ERAS IN SALA OPERATORIA

CHIRURGIA BARIATRICA
Dr M.Scarcella

ERAS GROUP Azienda Ospedaliera Santa Maria di Terni

In base a

- DISPOSITIVI DISPONIBILI
- ALLE LINEE GUIDA ERAS-SIAARTI PER IL PZ OBESO
- ALLE LINEE GUIDA 2018 ERAS PER LA CHIRURGIA GASTRICA
- LINEE GUIDA ERAS UK

PREOPERATORIO

- Il pz può assumere liquidi chiari fino a 2 ore prima dell'intervento chirurgico e fino a 6 ore prima per i cibi solidi.(da valutare nel pz diabetico affetto da neuropatia autonomia, nel paziente obeso e nel paziente affetto da reflusso gastroesofageo)
- iniziare un approccio multimodale alla terapia del PONV secondo lo score di Apfel
- Utilizzare benzodiazepine a breve emivita per la sedazione in preanestesia

INDUZIONE

- preossigenare il pz
- condurre l'induzione anestesiologica con tecnica endovenosa o bilanciata in base alle caratteristiche del paziente
- ventilare il paziente con tecnica 'Lung protective ventilation' (TAB1)
- monitorare il blocco neuromuscolare del paziente utilizzando il TOF-GUARD (il blocco neumuscolare profondo migliora la performance chirurgica; assicurare il reversal block completo migliora il postoperatorio del paziente)
- monitorare la profondità dell'anestesia con la tecnica BISpectral index per evitare l'oversedation da oppiacei e l' undersedation

MANTENIMENTO DELL'ANESTESIA

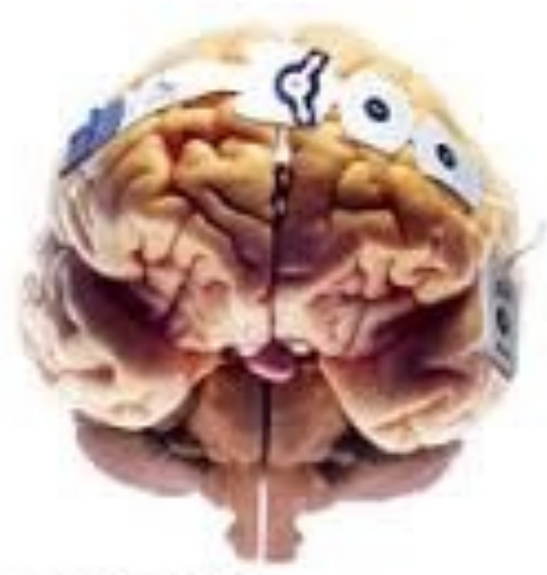
- Utilizzare tecniche TIVA/TCI ove possibile
- prediligere oppiacei a rapida emivita ed un'anestesia opioid sparing
- prediligere l'utilizzo del desfluorane se possibile
- iniziare il protocollo di prevenzione PONV (TAB 2)
- effettuare un approccio multimediale al controllo del dolore postoperatorio utilizzando paracetamolo e fans ev
- Posizionare cateteri per infiltrazione continua delle ferite o infiltrare con ropivacaina e mepivacaina le ferite chirurgiche
- effettuare il tap block nella chirurgia open

BISPECTRAL INDEX

- POSIZIONARE GLI ELETTRODI COME NELLA FIGURA
- OTTENERE UN VALORE DI BIS TRA 40-60

PIANO ANESTESIOLOGICO "PROFONDITÀ DELL'ANESTESIA"

