



L'OSSIGENO TERAPIA AD ALTI FLUSSI NELLA GESTIONE SEMINTENSIVISTICA DELLE POLMONITI

*Management di polmonite necrotico-emorragica da
stafilococco aureus*

mssa produttore di leucocidina pantone-valentine

Dott. K. Mariano

**PaO₂ < 60 mmHg. (P/F<300) ;
FATICA RESPIRATORIA;
PaCO₂ ≤45 mmHg.**



IPOSSIEMICA



LUNG FAILURE

**PaO₂ < 60 mmHg. (P/F<300) ;
FATICA RESPIRATORIA;
PaCO₂ >45 mmHg.**



**IPOSSIEMICA
IPERCAPNICA**



PUMP FAILURE



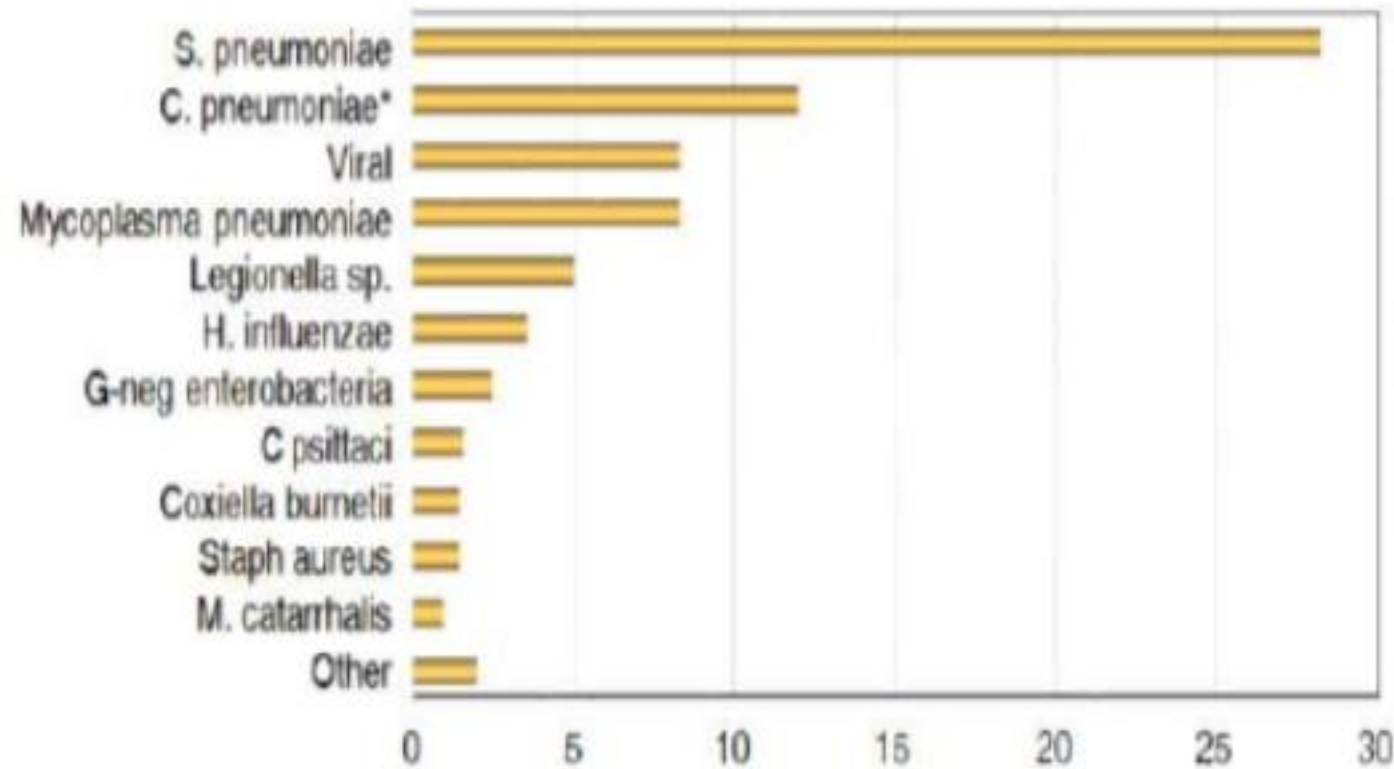
EPIDEMIOLOGY

- Pneumonia is still the most important infectious disease in terms of morbidity and mortality and is one of the most common causes of hospitalization for acute respiratory failure. The standard treatment involves the administration of oxygen therapy by mask, a timely empiric antibiotic therapy and an early supportive therapy, but the mortality rate remains high (5-10%, up to exceed 30% in cases hospitalized in the ICU).

EPIDEMIOLOGY

- Given the increasing prevalence of elderly in hospital population, the increasing number of comorbidities and the increasing spread of new drugs and chronic immunosuppressive therapy, endotracheal intubation has increasingly become a therapeutic option only for few well selected cases inside population we observed, because although it is an advanced life support method, has a number of potential complications, both infectious and difficulties in weaning.

CAP – Bacteriology in Hospitalized Pts



Data from 26 prospective studies (5961 adults) from 10 countries. * Data from six studies Woodhead, MA (1998)

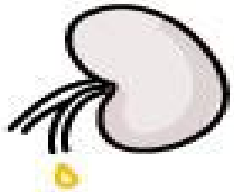
Viral and bacterial co-infection occurs in 4–17% of cases of CAP .

In 2009 H1N1 influenza pandemic, *Staphylococcus aureus* and *Streptococcus pneumoniae* were common co pathogens

CURB-65



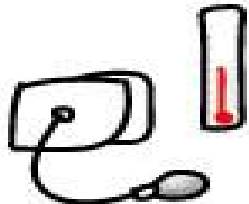
Confusion



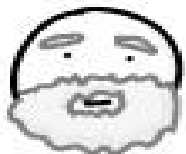
Urea >7



Resp Rate >30



Systolic BP <90
Diastolic BP <60



Age >65

Confusion

Urea $>7\text{mmol/l}$

Respiratory rate ≥ 30

Blood pressure: systolic $<90\text{mmHg}$ or
diastolic $\leq 60\text{mmHg}$

Age ≥ 65 years

(Give score of 1 for each feature present)

