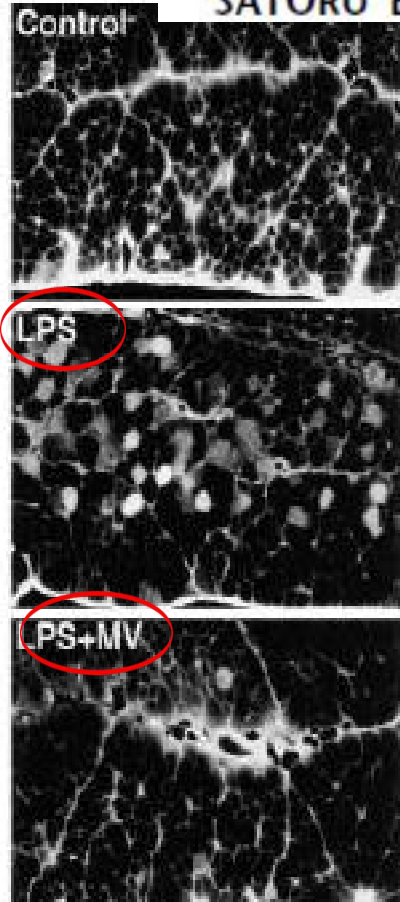
Conclusions: Muscle ultrasound represents an easily applicable, non-invasive diagnostic tool which adds to neurophysiological testing information regarding morphological changes of muscles early in the course of sepsis.

Mechanical Ventilation Protects against Diaphragm Injury in Sepsis

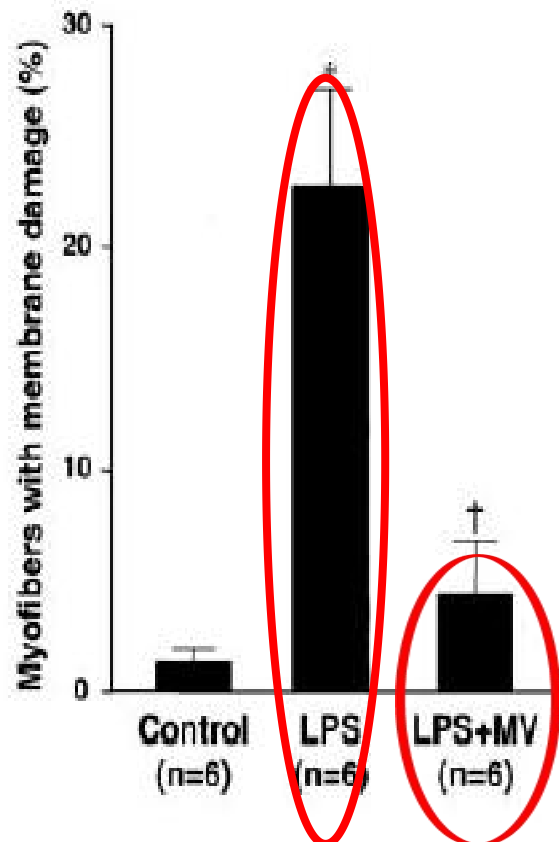
Interaction of Oxidative and Mechanical Stresses

SATORU EBIHARA, SABAH N. A. HUSSAIN, GAWIYOU DANIALOU, WON-KYUNG CHO, STEWART B. GOTTFRIED

A



B



American Physiological Society. Generation of free radicals by diaphragm muscle in sepsis should be greatly diminished when mechanical ventilation is provided and neural activation of this muscle is minimized.

Am J Respir Crit Care Med Vol 165. pp 221-228, 2002

Sepsis Is Associated with a Preferential Diaphragmatic Atrophy

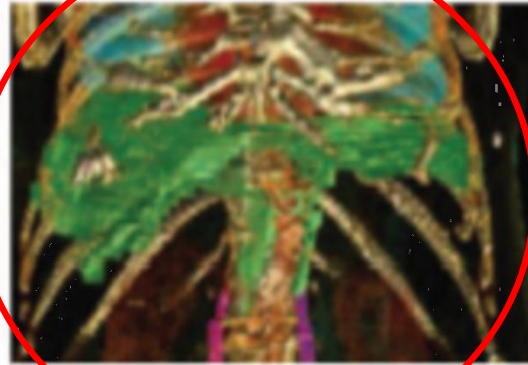
A Critically Ill Patient Study Using Tridimensional Computed Tomography

Boris Jung, M.D., Ph.D., Stephanie Nougaret, M.D., M.Sc., Matthieu Conseil, M.D., M.Sc.,

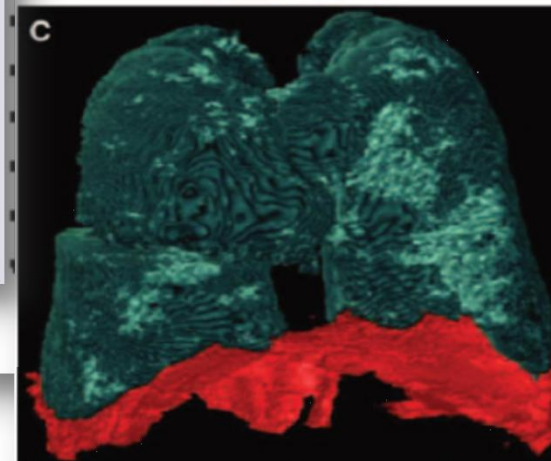
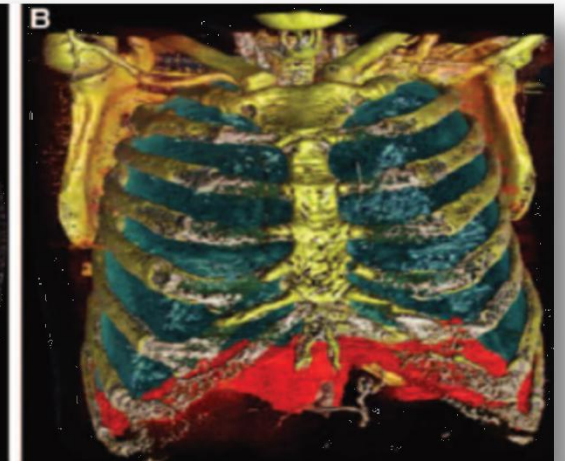
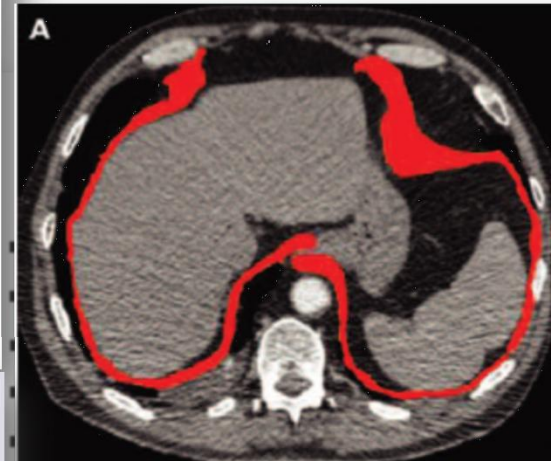
Anesthesiology 2014; 120:1182-91