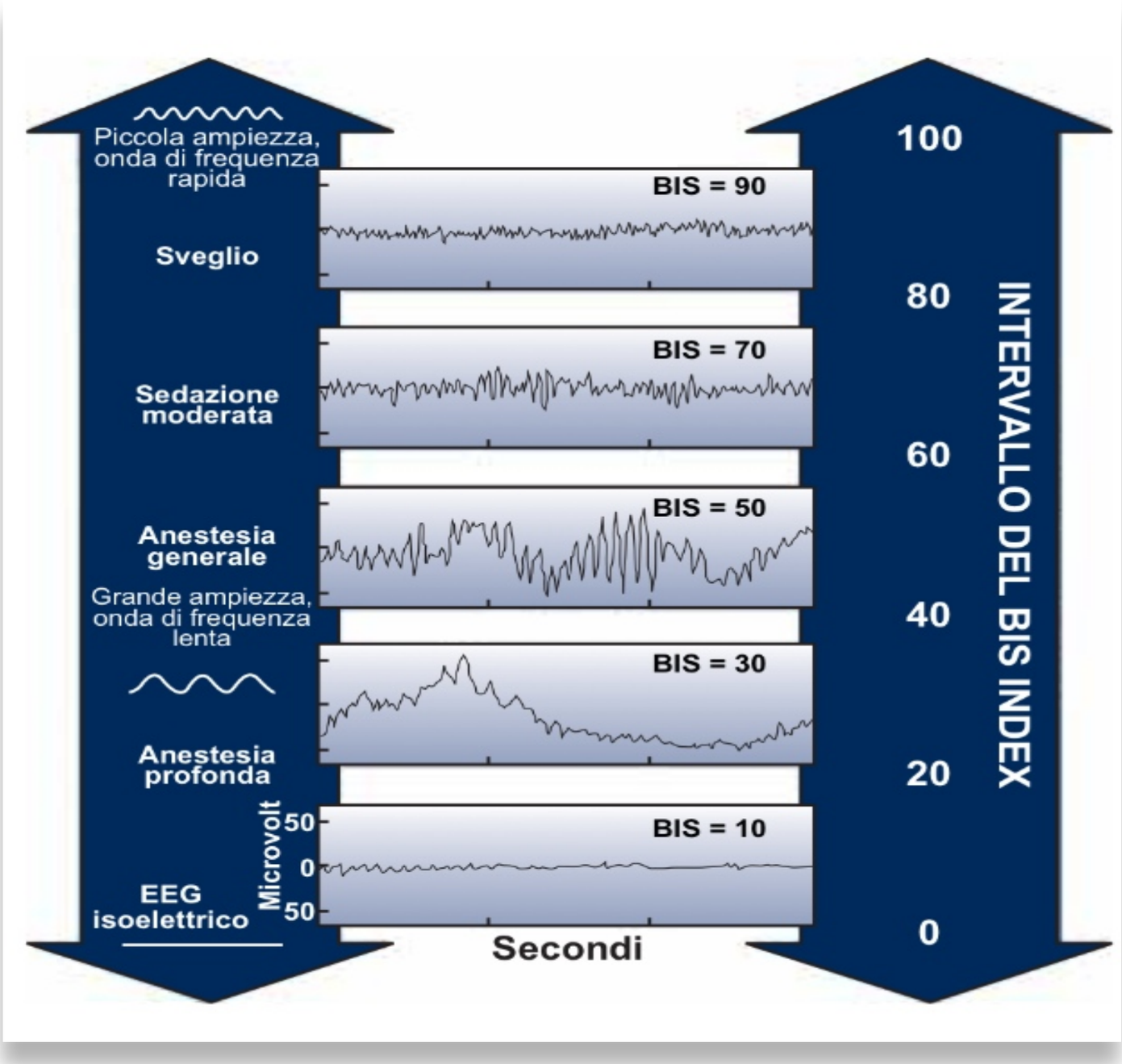
BISPECTRAL INDEX

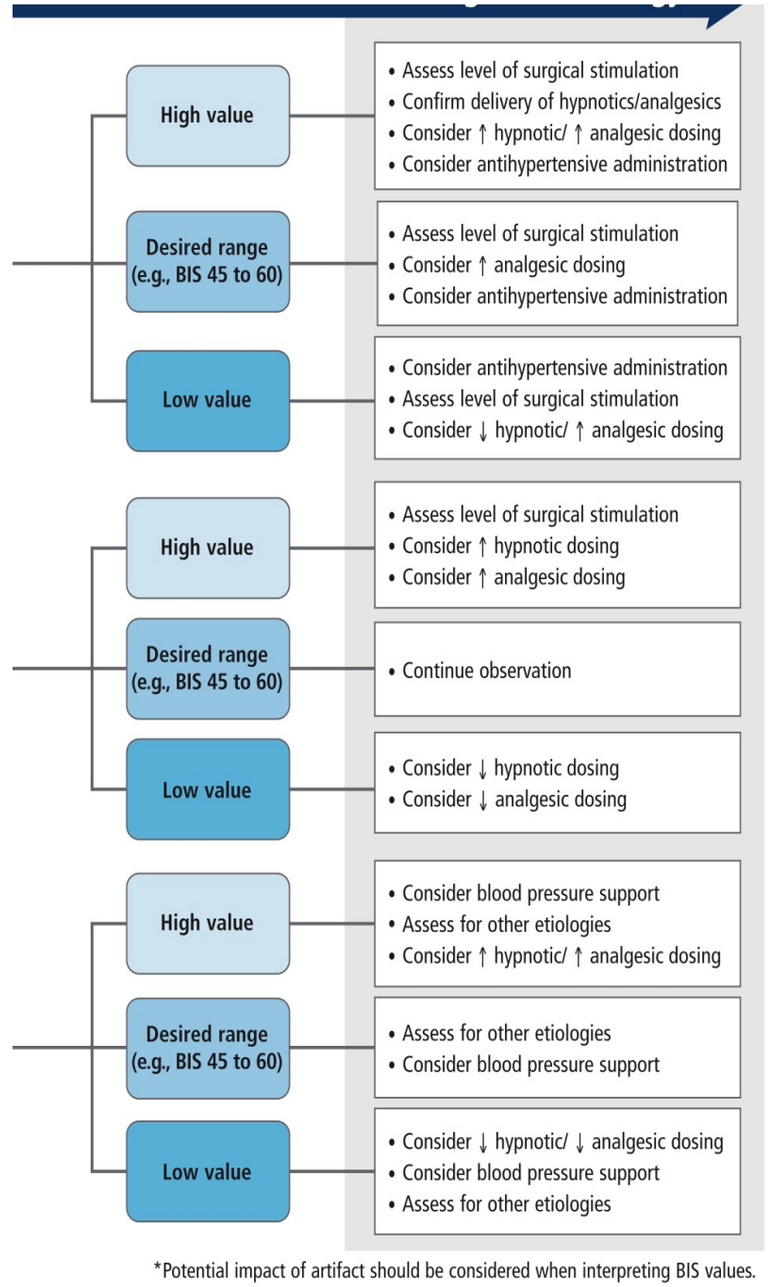


BRAIN TEASER
Study questions widespread use of bispectral index monitoring.

Il Bispectral index rileva l ‘attivita elettrica corticale superficiale digitalizzando l’ EEG in un numero relato con lo stato di veglia del paziente

Cruising BIS





*Potential impact of artifact should be considered when interpreting BIS values.