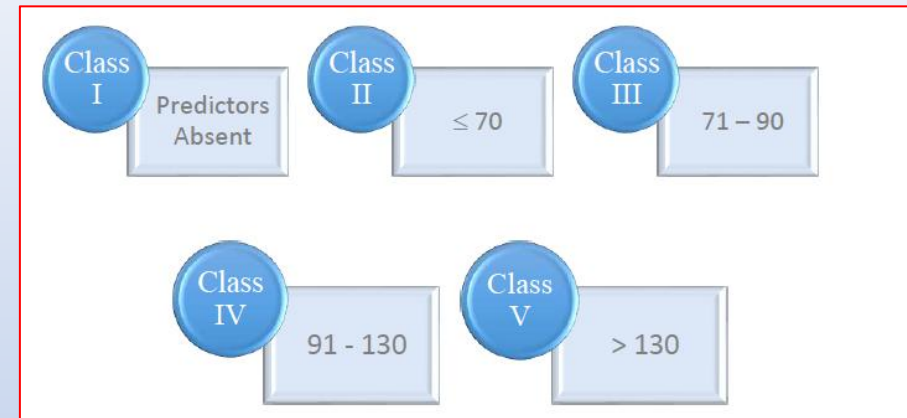


CURB-65 score	Severity	Where to treat
0	Low	Home
1	Low	Home
2	Moderate	Hospital
3-5	High	Hospital: assess for ITU admission

Important:

Pneumonia severity scores (such as the CURB-65) must be used in conjunction with **clinical judgement** when assessing the severity of a pneumonia case.

Clinical Parameter	Scoring	Clinical Parameter	Scoring
Age in years	Example	Clinical Findings	
For Men (Age in yrs)	50	Altered Sensorium	20 points
For Women (Age -10)	(50-10)	Respiratory Rate > 30	20 points
NH Resident	10 points	SBP < 90 mm	20 points
Co-morbid Illnesses		Temp < 35° C or > 40° C	15 points
Neoplasia	30 points	Pulse > 125 per min	10 points
Liver Disease	20 points	Investigation Findings	
CHF	10 points	Arterial pH < 7.35	30 points
CVD	10 points	BUN > 30	20 points
Renal Disease (CKD)	10 points	Serum Na < 130	20 points
PORT Scoring – PSI		Hematocrit < 30%	10 points
Pneumonia Patient Outcomes Research Team (PORT)		Blood Glucose > 250	10 points
		Pa O ₂	10 points
		X Ray e/o Pleural Effusion	10 points



CAP – Management based on PSI Score

PORT Class	PSI Score	Mortality %	Treatment Strategy
Class I	No RF	0.1 – 0.4	Out patient
Class II	≤ 70	0.6 – 0.7	Out patient
Class III	71 – 90	0.9 – 2.8	Brief hospitalization
Class IV	91 – 130	8.5 – 9.3	Inpatient
Class V	> 130	27 – 31.1	IP – ICU

I. Martin-Loeches
T. Lisboa
A. Rodriguez
C. Putensen
D. Annane
J. Garnacho-Montero
M. L. Restrepo
J. Rello

Combination antibiotic therapy with macrolides improves survival in intubated patients with community-acquired pneumonia

Inpatients, non-ICU treatment

A respiratory fluoroquinolone (strong recommendation; level I evidence)

A b-lactam **plus** a macrolide (strong recommendation; level I evidence)

Inpatients, ICU treatment

A b-lactam (cefotaxime, ceftriaxone, or ampicillin-sulbactam) **plus** either azithromycin (level II evidence) **or** a respiratory fluoroquinolone (level I evidence) (strong recommendation) (for penicillin-allergic patients, a respiratory fluoroquinolone and aztreonam are recommended)

Formula

ration high flow oxygen by nasal
has proved effective in improving
tory frequency) in cohorts of
nts with pneumonia.

c respiratory failure.

Table 1. Characteristics of the Patients at Baseline, According to Study Group.*

Characteristic	High-Flow Oxygen (N=106)	Standard Oxygen (N=94)	Noninvasive Ventilation (N=110)
Age—yr	61±16	59±17	61±17
Male sex—no. (%)	75 (71)	63 (67)	74 (67)
Body-mass index†	25±5	26±5	26±6
SAPS II‡	25±9	24±9	27±9
Current or past smoking—no. (%)	34 (32)	36 (38)	40 (36)
Reason for acute respiratory failure—no. (%)			
Community-acquired pneumonia	71 (67)	57 (61)	69 (63)
Hospital-acquired pneumonia	12 (11)	13 (14)	12 (11)
Extrapulmonary sepsis	4 (4)	5 (5)	7 (6)
Aspiration or drowning	3 (3)	1 (1)	2 (2)
Pneumonia related to immunosuppression	6 (6)	4 (4)	10 (9)
Other	10 (9)	14 (15)	10 (9)
Bilateral pulmonary infiltrates—no. (%)	79 (75)	80 (85)	85 (77)
Respiratory rate—breaths/min	33±6	32±6	33±7
Heart rate—beats/min	106±21	104±16	106±21
Arterial pressure—mm Hg			
Systolic	127±24	130±22	128±21
Mean	87±17	89±15	86±16
Arterial blood gas			
pH	7.43±0.05	7.44±0.06	7.43±0.06
Pao ₂ —mm Hg	85±31	92±32	90±36
Fio ₂ §	0.62±0.19	0.63±0.17	0.65±0.15
Pao ₂ :Fio ₂ —mm Hg	157±89	161±73	149±72
Paco ₂ —mm Hg	36±6	35±5	34±6

HFNC Mechanisms

- The oxygenation through HFNC allows the use of **high concentrations of oxygen, heated and humidified**, with a consequent **high level of patient comfort**.
- The differences compared the oxygenation through Venturi mask are on one hand the possibility of having **major inspiratory oxygen concentrations**.
- Allows the generation of a **positive end-expiratory pressure (PEEP)** and a **greater exchange of gas** in the airways rather than during single spontaneous breathing.

HFNC and pneumonia

- In case of pneumonia the application of a positive end-expiratory pressure (PEEP), has its pathophysiological rational in alveolar recruitment of atelectasis areas of parenchyma surrounding the inflammatory infiltrate. The result is an improvement in gas exchanges. Achieving and maintaining higher oxygen levels in blood through this method than those guaranteed from standard oxygen therapy allows to accelerate tissue hypoxia reversibility.