SEPSIS
 $-27 \pm 12\%$

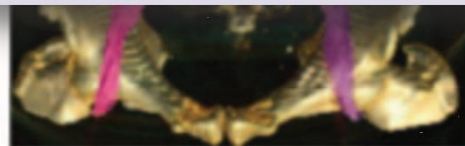
NO SEPSIS
 $-11 \pm 13\%$



$p=0.01$



- Comparisons between 14 people with sepsis and 9 similar patients without sepsis documented a significant loss of diaphragm muscle volume compared with the psoas muscle volume in the septic patients
- The loss of diaphragm muscle was associated with loss of strength



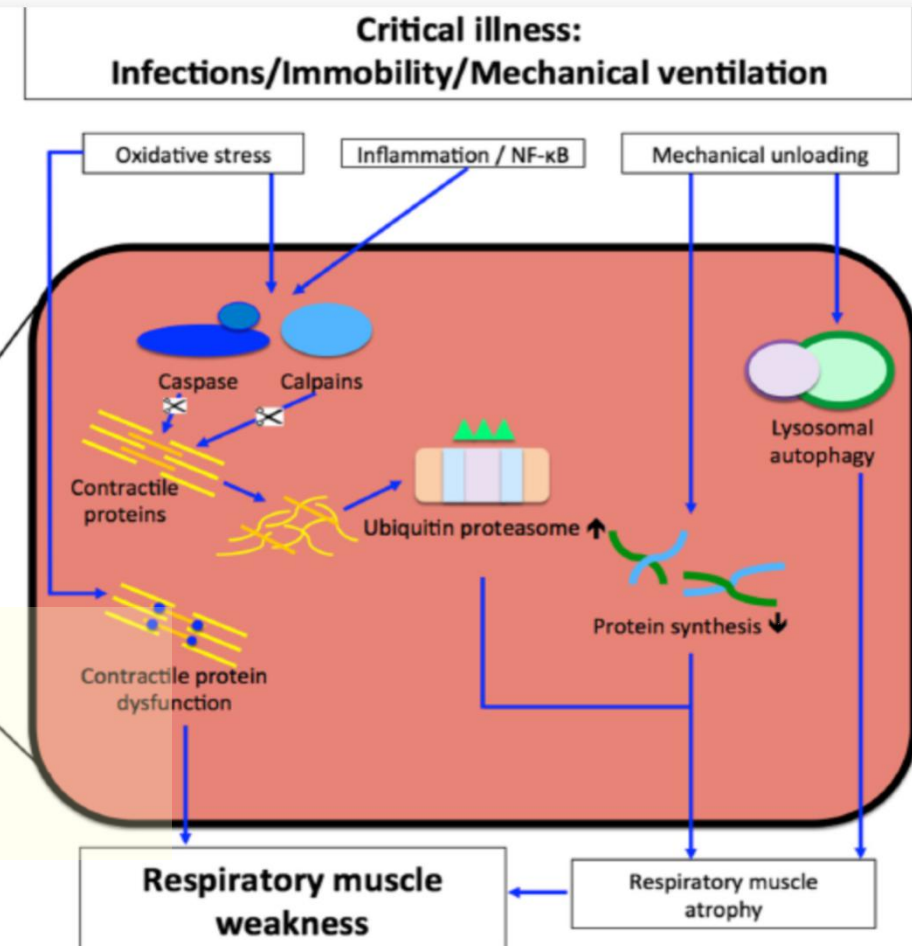
$p=0.09$

Oxidative stress has been strongly implicated in the development of diaphragm dysfunction during sepsis

High level expression and enzymatic activity of the inducible isoform (iNOS) have been demonstrated in the diaphragm of rats injected with endotoxin

The cellular mechanisms potentially responsible for diaphragm dysfunction during sepsis include oxidative/nitrosative modification of critical proteins involved in excitation-contraction coupling or cross-bridge cycling

Lipid peroxidation of membranes, DNA strand breakage and inhibition of mitochondrial respiration are the results of this modification

