SERVIZIO SANITARIO REGIONALE
EMILIA-ROMAGNA
Azienda Ospedaliero - Universitaria di Ferrara

Workshop
La gestione multidisciplinare della
complessità delle infezioni
endoaddominali:
esperienze a confronto

Ferrara, 27 Novembre 2015
Azienda Ospedaliera-Universitaria Ferrara
Nuovo "Arcispedale S. Anna"
Polo Ospedaliero Cona
Aula Congressuale

Sepsi addominale: approccio intensivistico

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Paz di aa 38

✓ Anamnesi silente

✓ Da circa 10 gg: febbre con brivido, dolore addominale. Alvo diarroico. Calo ponderale 10 kg in 10 gg.

✓ 8/11: viene sottoposto a laparotomia: multiple raccolte purulente a livello del cavo retto-vescicale, doccia parieto-colica dx fino alla loggia diaframmatica e loggia splenica. Appendice necrotica e sofferenza ileo terminale. Si procede a: appendicectomia e resezione ileo terminale; laparostomia.

✓ Effettuati ripetuti tentativi di chiusura della laparostomia.

✓ 13/11: confezionamento della anastomosi ileo-colica (ancora laparostomia per edema delle anse (PIA 9-13 mmHg)

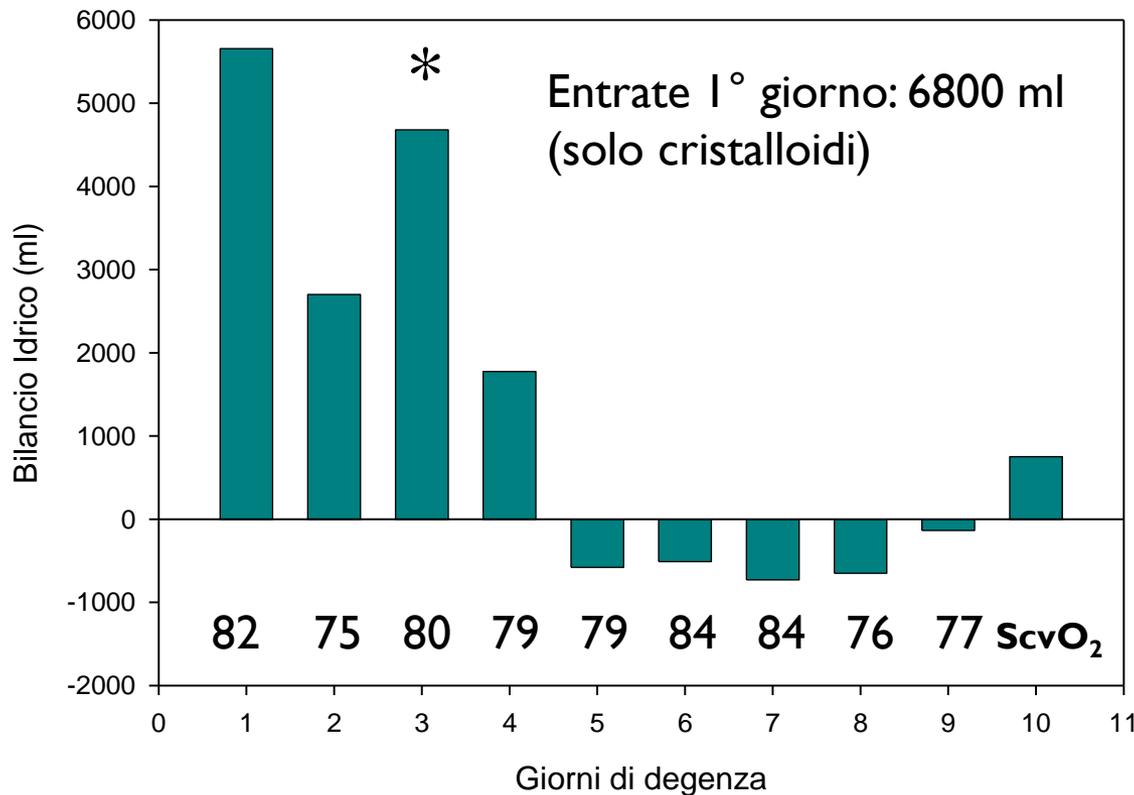✓ 16/11: chiusura della laparostomia

✓ 17/11: estubato

✓ 20/11: dimesso

Problemi clinici riscontrati

Trattamento shock settico di origine addominale

In particolare:

- Riferita ipovolemia (Na$^+$: 127mEq/L; Cl$^-$: 88mEq/L !) e ipotensione

Entrate 1° giorno: 6800 ml (solo cristalloidi)

ScvO$_2$: 82 75 80 79 79 84 84 76 77

Bilancio Idrico (ml) / Giorni di degenza

Conservative fluid management with 2 consecutive days of negative balance within the first week is a strong predictor of survival (Murphy, Chest 2009)

* Sospensione noradrenalina

≋ CHEST™

Increased Fluid Administration in the First Three Hours of Sepsis Resuscitation Is Associated With Reduced Mortality
A Retrospective Cohort Study

Sarah J. Lee, MD, MPH; Kannan Ramar, MBBS, MD; John G. Park, MD, FCCP; Ognjen Gajic, MD, FCCP; Guangxi Li, MD; and Rahul Kashyap, MBBS

CONCLUSIONS: Earlier fluid resuscitation (within the first 3 h) is associated with a greater number of survivors with severe sepsis and septic shock.   CHEST 2014; 146(4):908-915

Fluid received in hours 0-3, mL	1,600 (600 to 3,010)	2,085 (940 to 4,080)	.007ᵃ
Fluid received in hours 3.1-6, mL	880 (360 to 1,680)	660 (290 to 1,485)	.09
Total fluid received in 6 h, mL	2,875 (1,390 to 47,20)	3,150 (1,630 to 5,665)	.10