High-Flow Nasal Cannula Therapy in Do-Not-Intubate Patients With Hypoxemic Respiratory Distress

Steve G Peters MD, Steven R Holets RRT, and Peter C Gay MD

Table 1. Subject Characteristics ($n = 50$)

Male	25
Female	25
Age, mean y	73
Age range, y	27–96
Diagnosis for hypoxemic respiratory failure, no. (hospital mortality %)	
Pulmonary fibrosis	15 (73.3)
Pneumonia	15 (46.7)
COPD	12 (33.3)
Congestive heart failure	3 (33.3)
Solid malignancy	7 (57)
Hematologic malignancy	7 (71.4)
Sepsis	2 (50)
Pulmonary embolism	2 (50)
Myocardial infarct	1 (0)
Hemorrhage	1 (100)

Table 2. Outcome of High-Flow Nasal Oxygen in 50 Subjects* With Do-Not-Intubate Status

	Pre-HFNC	Post-HFNC	<i>P</i>
Breathing frequency, breaths/min	30.6	24.7	< .001
O ₂ saturation	89.1	94.7	< .001

* 41/50 (82%) were maintained on high-flow nasal cannula (HFNC). 9/50 (18%) escalated to noninvasive ventilation. Overall hospital mortality was 60%. The mean HFNC F_{IO_2} was 0.67 (range 0.3–1.0). The mean HFNC flow was 42.6 L/min (range 30–60 L/min).

HFNC can provide adequate oxygenation for many patients with hypoxemic respiratory failure and may be an alternative to NIV for DNI patients.

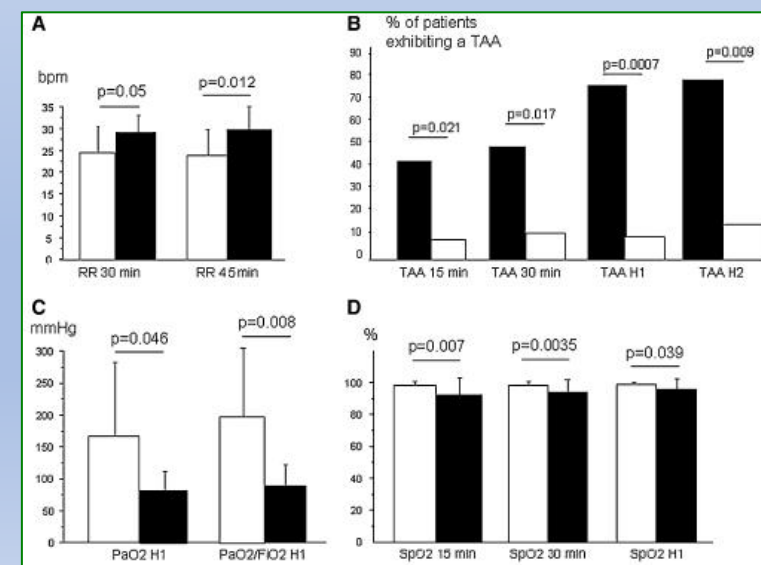
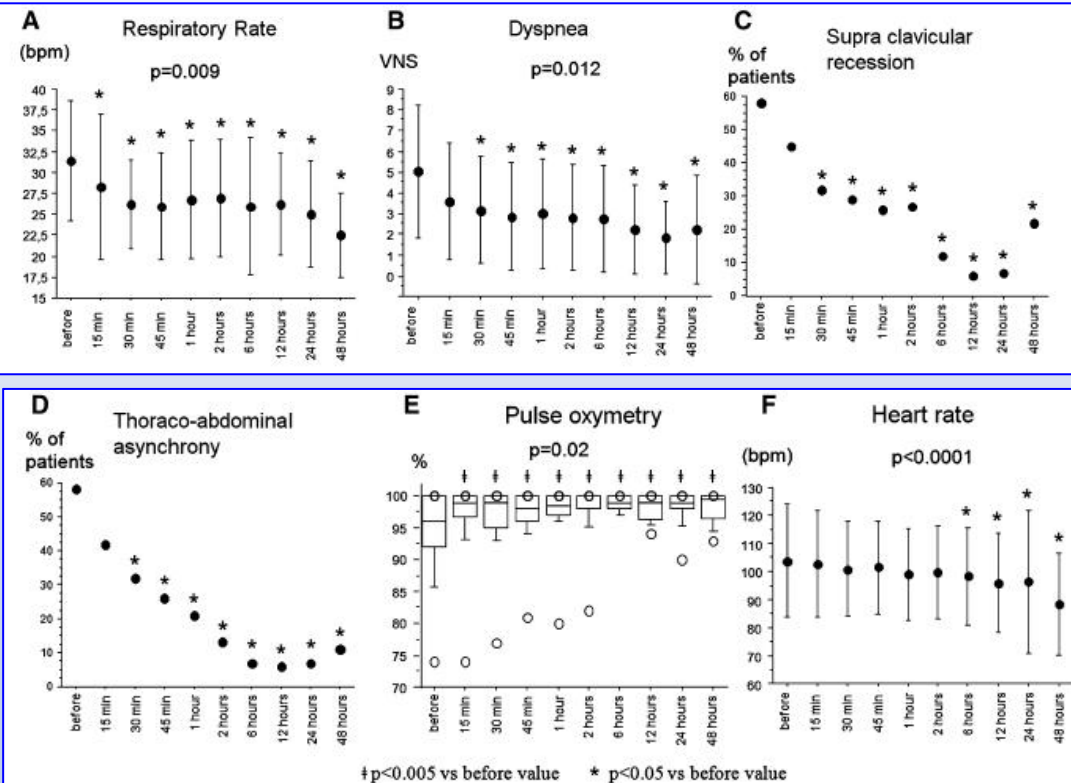
Benjamin Sztrymf
Jonathan Messika
Fabrice Bertrand
Dominique Hurel
Rusel Leon
Didier Dreyfuss
Jean-Damien Ricard

Beneficial effects of humidified high flow nasal oxygen in critical care patients: a prospective pilot study

Table 1 Patient characteristics

Age (years)	54.2 ± 15.4
Sex (f/m)	18/20
Comorbidities	
Ongoing malignancy	5
HIV infection	8
Non-HIV immunodeficiency	4
Chronic respiratory failure	6
Diabetes mellitus	3
Chronic cardiac failure	2
SAPS II	39 ± 10
ODIN score	2 ± 1
Etiology of respiratory failure	
Community-acquired pneumonia	15
H1N1 influenza infection	5
Cardiogenic pulmonary edema	5
Pneumocystis jiroveci pneumonia	2
Pulmonary embolism	2
Postoperative atelectasis	2
Aspiration pneumonia	2
Self-extubation-associated respiratory failure	1
Meprobamate drug overdose	1
Pancreatitis	1
Bronchiectasis infection	1
Gemcitabine-associated interstitial pneumonia	1
ICU length of stay (days)	7.3 ± 7.9
Length of HFNC use (days)	2.8 ± 1.8

f/m female to male ratio, SAPS II Simplified Acute Physiology Scale score, ODIN Organ Dysfunction and/or Infection score



In data 21/01
iperpiressia e

GCS=15

T=39°C

PA=115/67 mmHg

HR=97 bpm

RR= 18 atti/min

SPO2=98%

EO: MV DIFFUSO SU TU
TORACE SIMMETRICA.
TUMEFUZIONE LOM
DIGITOPRESSIONE.