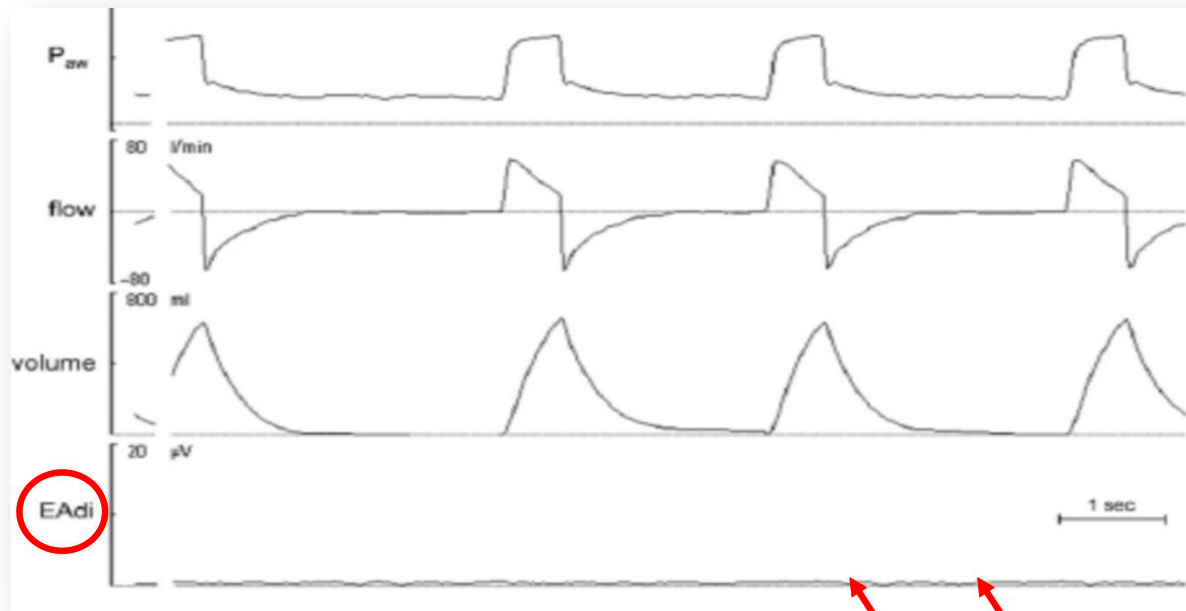


Critical Care Perspective

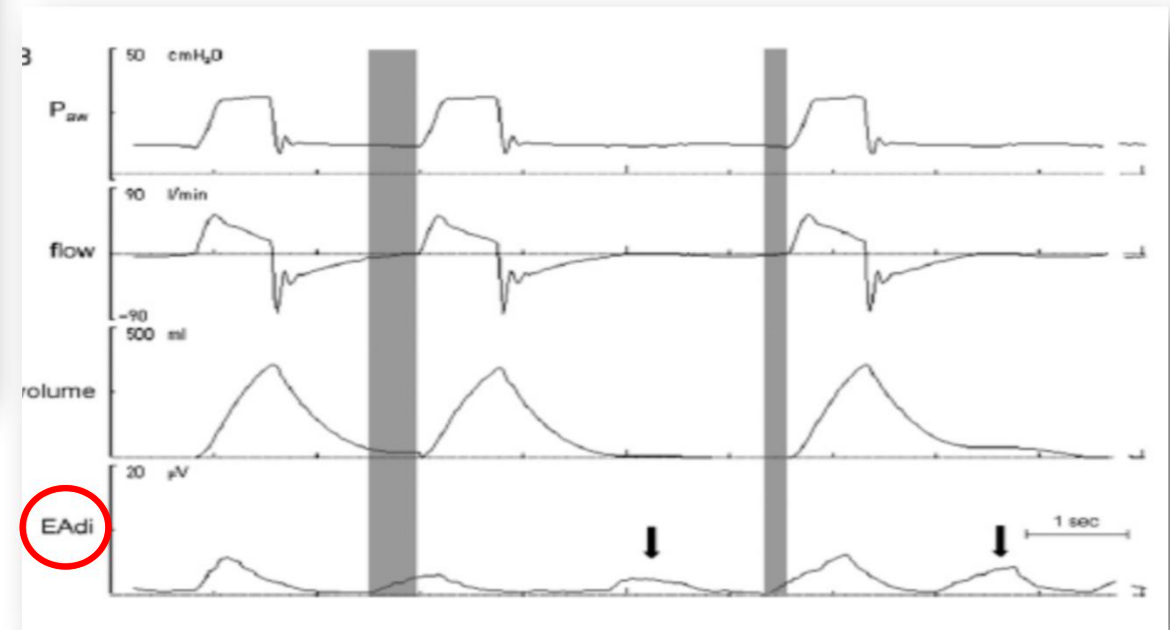
Monitoring of the Respiratory Muscles in the Critically Ill

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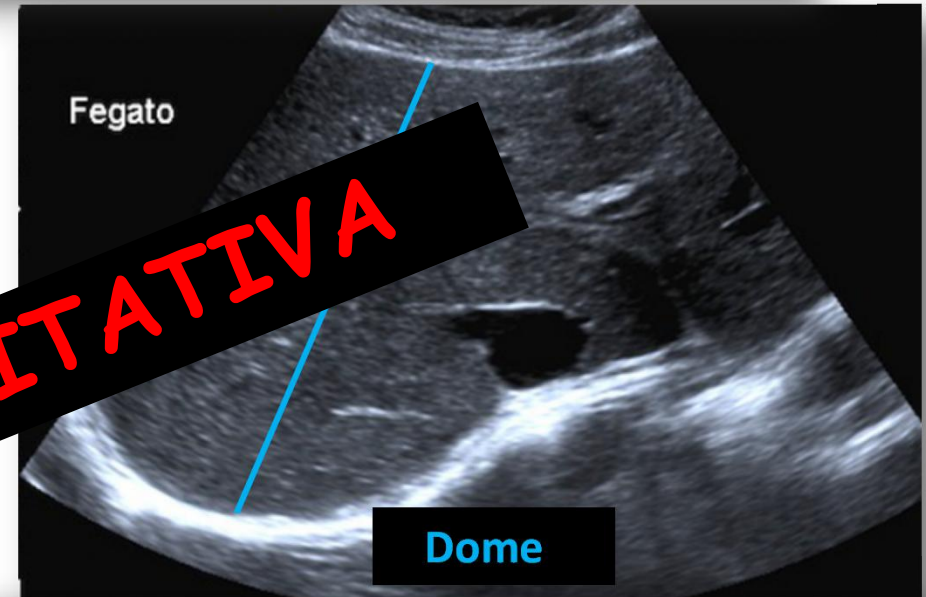
Noi possiamo !



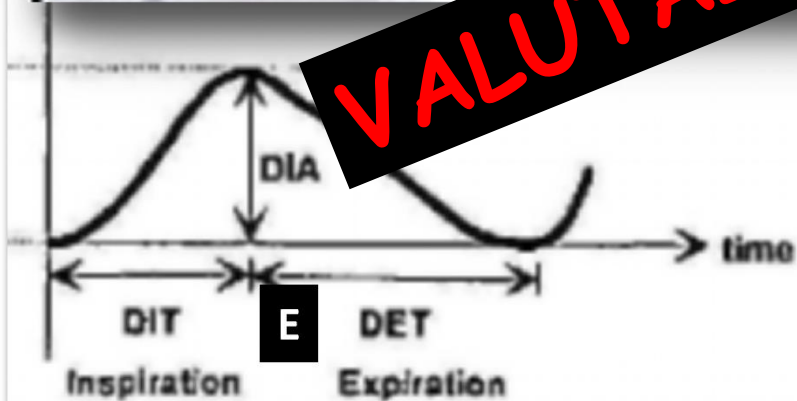
ULTRASOUND M-MODE ASSESSMENT OF DIAPHRAGMATIC KINETICS BY ANTERIOR TRANSVERSE SCANNING IN HEALTHY SUBJECTS