TABLE 2] Clinical Hemodynamic Outcomes

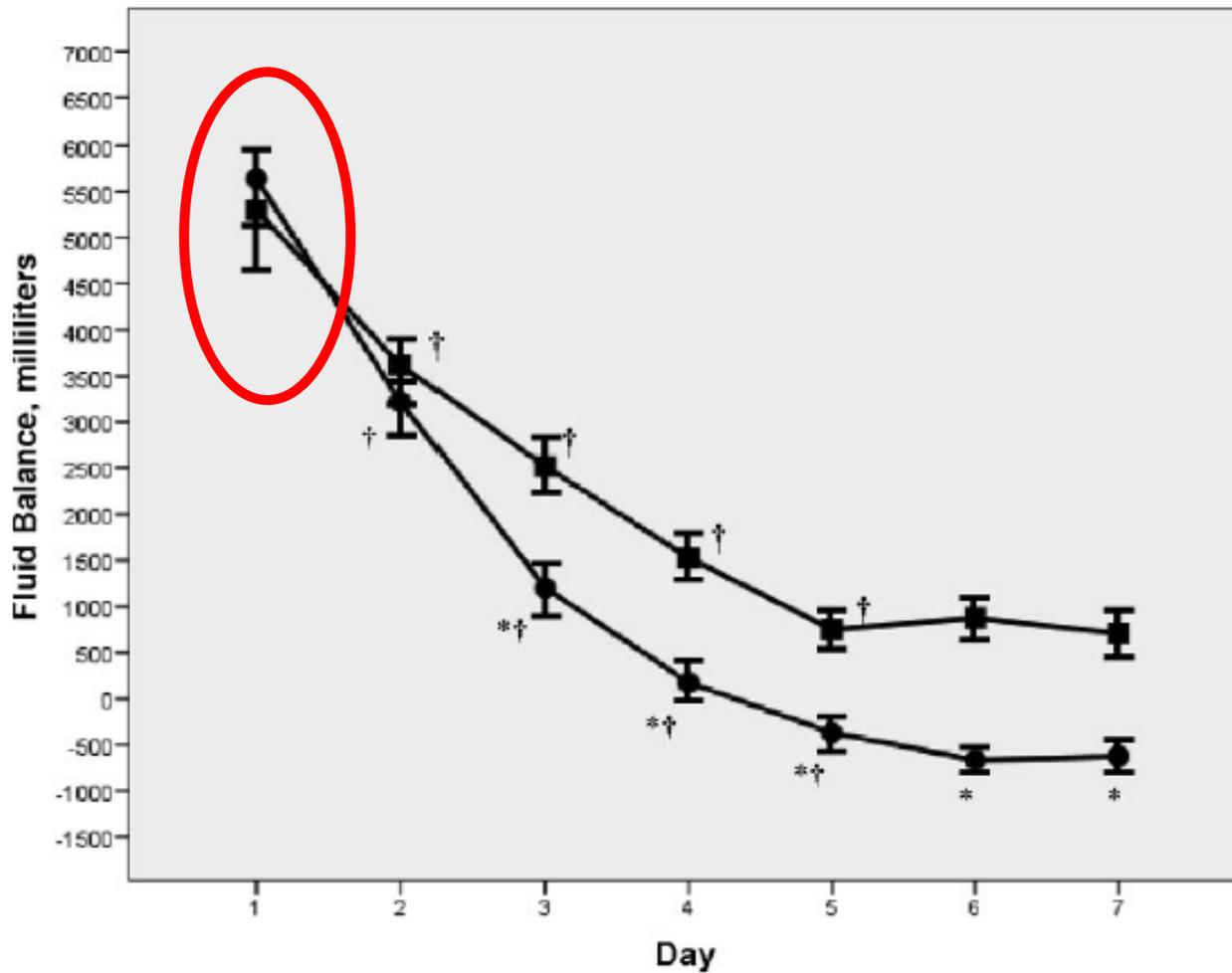| Variable	Nonsurvivors	Survivors	P Value
CVP in hour 6, cm H_2O	10 (5-16) (n = 88)	10 (5-14) (n = 279)	.52
MAP in hour 6, mm Hg	64.5 (59-72) (n = 142)	68.5 (62-77) (n = 452)	< .01ᵃ
Scvo₂ in hour 6	68.5 (61-78) (n = 75)	73 (68-78) (n = 252)	< .01ᵃ
Vasopressor use in first 24 h, %	76 (n = 108)	54 (n = 242)	< .01ᵃ
Oliguria in hour 6, %	71 (n = 101)	41 (n = 186)	< .01ᵃ
SOFA score day 1	8 (6-12) (n = 142)	6 (4-9) (n = 452)	< .01ᵃ