ANAMNESI PATOLOGICA

ANAMNESI PATOLOGICA

dolore al rachide lobar

Esami di laboratorio:

WBC =21.230.

PCR=85.3

PCT=2.07



in **PS** lamentando

GICI, ESPANSIONE DEL

(or,dolor) DOLENTE ALLA

ergie.

onsiva a tachipirina 1000mg e

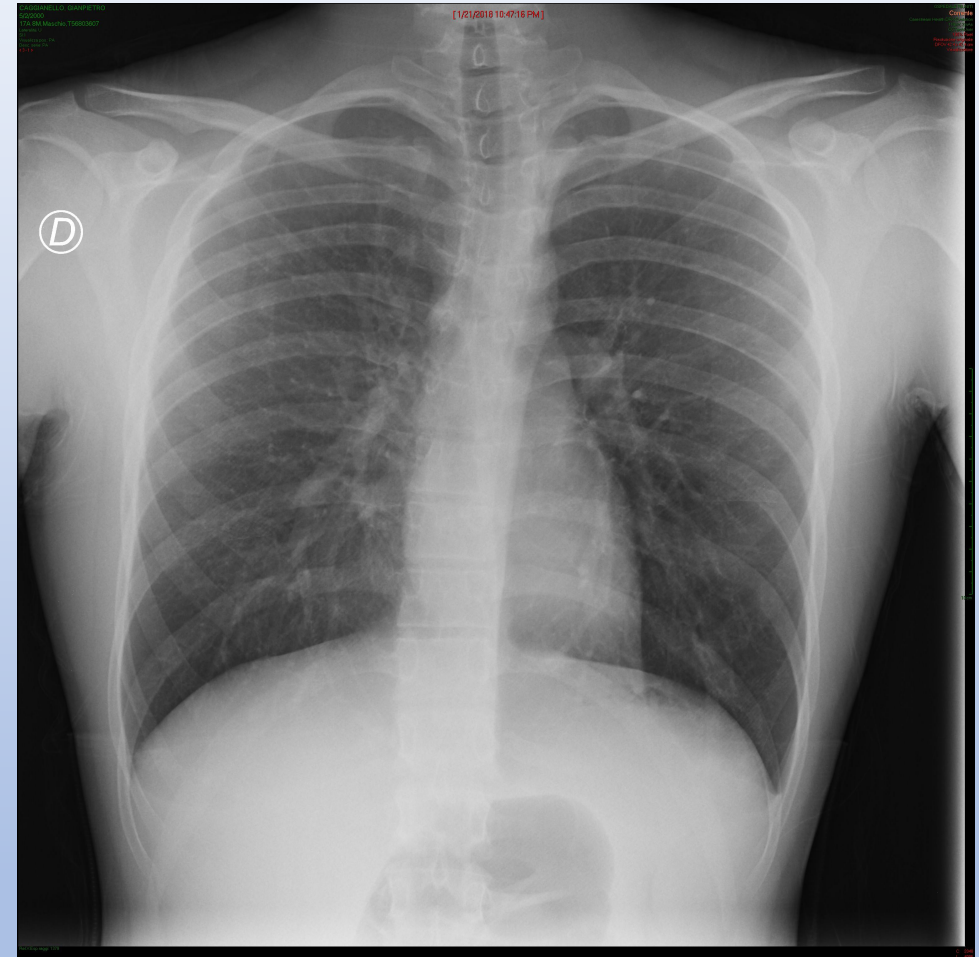
BIL Dir=0.63

ESAMI STRUMENTALI ESEGUITI :

RX TORACE

RX DIRETTA ADDOME

RX RACHIDE LOMBO DORSALE



VIENE RICOVERATO PESSO L' U.O. DI **GASTROENTEROLOGIA** PER APPROFONDIMENTI DIAGNOSTICI

IN GASTROENTEROLOGIA IL 22/01/2018.....

ECO ADD

ESAMI DI

PT% =31

PTT=35.3

INR=2.45

PCT=23.0

	n. cell./mmc	Tipo cell	Proteine	Glicor-rachia
Normale	3-5	Mononucleate	20-30 mg/dL	40-70 mg/dL
Meningite batterica	500-10.000	Gran. Neutrofili	100-500 mg/dL	<40 mg/dL
Meningite virale	50-1000	Linfo-monociti	<200 mg/dL	>45 mg/dL
Meningite TBC	50-300	Linfo-monociti	50-300 mg/dL	< 45 mg/dL

Terapia:

Rocefin 2grx2

Decadron 4mg

Mannitolo 250 mlx3

CONSULENZA INFETTIVOLOGICA

- TC cranio: negativa
- Analisi chimico fisico e colturale del liquor

- Cellularità 137
- Glucosio 67.7
- Proteine 169.4
- Lattati 40.8
- Neutofili 90%
- Colore appena paglierino
- Multiplex meningite negativo

CONSULENZA EMATOLOGICA

- Analisi genetica del campione di sangue per screening coagulopatie
- Puntura lombare