AMERICO TESTA,* GINO SOLDATI,[†] ROSANGELA GIANNUZZI,* SILVIA BERARDI,* GRAZIA PORTALE,*
and NICOLÒ GENTILONI SILVERI*

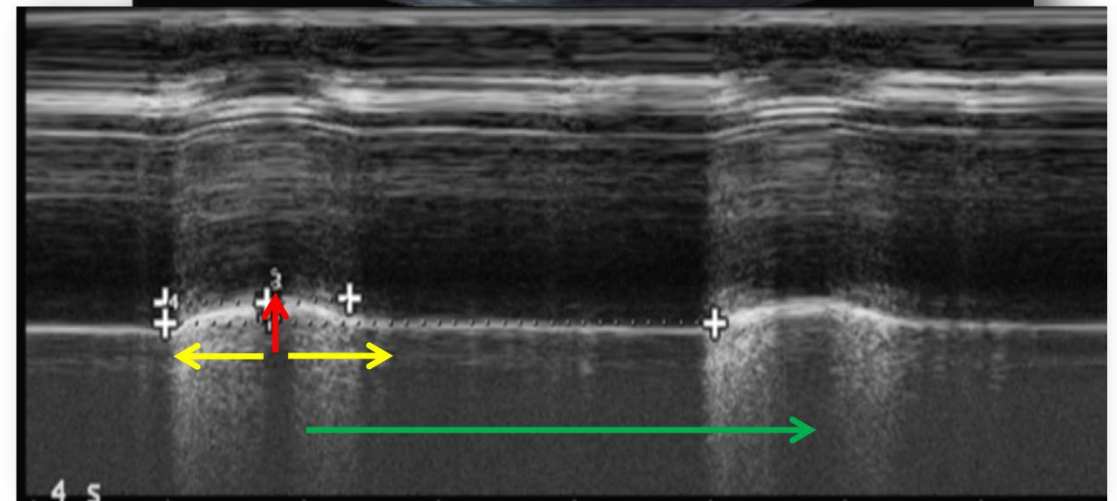
* Department of Emergency Medicine, A. Gemelli University Hospital, Rome, Italy; and [†] Operative Unit of Emergency
Medicine, Castelnovo Garfagnana Hospital, Lucca, Italy



VALUTAZIONE QUALITATIVA



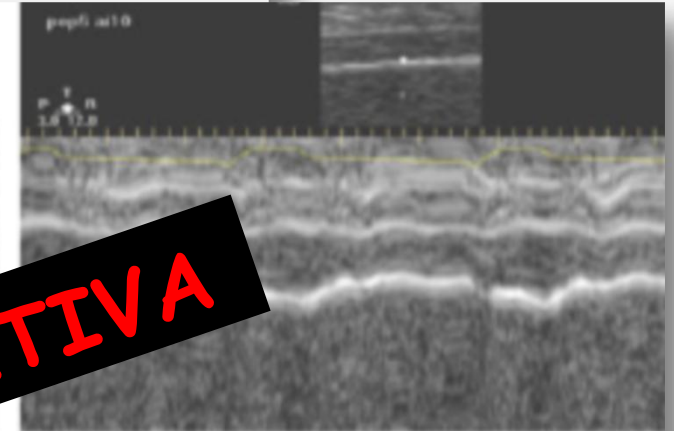
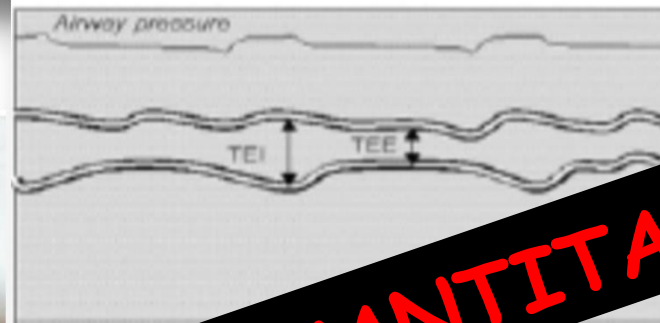
E
Ti
Te
Ttot
Dome



Emmanuel Vivier
Armand Mekontso Dessap
Saoussen Dimassi
Frederic Vargas
Aissam Lyazidi
Arnaud W. Thille
Laurent Brochard

Diaphragm ultrasonography to estimate the work of breathing during non-invasive ventilation