Paura dei «troppi» liquidi??
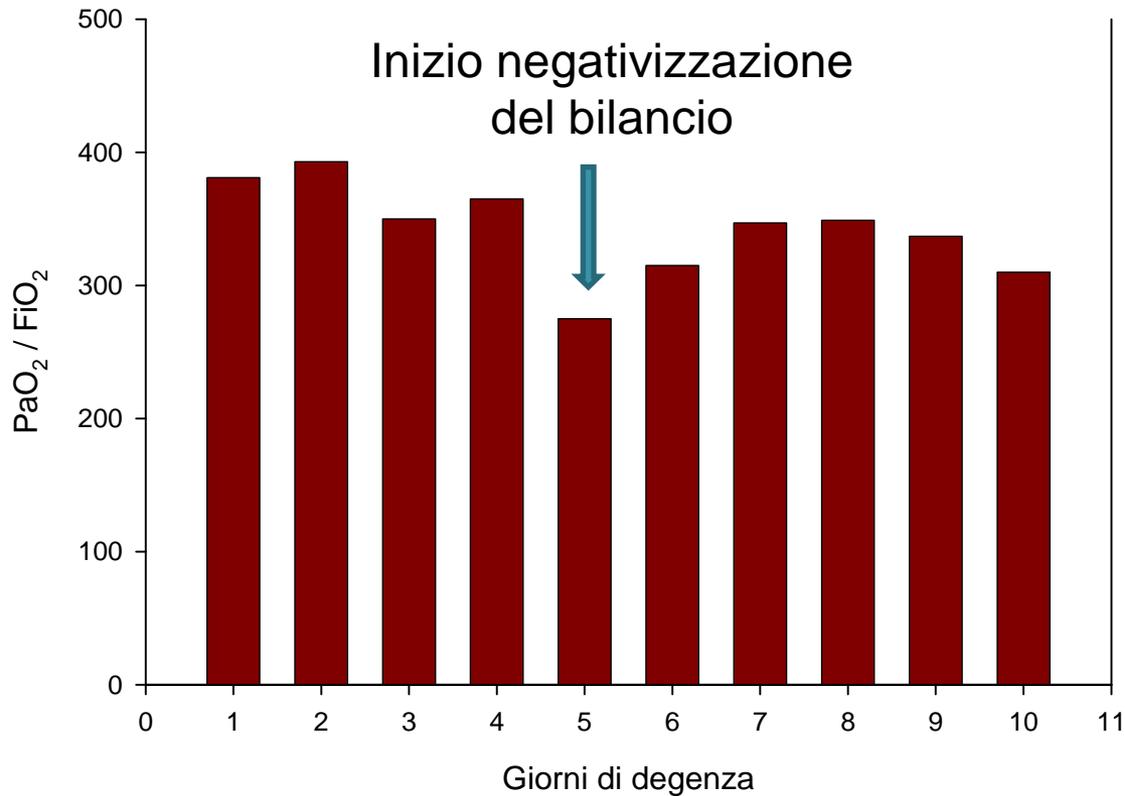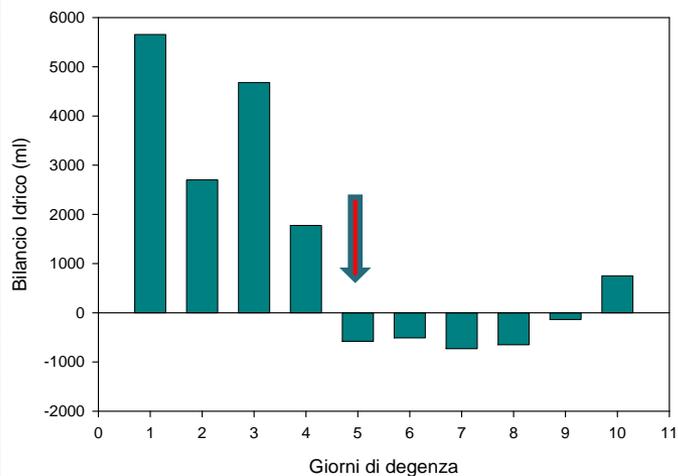
FIGURE 1. Mean (± SE) daily fluid balance (in milliliters) for days 1 through 7 following the onset of septic shock. Nonsurvivors are depicted by squares, and survivors by circles. * = p < 0.05 pairwise compared between survivors and nonsurvivors (ANOVA for repeated measures); † = p < 0.05 compared with the previous time point (ANOVA for repeated measures).
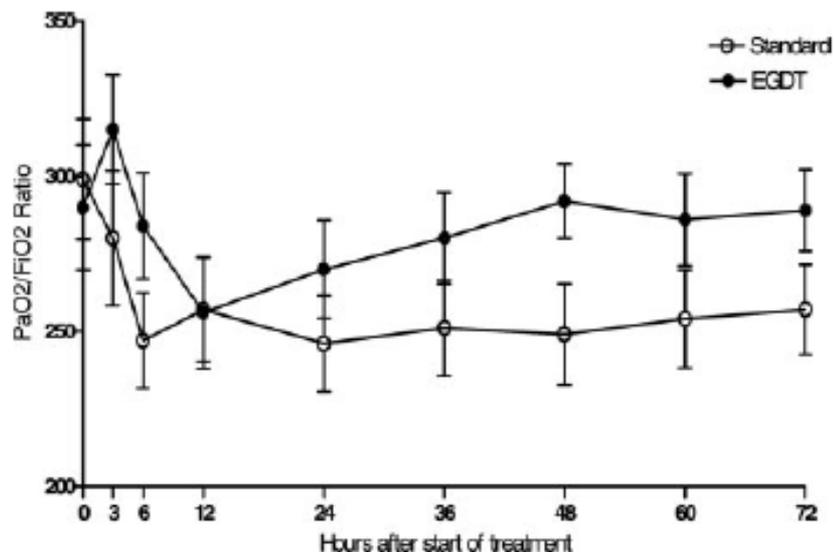
Murphy et al: Chest 2009; 136:102-109