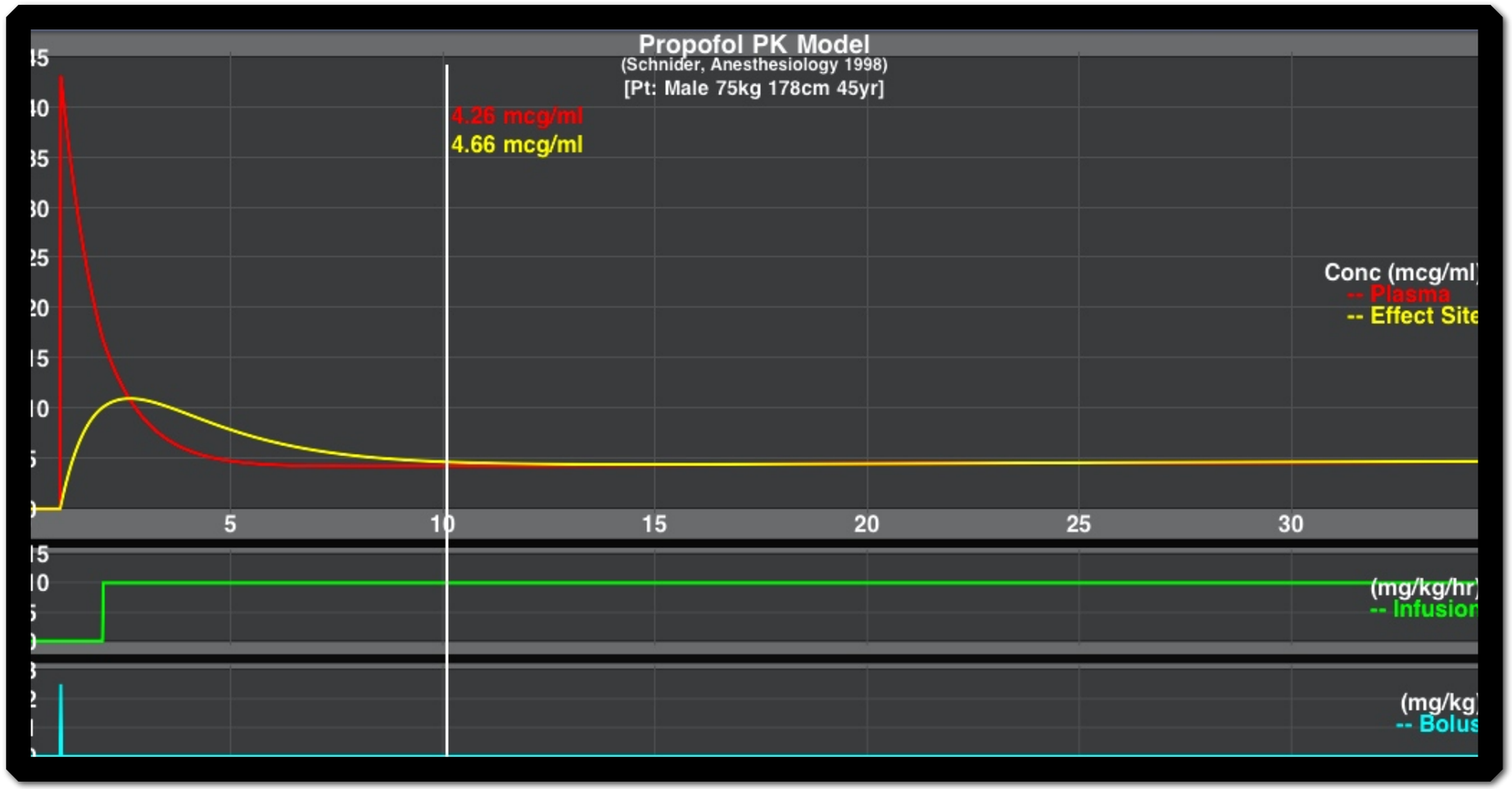
TCI

- IN CASO DI TECNICA TCI UTILIZZARE L'ALGORITMO DI SCHNIDER CON MODALITA' SITO EFFETTORE CONSIDERANDO IL PESO IDEALE

PIANO ANESTESIOLOGICO

"PROFONDITÀ DELL'ANESTESIA"