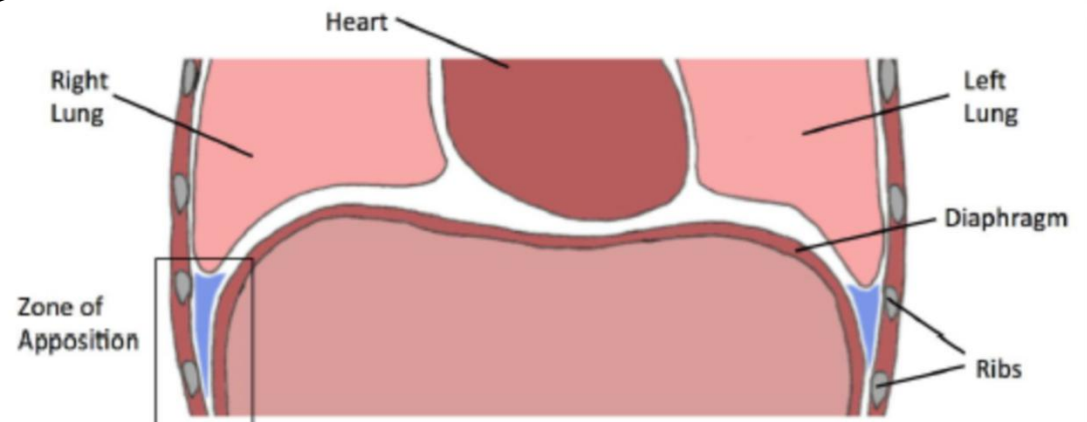
$$TF = (TEI - TEE) / TEE$$



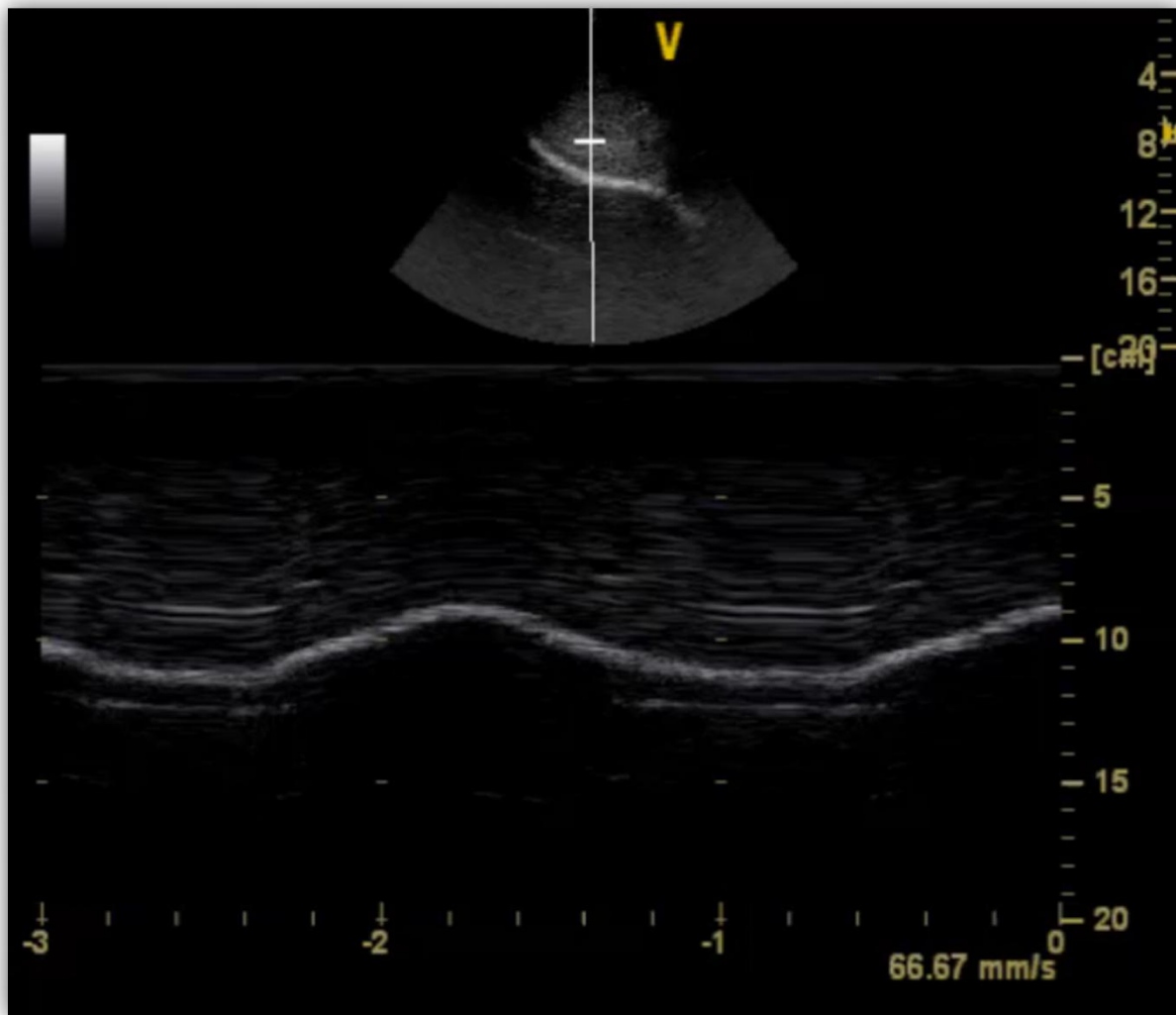
TEI thickness, TEE, thickness at end expiration.