FIGURE 4. Comparing the PaO_2/fraction of inspired oxygen (FIO_2) ratios between the EGDT and standard-care groups. Despite more volume resuscitation in the EGDT group during initial 6 h, there was no net difference in PaO_2/FIO_2 ratio ($p = 0.34$).
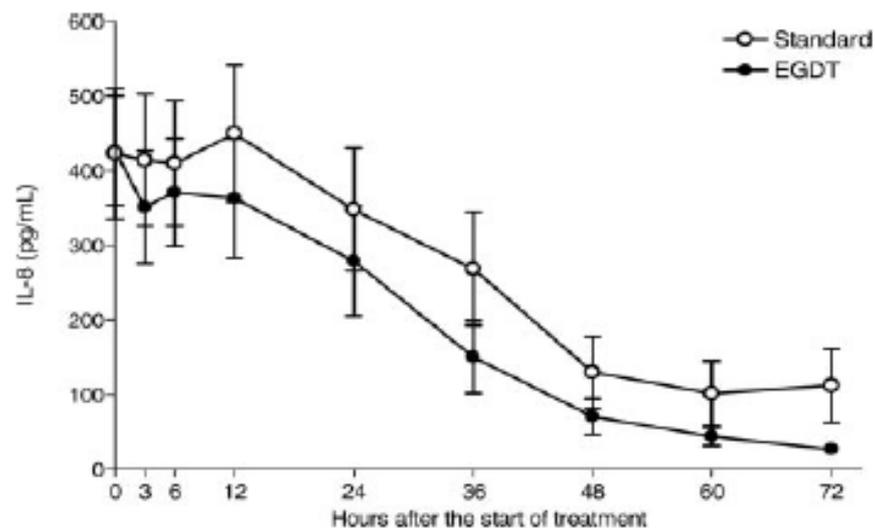

FIGURE 5. The effect of EGDT on inflammation. EGDT effects on inflammation (IL-8) associated with ALI. EGDT patients had a corresponding lower level of IL-8 and a decreased rate of mechanical ventilation in the subsequent 7 to 72 h time period ($p = 0.045$).

(CHEST 2006; 130:1579–1595)

Problemi clinici riscontrati

Shock settico di origine addominale: quando? Appena possibile

RESEARCH ARTICLE　　　　　　　　　　　　**Open Access**

The impact of early surgical intervention in free intestinal perforation: a time-to-intervention pilot study

Andreas Hecker[1*†], E. Schneck[2†], R. Röhrig[2], F. Roller[3], B. Hecker[2], J. Holler[1], C. Koch[2], M. Hecker[4], M. Reichert[1], C. Lichtenstern[2], G. A. Krombach[3], W. Padberg[1] and M. A. Weigand[2]

Sopravvivenza:　　　80% gruppo 1 (intervento precoce < 180 min)
　　　　　　　　　　　75% gruppo 2 (intervento tra 180 and 540 min)
　　　　　　　　　　　73% gruppo 3 (intervento > 540min)

Conclusions: Literature on the time dependency of early source control is rare and in part contradicting. Results of this pilot study reveal that immediate surgical intervention might be of advantage for septic emergency patients. Further multi-center approaches will be necessary to evaluate, whether the TTI has any impact on the outcome of septic patients with intestinal perforation.

Shock settico di origine addominale:

laparostomia _(EDEMA DELLE ANSE)_ e chiusura dell'ileo

WORLD JOURNAL OF
EMERGENCY SURGERY

RESEARCH ARTICLE   **Open Access**

CrossMark

The duration of intra-abdominal hypertension strongly predicts outcomes for the critically ill surgical patients: a prospective observational study

Kyu-Hyouck Kyoung[1] and Suk-Kyung Hong[2*]

Intra –abdominal Hypertension: > 12 mmHg
Abdominal compartmenet syndrome: > 20 mmHg