TIVA/TCI

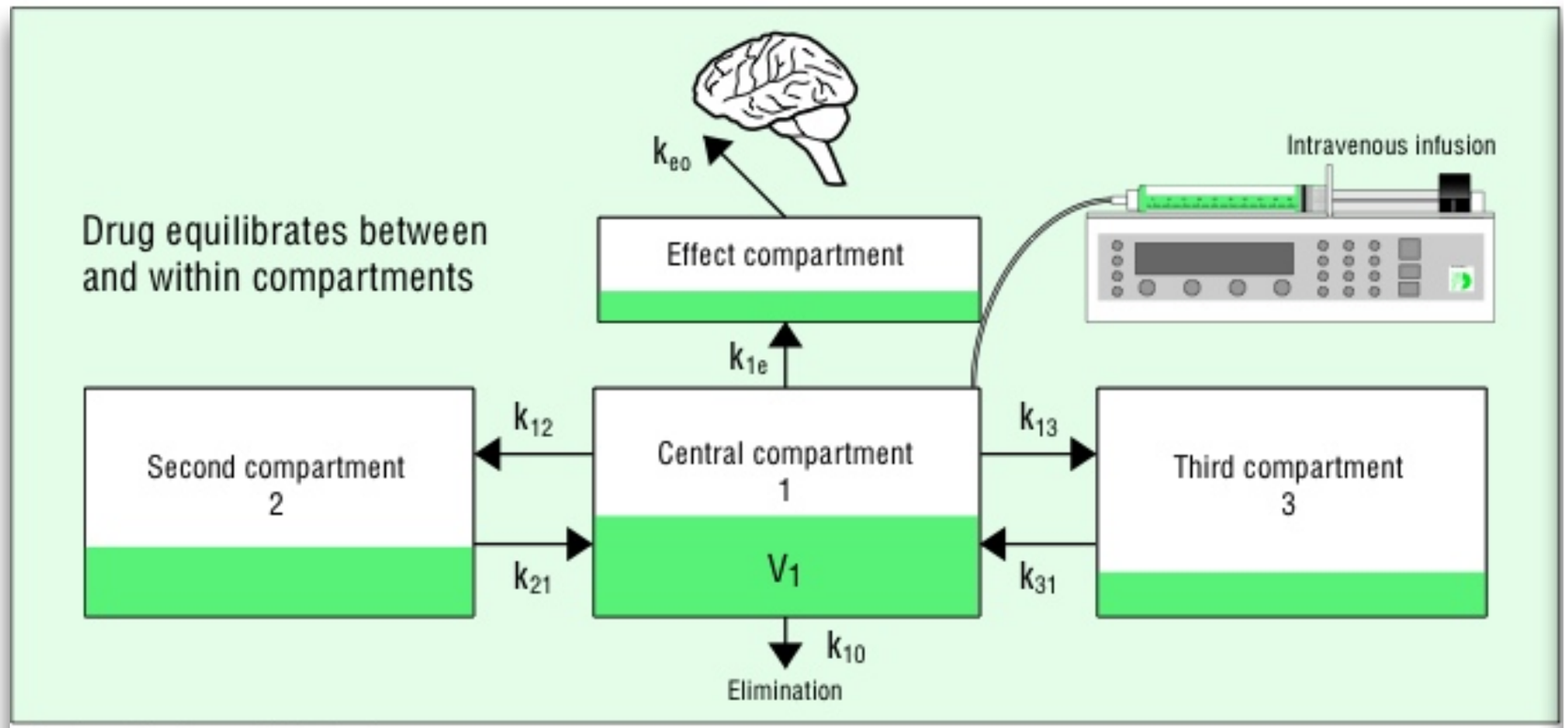


Questo algoritmo permette di calcolare in maniera iterativa la velocità di infusione richiesta per raggiungere la concentrazione target desiderata e trasmette questo ordine alla pompa. La velocità di infusione è basata sul classico regime di infusione descritto nel 1968 da Kruger - Thiemer [8] e conosciuto come "schema BET", composto da un Bolo iniziale destinato a riempire il compartimento centrale, seguito da un' infusione costante per sostituire il farmaco Eliminato dal corpo e associato ad una velocità di infusione che decresce in modo esponenziale per sostituire il farmaco Trasferito ai tessuti periferici. Di conseguenza, la TCI permette il mantenimento del profilo di concentrazione target desiderato e la sua modifica in relazione alle necessità cliniche.

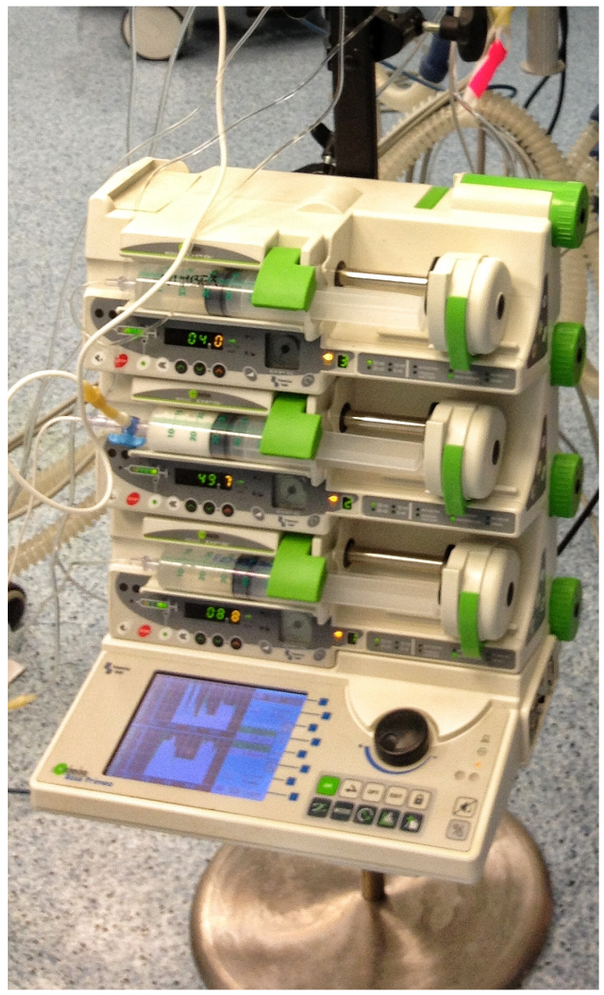
PIANO ANESTESIOLOGICO

"PROFONDITÀ DELL'ANESTESIA"