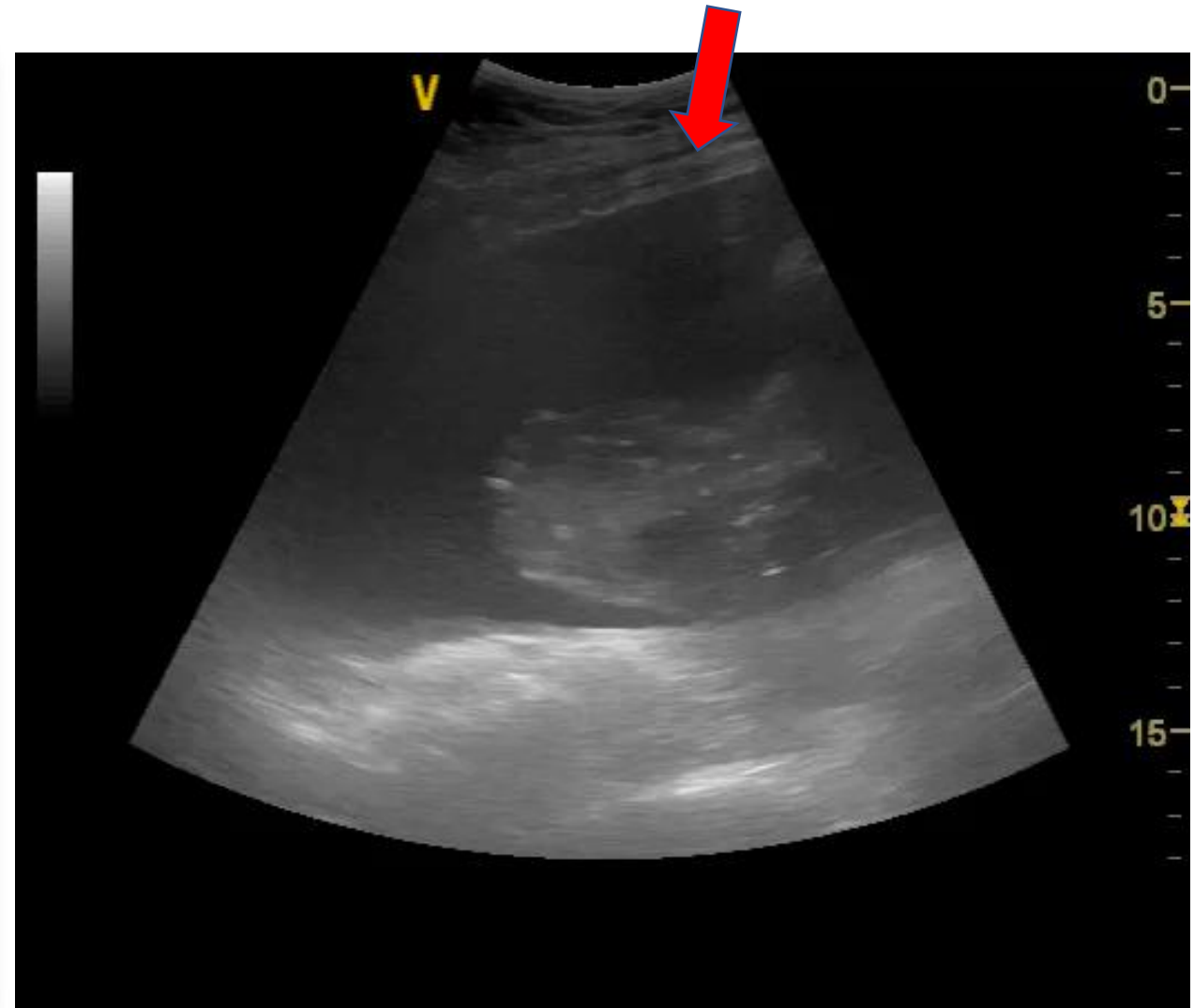
VALUTAZIONE QUANTITATIVA



Escursione diaframmatica



Qualitativa



Quantitativa

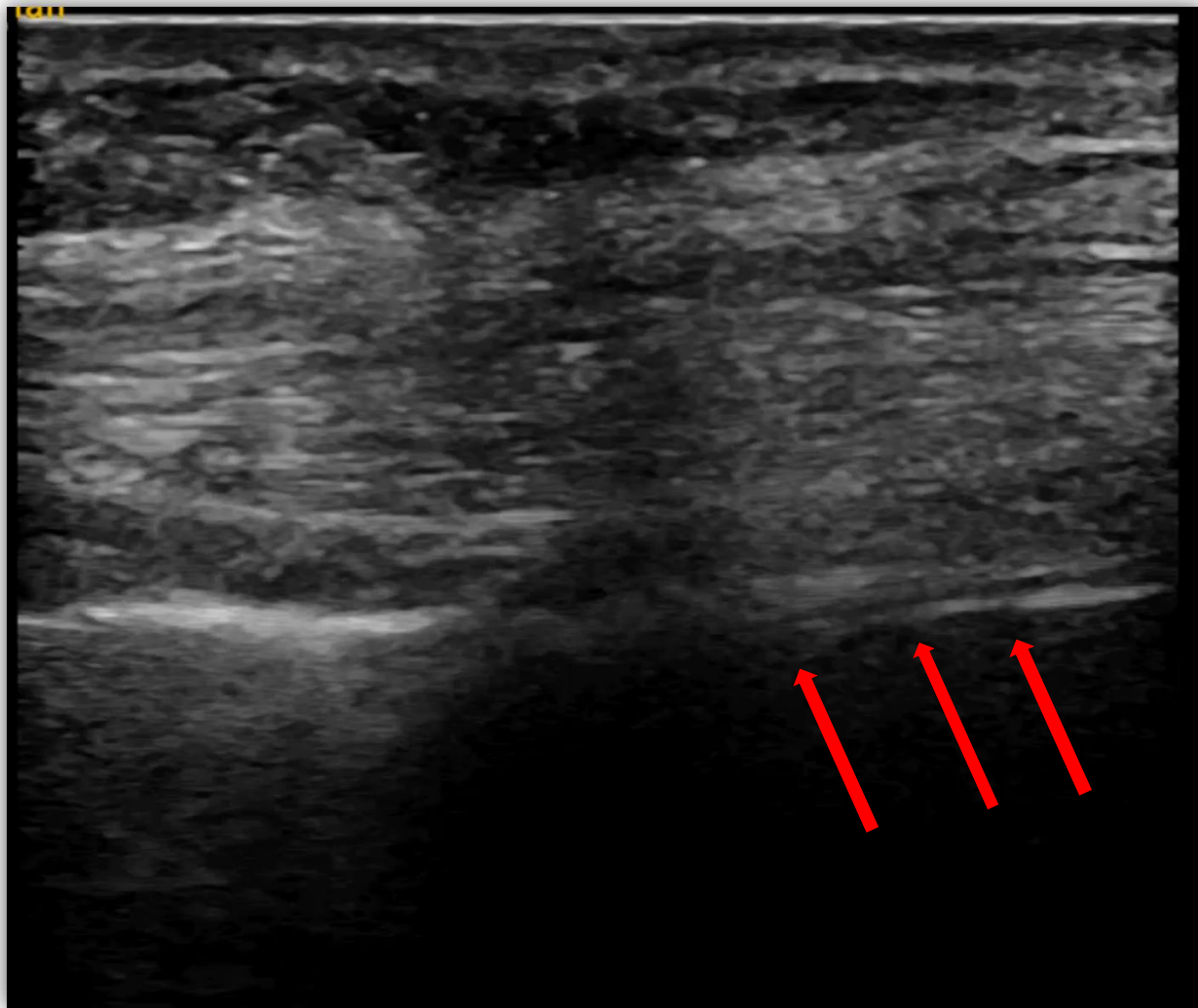
...nostri dati

Gruppo A*	Nonsepsi	sepsi
Pz	34	29
Thick fr	0.28±0.02	0.22±0.01*
E	1.1±0.5	1.2±0.3
Mortalità a 48mesi	90%	98%*
*signif		