Results: Of the 46 patients enrolled in the study, 42 developed IAH while in the SICU. The development of IAH aggravated the clinical outcomes; such as longer SICU stay, requirement of ventilator support, and delayed initiation of enteral feeding (EF). The IAH duration showed a significant correlation with pulmonary, renal, and cardiovascular function, and enteral feeding. The IAH duration was an independent predictor of 60-day mortality (odds ratio: 1.196; $p - 0.014$).
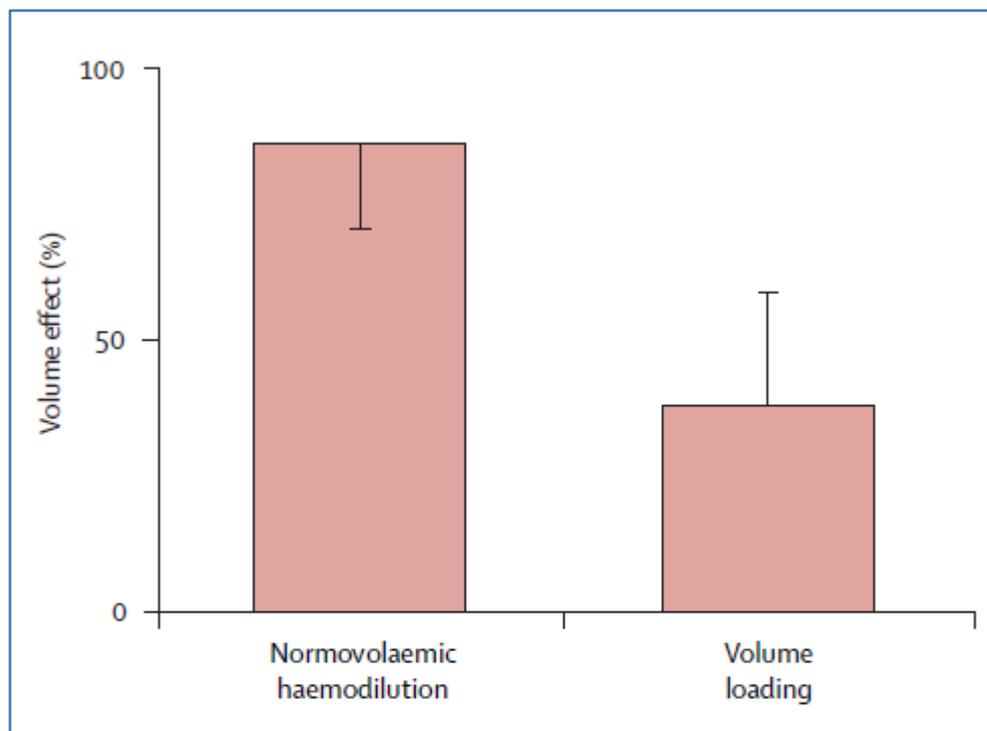
Conclusions: The duration of IAH is a more important prognostic factor than the development of IAH; thus every effort should be made to reduce the IAH duration in critically ill patients.

Pressione intraddominale: 10 mmHg (gg1-4); 9 (gg 5-6); 5/6 (rimanenti giorni)

Edema perchè?

1) Infiammazione / infezione
2) Fluido -terapia

Figure: Context-sensitivity of volume effects of iso-oncotic colloids in normovolaemic individuals

Experiment used 5% human albumin. Normovolaemic haemodilution=removal of mean 1150 (SD 196) mL blood and simultaneous replacement by 1333 (204) mL colloid (n=15).[8] Volume loading=infusion of 1379 (128) mL colloid (n=10).[9] Bar=SD, difference $p < 0.05$.

Jacob, The Lancet 2007

TIMING ???

REVIEW ARTICLE

CRITICAL CARE MEDICINE

Simon R. Finfer, M.D., and Jean-Louis Vincent, M.D., Ph.D., *Editors*

Circulatory Shock

Jean-Louis Vincent, M.D., Ph.D., and Daniel De Backer, M.D., Ph.D.