In M

EAB:pH 7.45

PCT >

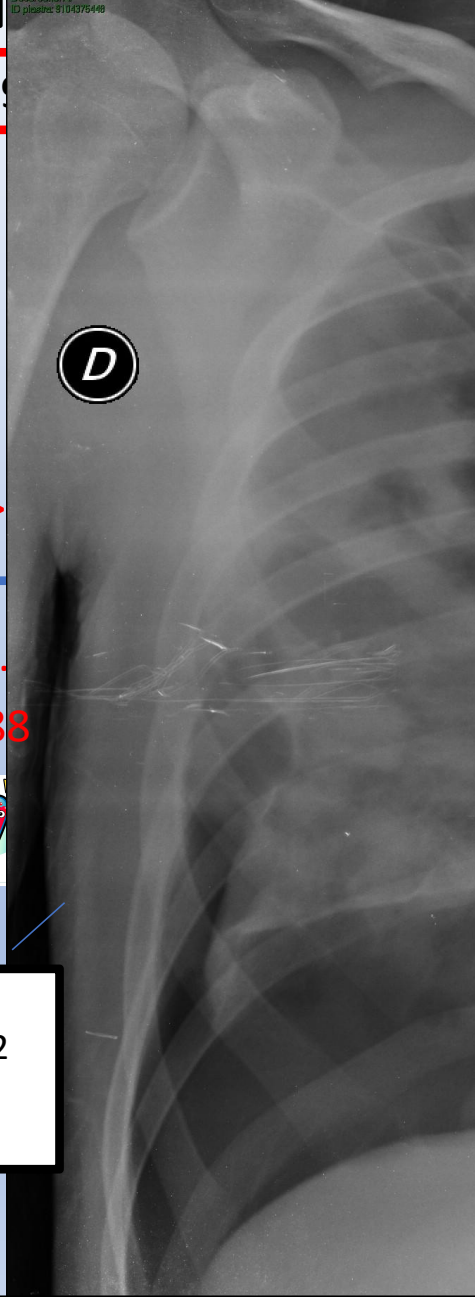
WBC 10.4

PCR 388



MERREM 1GRX4
TARGOSID 600MG X 2
ZYVOXID 600MG X2
ROCEFIN 2GRX 2

CAGGIANELLO, GIANPIETRO
5/2/2000
17A 8M, Maschio, T56803607
ID patient: 500550001
Maschiara.poa: AP
Diagnosi studio: ESAM1 P04
Data: 05/02/2000
ID physician: 9104375408



MICROBIOLOGIA

EMOCOLTURA
Mat. Biologico: SANGUE
Risultato

POSITIVO

Nome Organismo 1 Staphylococcus aureus

Markers Resistenza
Staphylococcus produttore di beta-lattamasi

Antibiogramma secondo EUCAST

ANTIBIOTICI	Organismo 1 MIC
Acido fusidico	<=0,5 S
Ciprofloxacina	<=0,5 S
Clindamicina	<=0,25 S
Daptomicina	<=0,5 S
Eritromicina	<=0,25 S
Fosfomicina d/G6P	<=16 S
Gentamicina	<=1 S
Linezolid	2 S
Moxifloxacina	<=0,25 S
Mupirocina alto livello	<=256 S
Oxacillina	0,5 S
Penicillina G	>0,25 R
Teicoplanin	<=0,5 S
Tetraciclina	<=0,5 S
Tigeciclina	<=0,25 S
Trimetoprima/sulfametossolo	>4/76 R
Vancomicina	1 S
Ceftaroline	0,5 S

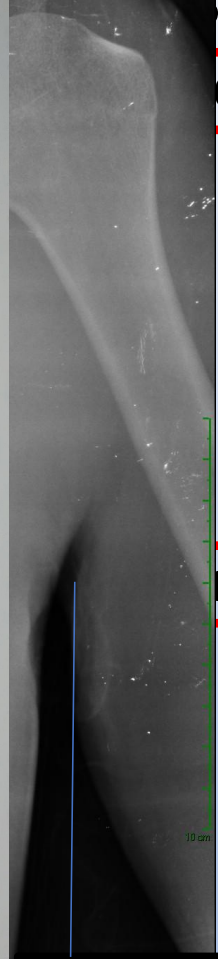
Legenda: S = Sensibile; R = Resistente; I = intermedio;

La firma autografa è sostituita dall'indicazione a stampa del nominativo responsabile, ai sensi dell' art.3 del D.L. n.39 del 12/02/1993

dott.ssa DE NITTIS ROSELLA
dott.ssa TRECCA ANGELA

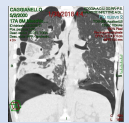
MERREM 1GRX4
LEVOXACIN 500MG
ZYVOXID 600MG X2

AZ OSPEDALE CIVILE - FORLÌ
Corrente
CARESTREAM C10074
100% Papi
Risoluzione originale
DFOV 42.8 x 35.0 cm
Visualizzatore



MERREM 1GRX4
LEVOXACIN 500MG
ZYVOXID 600MG X2
CUBICIN 500MG

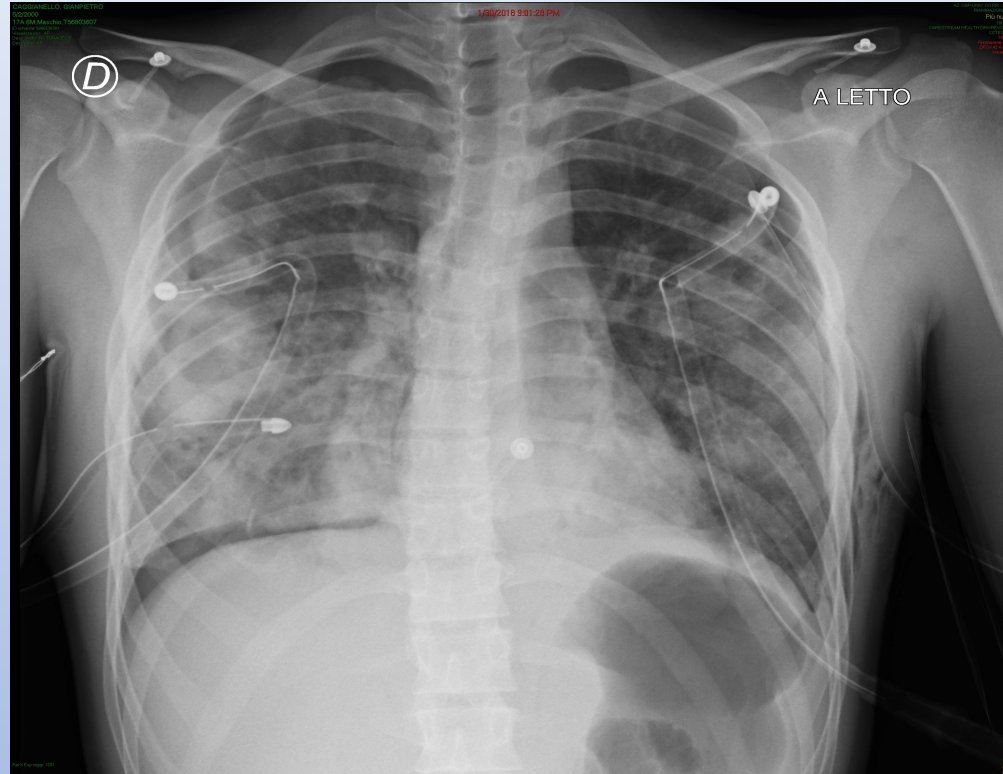
03 26.5, lat 8



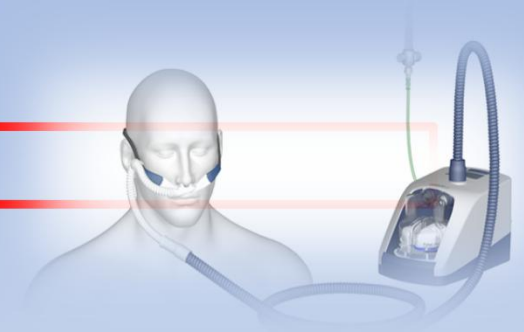
NIMAZIONE

In RIANIMAZIONE il 30/01/2018

Consulenza Ch Toracico: Si aggiungono altri due drenaggi al 2° spazio intercostale dx e sx