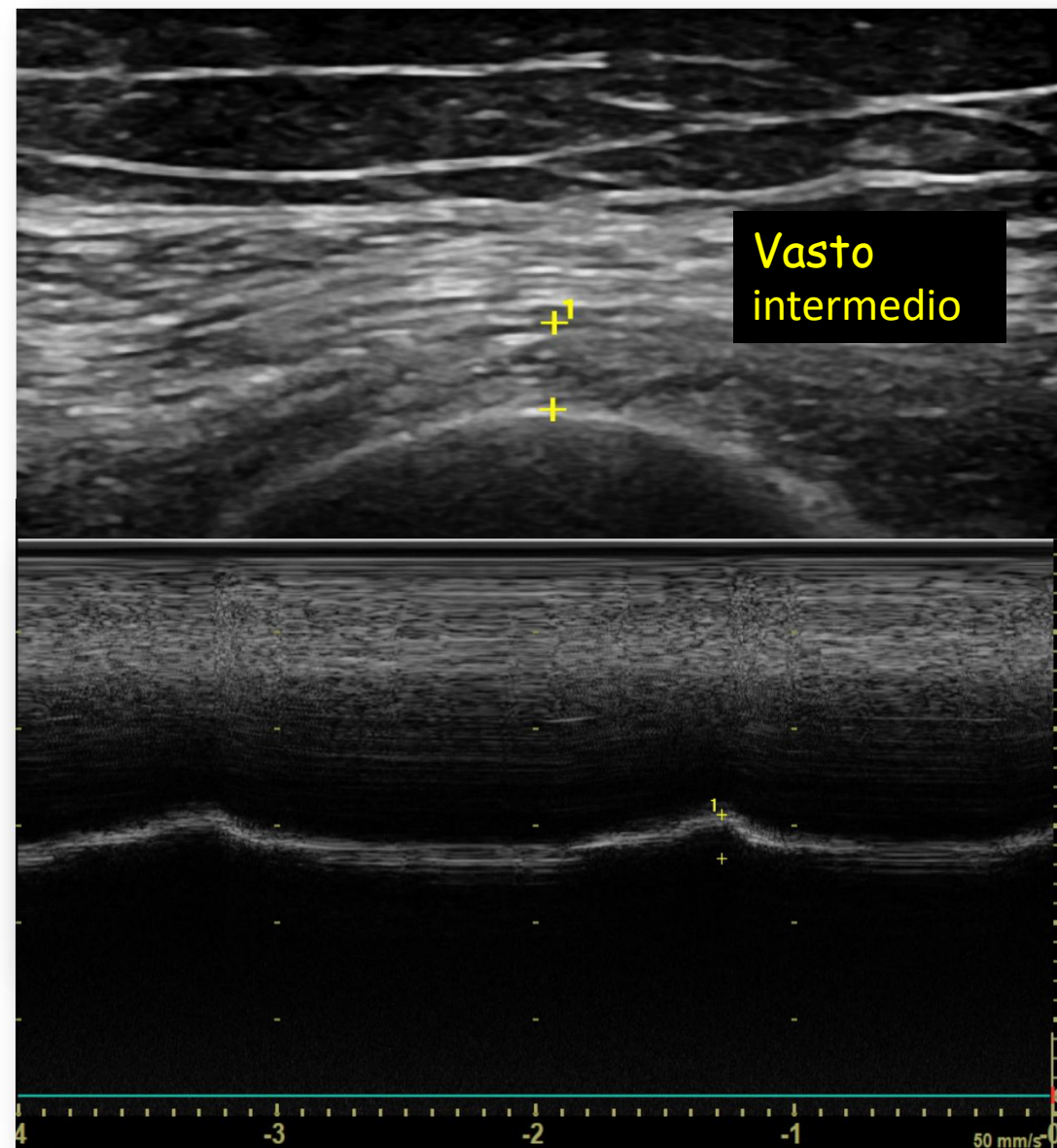
APACHE II	15±2	11±2	ns
Thick fr °	0.28±0.02	0.31±0.02	Ns
E	1.1±0.5	1.2±0.9	p<0.05
Degenza media	3.5±1.2 gg	5.4±2.2	p<0.05
Mortalità a 48mesi	90%	53%	p<0.001
pCO2	78±12	49±19	P<0.001
FR	25±11	27±9	ns

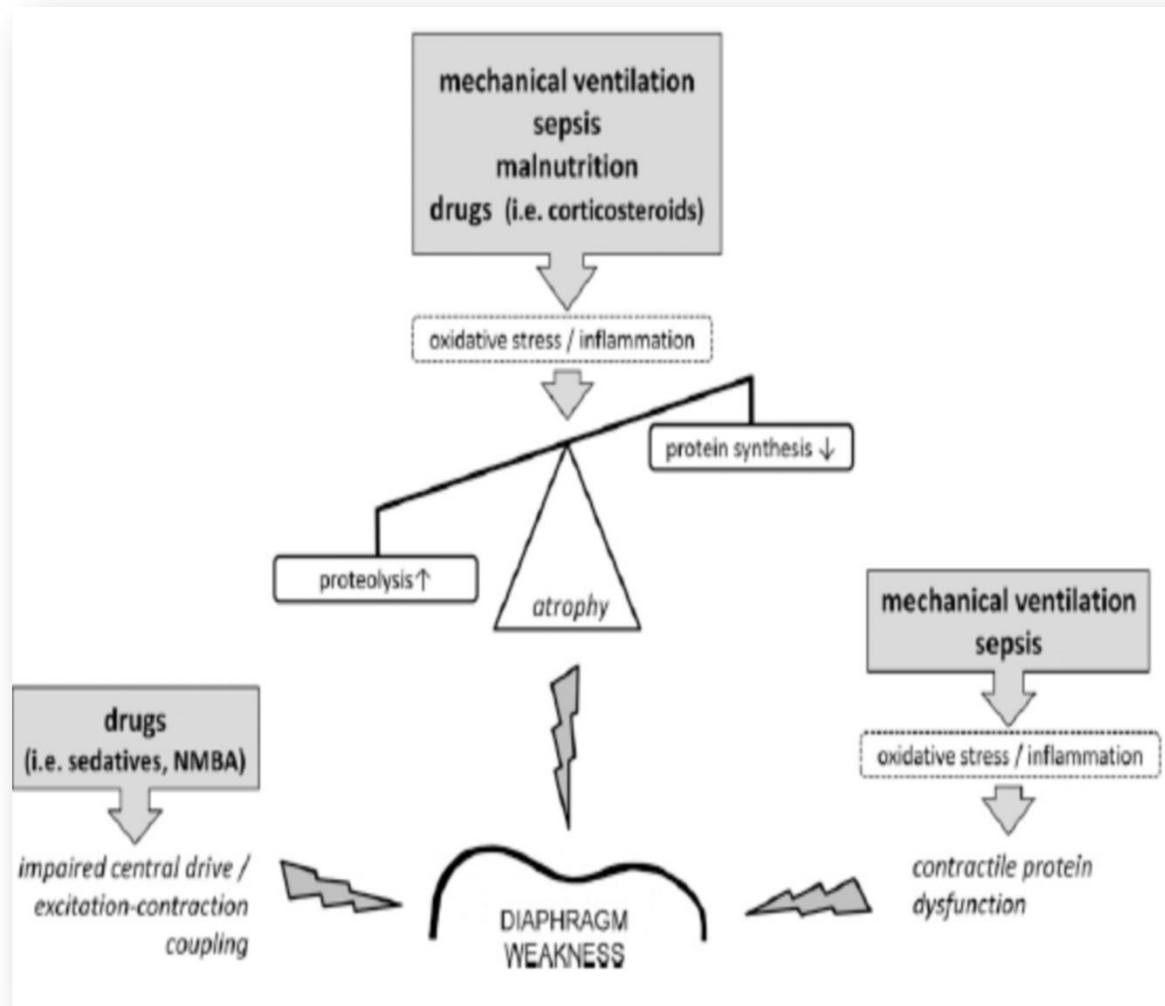
Viver et al Intensive Care Med 2012,38:796-803

SEPSI buona risposta ad inotropi



La paziente morì dopo 6 ore





REVIEW

Strategies to optimize respiratory muscle function in ICU patients

...è a metà dell'opera...