Fluids should be infused rapidly to induce a quick response but not so fast that an artificial stress response develops; typically, an infusion of 300 to 500 ml of fluid is administered during a period of 20 to 30 minutes.[13]

Shock settico di origine addominale:

laparostomia

❑ In una analisi retrospettiva su 278 pazienti, i laparostomizzati avevano una riduzione della degenza ospedaliera ed una minore mortalità. La laparostomia è stata individuata come un predittore undipendente di sopravvivenza (Lamme B et al, Br J Surg 2004)

❑ Un randomizzato invece su 232 pazienti non trova differenze (von Ruler et al, JAMA 2007)

chiusura dell'ileo

❑ Studio retrospettivo su 112 pazienti (chiusura vs confezionamento anastomosi; tutti laparostomizzati): non differenze in mortalità (12 vs 17%) ma quelli con confezionamento anastomosi avevamo molte più resezioni coliche (47 vs 80%); ARDS più frequenti (18 vs 31%) (Ordonez et al. World J Surg 2010)

Problemi clinici riscontrati

Trattamento shock settico di origine addominale

- Terapia antibiotica empirica

✓ 8/11: Amox / clav 2.2 gr x 4 e.v

Amikacina 1 gr e.v.

Metronidazolo 500 mg x 4 e.v.

Monitoraggio: Procalcitonina

(3.9 ng/ml (II g) → 1.4 (IV g) → 0.45 (VI g) → 0.2 (VIII g) → 0.15 (X g)

Isolamenti 8/11: E. Coli e Bacteroides Fragilis (colturali intraoperatori)

13/11: S. Haemoliticus met. resistente (addome)

16/11: Candida Albicans (addome): aggiunto fluconazolo

Sempre negativi BASP e emocolture

ORIGINAL ARTICLE

Trial of Short-Course Antimicrobial Therapy for Intraabdominal Infection

R.G. Sawyer, J.A. Claridge, A.B. Nathens, O.D. Rotstein, T.M. Duane, H.L. Evans,
C.H. Cook, P.J. O'Neill, J.E. Mazuski, R. Askari, M.A. Wilson, L.M. Napolitano,
N. Namias, P.R. Miller, E.P. Dellinger, C.M. Watson, R. Coimbra, D.L. Dent,
S.F. Lowry,* C.S. Cocanour, M.A. West, K.L. Banton, W.G. Cheadle,
P.A. Lipsett, C.A. Guidry, and K. Popovsky

CONCLUSIONS

In patients with intraabdominal infections who had undergone an adequate source-control procedure, the outcomes after fixed-duration antibiotic therapy (approximately 4 days) were similar to those after a longer course of antibiotics (approximately 8 days) that extended until after the resolution of physiological abnormalities. (Funded by the National Institutes of Health; STOP-IT ClinicalTrials.gov number, NCT00657566.)

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Conseguenze:

❖ La terapia antibiotica è rilevante in caso di adeguato «surgical source control»?

> Bloos et al (Crit Care Med 2014): «for patients requiring surgical source control, the only independent risk factor for death at 28 days was the delay in source control of more than 6 hours. Neither the timing of antimicrobial initiation not the adequacy of empirical treatment was associated with mortality»

❖ Non applicabile se il «source control» non è adeguato

❖ Applicabile con qualsiasi «isolamento»?

❖ Può essere applicato alla terapia per infezione fungina addominale (11% dei pazienti) dotata di alta mortalità (Montravers et al; CCM 2006)?

Inhospital Mortality

SMR della nostra ICU (2013): 0.75

*Progressiva riduzione della mortalità per shock settico
2004 – 2012: (-28%)*

1) Uso della noradrenalina (al posto della dopamina)
2) Riduzione progressiva del dosaggio
3) Minore durata della infusione di farmaci vasoattivi (da 4.2 a 2,1 giorni)

Corretto uso della terapia antibiotica

(-19% consumo ATB)

In conclusione:

➢ Alcune domande sono in attesa di risposta.. Se qualcuno volesse…

➢ Anche se ogni parametro di valutazione è stato spesso criticato, la valutazione clinica associata a quei parametri che riteniamo essere importanti per _quel paziente_, dovrebbero aiutarci nel prendere le giuste decisioni

➢ Probabilmente dobbiamo fare tutto «early» tutti!

➢ Proviamo a non considerare ipotensione = ipovolemia: i fluidi salvano la vita «early» ma poi….