MODELLO FARMACOCINETICO TRICOMPARTIMENTALE



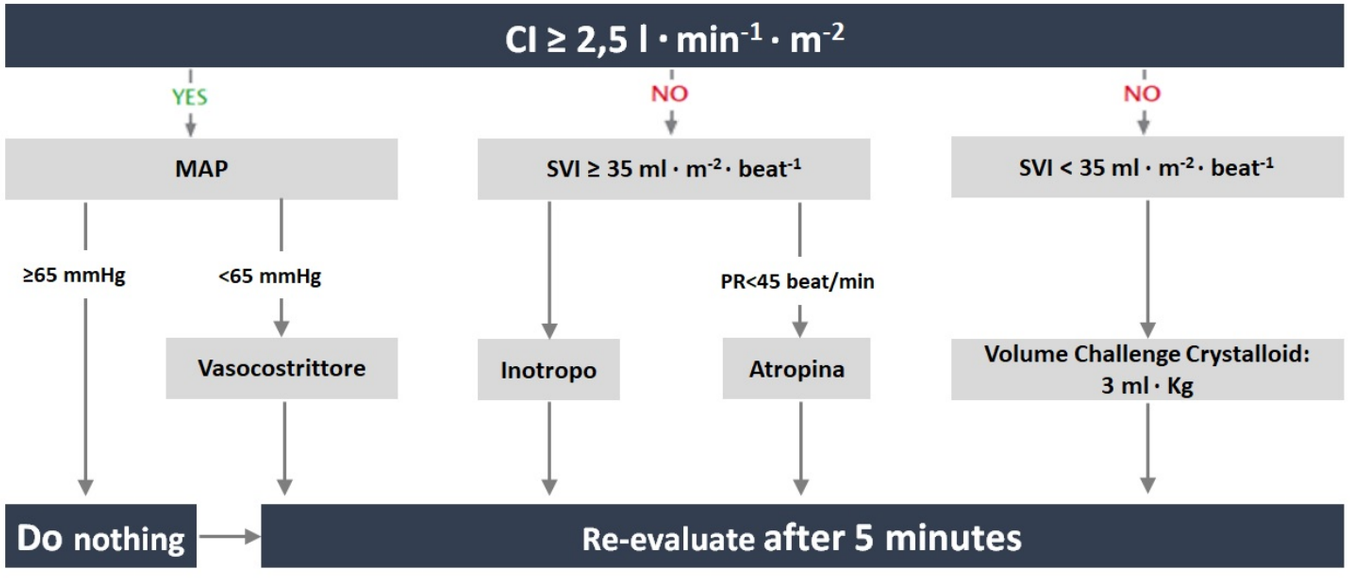
Central compartment represents blood or plasma
Second compartment could represent the highly perfused tissues
Third compartment could represent the poorly perfused tissues
k_{21} k_{12} k_{31} k_{13} and k_{1e} are intercompartmental distribution rate constants i.e. they describe the proportions of drug exchanged between compartments per unit time
k_{10} is the elimination rate constant from the central compartment
k_{e0} is the rate constant describing drug elimination from the effect site.



FLUIDOTERAPIA

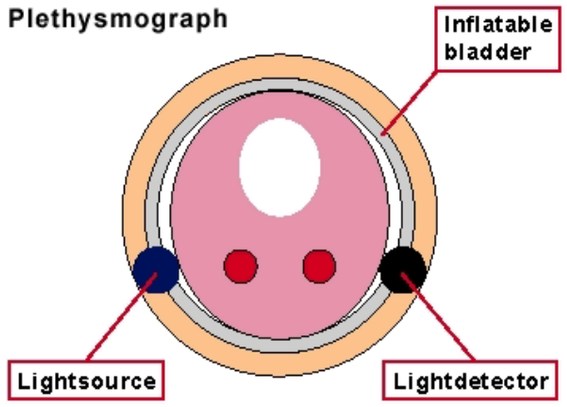
- UTILIZZARE L'ALGORITMO INFUSIONALE NICE
- CONSEGUENZE DELL'IPOVOLEMIA E DELL'OVERLOADING