Inizio ventilazione non invasiva con alti flussi mediante sistema **AIRVO 35L/min**



In RIANIMAZIONE dal 30/01/2018 al 20/02/2018.....

Striscio periferico
e Tipizzazione
linfocitaria

F B S : mucosa
diffusamente
arrossata. Scarsa
quantità di materiale
denso schiumoso. BAL

MERREM 1GRX3
LEVOXACIN 500MG
CUBICIN 500MG
ZINF
ECAL

Rimosso drenaggio apicale sx e basale dx

EGA: PH 7.48, PO2108, PCO2 40, P/F225

Autoimmuni

EMOCOLTURA -

PCT 3.00 1.34

WBC 18.000 22.500

PCR 192.3



01/02



02/02

TC: Riduzione
idropnx bilaterale
maggiormente a sx.
addensamenti ed
escavazioni. Enfisema
sottocutaneo dx e
riduzione delle
tumefazioni ovalare
paraventrebrale

PENTAGLOBIN X 3 DIE

ESAME MICROSCOPICO DEL SANGUE PERIFERICO

Neutrofili %	81	
Eosinofili %	1	
Basofili %	/	
Linfociti %	10	
Monociti %	8	

altro ☐

%

= 13 %

a= %

l= 11 %

= 29 %

= %

.3= %

33= %

68= %

D123= %

D138= %

CD103= %

CD122= %

CD200= 19 %

ZINFORO 500MGX2
ECALTA

MERREM 1GRX3
ZINFORO 500MGX2

CHIRURGIA TORACICA

In CHIRUR

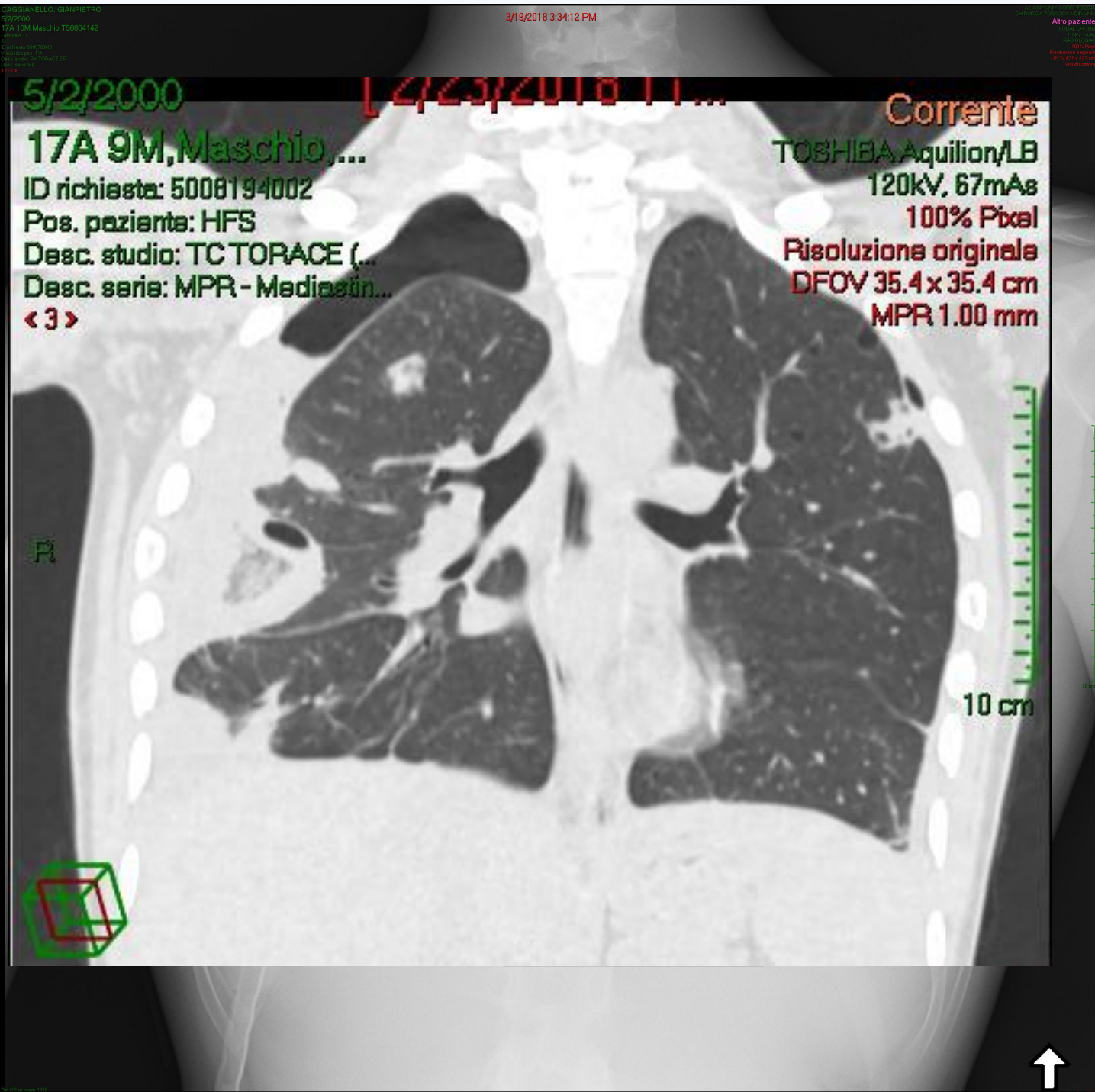


INT
CHI
Torac
bonifi

WBC	7.59
PCT	0.07
PCR	73.40

23/02

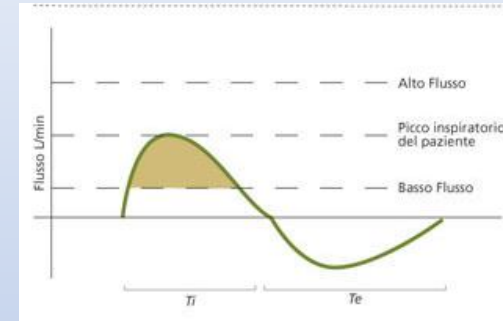
13



Problematiche:

- Gestione della ventilazione
- Gestione infettivologica
- Gestione del dolore

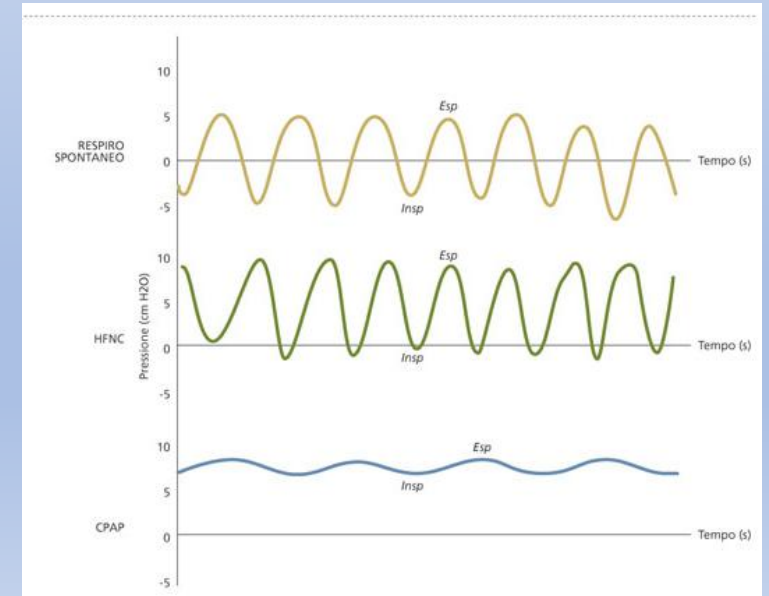
HFNC: high-flow nasal cannula



$$VI = (VT \times f) / F_{ti}$$

(VI =flusso inspiratorio in L/min, VT =Tidal volume in L, f =frequenza respiratoria in atti/min, F_{ti} =frazione inspiratoria, generalmente 0,3).

La FiO_2 dovrebbe essere impostata per raggiungere saturazioni tra il 95% e il 97%.



INDICAZIONI ALL'HFNC

- Ipossiemia ($\text{FiO}_2 < 0.60$)
- Ipercapnia lieve moderata ($\text{pCO}_2 < 45$ mmHg nella patologia restrittiva e < 55 mmHg nella ostruttiva)
- Aumento del lavoro respiratorio (aumento dell'attività dei muscoli respiratori).

Criteri di esclusione

Pazienti con distress respiratorio grave che già presentano segni di scompenso (head bobbing, respiro paradossale), tachicardici, con acidosi respiratoria o con $\text{FiO}_2 > 0.60$ dopo stabilizzazione iniziale (es. aspirazione nasale, bolo di fluidi, aerosolterapia) dovrebbero essere sottoposti a ventilazione non invasiva (NIV) o ventilazione meccanica (VM).

Potenziali complicanze

- Pneumotorace (rischio estremamente basso) da considerare comunque se instabilità clinica o aumento del lavoro respiratorio o significativo incremento della FiO_2 ;
- distensione gastrica;
- irritazione oculare da dislocamento delle cannule;
- potenziali rischi di lesioni da decubito o da dispositivi di fissaggio;
- il fenomeno della condensa nei tubi potrebbe provocare apnee;
- aumento indesiderato della pressione faringea con relativo peggioramento della auto-PEEP.

SEPSI: SOFA SCORE 5

THE SEQUENTIAL ORGAN FAILURE ASSESSMENT (SOFA) SCORE

SYSTEM	0	1	2	3	4
Respiration PaO ₂ /FIO ₂ mm Hg (kPa)	≥400 (53.3)	<400 (53.3)	<300 (40)	<200 (26.7) with respiratory support	<100 (13.3) with respiratory support
Coagulation Platelets ×10 ³ /uL	≥150	<150	<100	<50	<20
Liver Bilirubin mg/dL (umol/L)	<1.2 (20)	1.2-1.9 (20-32)	2.0-5.9 (33-101)	6.0-11.9 (102-204)	>12.0 (204)
Cardiovascular	MAP ≥70mmHg	MAP <70mmHg	Dopamine <5 or Dobutamine (any dose)	Dopamine 5.1 - 15 or Epinephrine ≤ 0.1 or Norepinephrine ≤ 0.1	Dopamine >15 or Epinephrine >0.1 or Norepi- nephrine >0.1
CNS GCS Score	15	13-14	10-12	6-9	<6
Renal Creatinine, mg/dl (umol/L) Urine Output, ml/d	<1.2 (110)	1.2 -1.9 (110-170)	2.0 - 3.4 (171- 299)	3.5 - 4.9 (300 -440) <500	> 5.0 (440) <200

Catecholamine Doses = ug/kg/min for at least 1hr

- TERAPIA ANTIBIOTICA MIRATA SU ANTIBIOGRAMMA

- BONIFICA D'INFEZIONE

TERAPIA ANTIBIOTICA.....

EMOCOLTURA		
Mat. Biologico: SANGUE		
Risultato		POSITIVO
Nome Organismo 1	Staphylococcus aureus	
<u>Markers Resistenza</u>		
Staphylococcus produttore di beta-lattamasi		
Antibiogramma secondo EUCAST		Organismo 1
ANTIBIOTICI	MIC	
Acido fusidico	<=0,5	S
Ciprofloxacina	<=0,5	S
Clindamicina	<=0,25	S
Daptomicina	<=0,5	S
Eritromicina	<=0,25	S
Fosfomicina c/G6P	<=16	S
Gentamicina	<=1	S
Linezolid	2	S
Moxifloxacina	<=0,25	S
Mupirocina alto livello	<=256	S
Oxacillina	0,5	S
Penicillina G	>0,25	R
Teicoplanin	<=0,5	S
Tetraciclina	<=0,5	S
Tigeciclina	<=0,25	S
Trimetoprima/sulfametossolo	>4/76	R
Vancomicina	1	S
Ceftaroline	0,5	S

Legenda: S = Sensibile; R = Resistente; I = intermedio;

ROCEFEN

MERREM
ZIVOXID
LEVOXACIN

CUBICIN
ZINFORO

PENTAGLOBIN

TIENAM
GENTALYN

DALACIN



INFEZIONE.....