...chi ben comincia...



EUFORTYN®

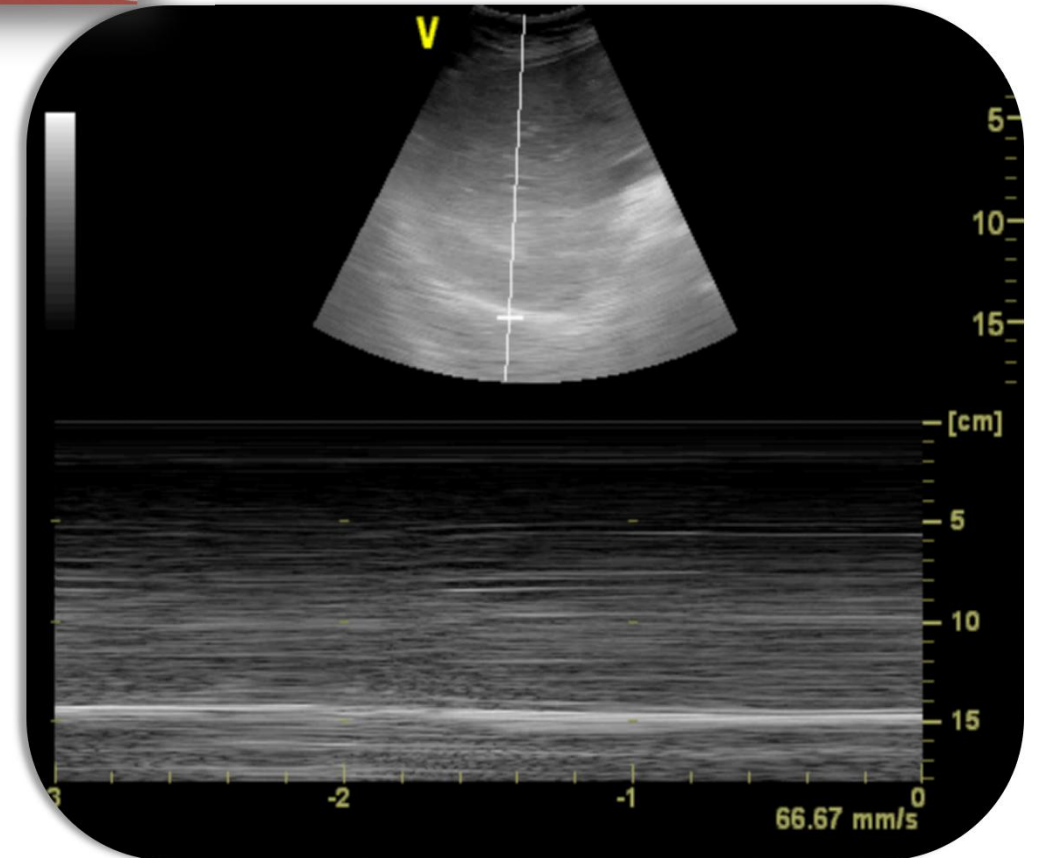
Supportive

Integratore alimentare di coenzima Q₁₀, vitamine del gruppo B, Ginseng e creatina

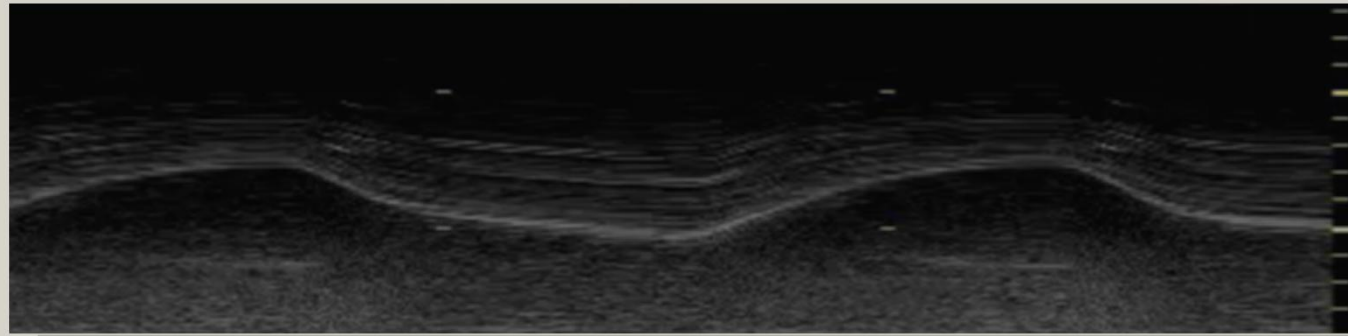
APPORTI DI COMPONENTI NUTRIZIONALI (Valori medi)	Contenuto per 2 cpr	% VNR*
Q-TER®	320 mg	
di cui coenzima Q ₁₀	32 mg	
creatina monoidrato	340 mg	
di cui creatina	297,5 mg	
Ginseng e.s.	130 mg	
Vitamina B ₃ (PP)	10 mg	62%
Vitamina B ₂	4 mg	66%
Vitamina B ₆	1,6 mg	114%
Vitamina B ₁	1,2 mg	109%
Vitamina B ₅	1,2 mg	85%
Vitamina B ₁₂	1,2 µg	48%

Several specific therapies have been mentioned to prevent CIP/CIM therapy

use of testosterone
 derivates growth factor,
 inotropic drugs,
 nutrition schemes
 supplement therapies,
 antioxidant, and immunoglobulins



D-day Naples 2019



1° comparing experiences

SAVE THE DATE

I hope !