Le Infezioni in Medicina, n. 3, 205-210, 2012

Necrotizing pneumonia caused by Panton-Valentine leukocidin-producing methicillin-susceptible *Staphylococcus aureus* (MSSA)

~~Polmonite necrotizzante causata da *Staphylococcus aureus* meticillina-sensibile produttore di leucocidina di Panton-Valentine (MSSA)~~
Vincenzo Tiberi^{1,2}, Marco Striano^{1,2}, Paoletti^{1,3}, Lina Barlati², Monica Baccarin², Daniele D. Del Monte¹, Alessandro Rubini⁴

Involvement of Panton-Valentine Leukocidin-Producing *Staphylococcus aureus* in Primary Skin Infections and Pneumonia

Gerard Lina,¹ Yves Pie-mont,² Florence Godail-Gamot,¹ François Vandenesch,¹ and Jerome Etienne¹

THE LANCET • Vol 359 • March 2, 2002

Association between *Staphylococcus aureus* strains carrying gene for Panton-Valentine leukocidin and highly lethal necrotising pneumonia in young immunocompetent patients

~~Yves Gillet, Bertrand Tssartel, Philippe Vanhems, Jean-Christophe Fournet, Gerard Lina, Michèle Bes, François Vandenesch, Yves Pie-mont, Nicole Brousse, Daniel Flaret, Jerome Etienne, CV~~

International Journal of Antimicrobial Agents 30 (2007) 289–296

Diagnosis and treatment of Panton–Valentine leukocidin (PVL)-associated staphylococcal pneumonia

M.S. Morgan *

Empiric Rx. – CA MRSA

For Community Acquired Methicillin-Resistant *Staphylococcus aureus* (CA-MRSA)

- Vancomycin or Linezolid

For Methicillin Sensitive *S. aureus* (MSSA)

- B-lactam and sometimes a respiratory Fluoroquinolone (until susceptibility results).
- Specific therapy with a penicillinase-resistant semisynthetic penicillin or Cephalosporin

<i>Burkholderia pseudomallei</i>	Carbapenem, ceftazadime	Fluoroquinolone, TMP-SMX
<i>Acinetobacter</i> species	Carbapenem	Cephalosporin-aminoglycoside, ampicillin-sulbactam, colistin
<i>Staphylococcus aureus</i> Methicillin susceptible	Antistaphylococcal penicillin [§]	Cefazolin, clindamycin
Methicillin resistant	Vancomycin or linezolid	TMP-SMX
<i>Bordetella pertussis</i>	Macrolide	TMP-SMX
Anaerobe (aspiration)	β -Lactam/ β -lactamase inhibitor, [‡] clindamycin	Carbapenem

IL DOLORE....

Lo Iasp (International Association for the Study of pain) definisce il dolore come

“una esperienza sensoriale ed emozionale spiacevole, associata ad una lesione tissutale reale o potenziale, o descritta in termini di una tale lesione”.

Il dolore della toracentesi è considerato un dolore severo dovuto alla lesione dei nervi intercostali e dall'irritazione della pleura per la presenza dei tubi di drenaggio. Il dolore è esacerbato dai movimenti.

La gestione del dolore da toracentesi necessita di un regime di analgesia multimodale che blocchi le multiple vie afferenti nocicettive.

I blocchi centrali come il Blocco Paravertebrale Toracico TPVB e l'Epidurale Toracica TEA o i blocchi di parete toracica pettorale e serrato PECS, sono le comuni pratiche di analgesia in chirurgia toracica

ANESTESIA PERIDURALE:

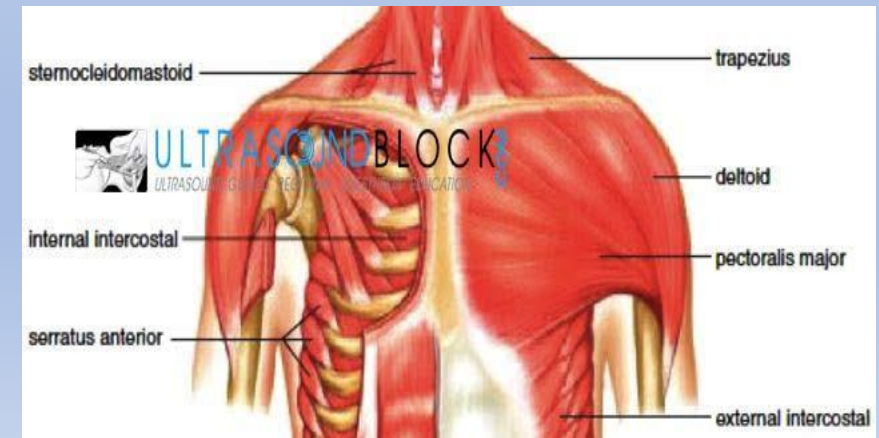
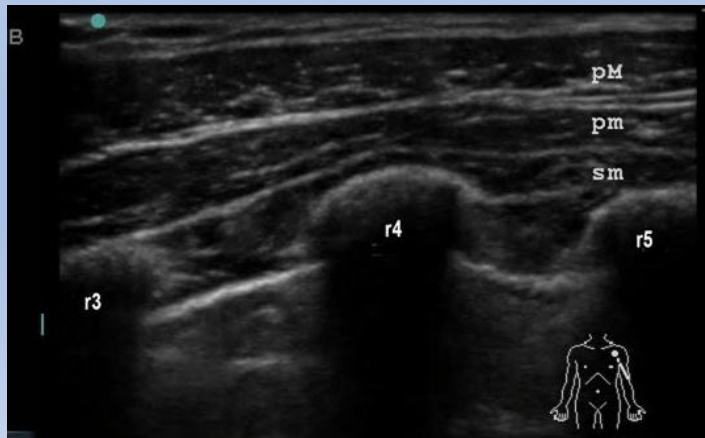
Chirocaina 0.1%+ morfina 10 mg in 240ml in 48h.

ELASTOMERO ENDOVENOSO:

morfina 40mg in 100 ml in 48h.

PECS BLOCK2:

Iniezione di 20 ml di chirocaina 0,25% + clonidina 25mcg tra il muscolo grande e piccolo pettorale, ed anche tra il piccolo pettorale ed il serrato.





Grazie per l'attenzione