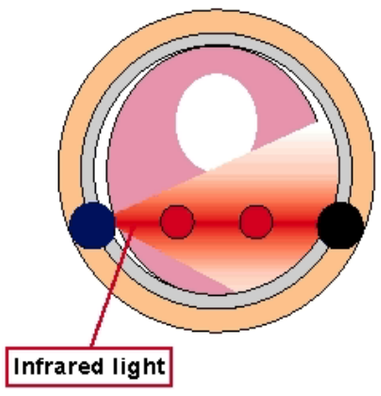
1 ml/Kg/h di CRISTALLOIDI + monitoraggio della CO



ClearSight

EV1000NI TAKES ADVANTAGE OF THE FINGER SENSOR CLEARSIGHT





Hypervolemia Optimisation Hypovolemia

Libera
l

Goal
directed
(target)

Restricti
ve

Complications from excessive and insufficient volume administration[1,2]

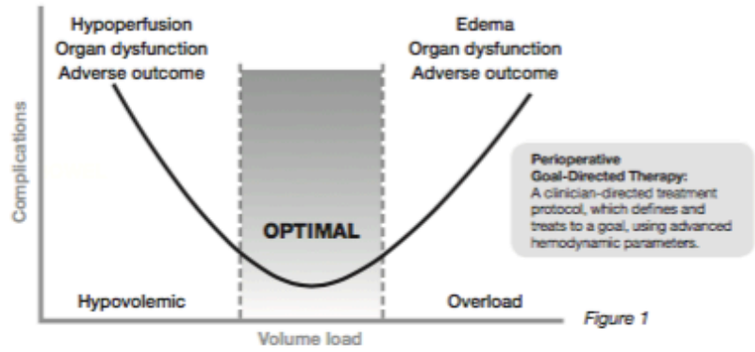
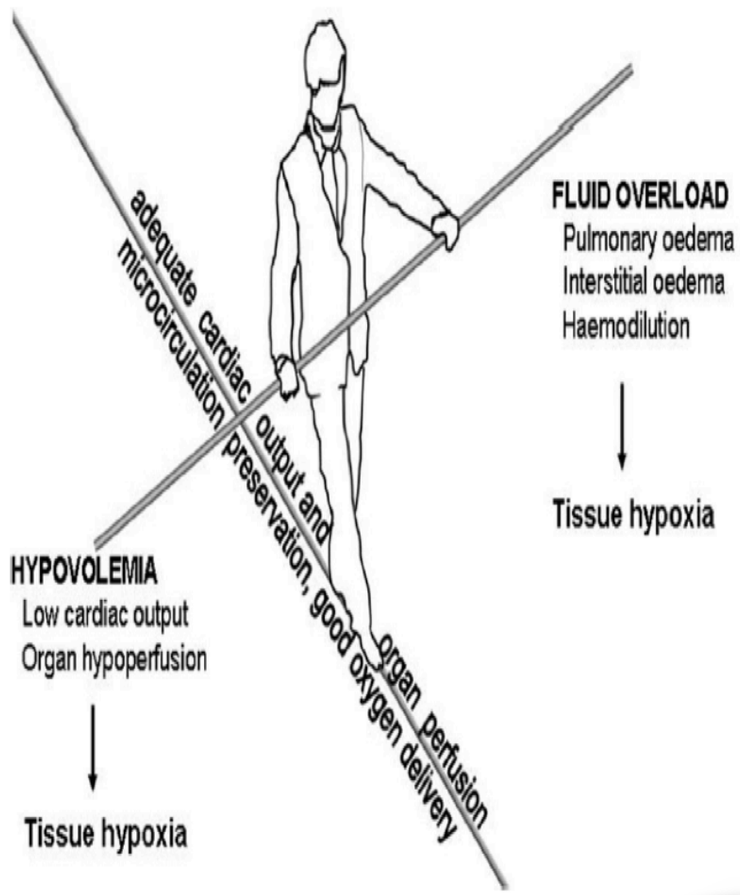
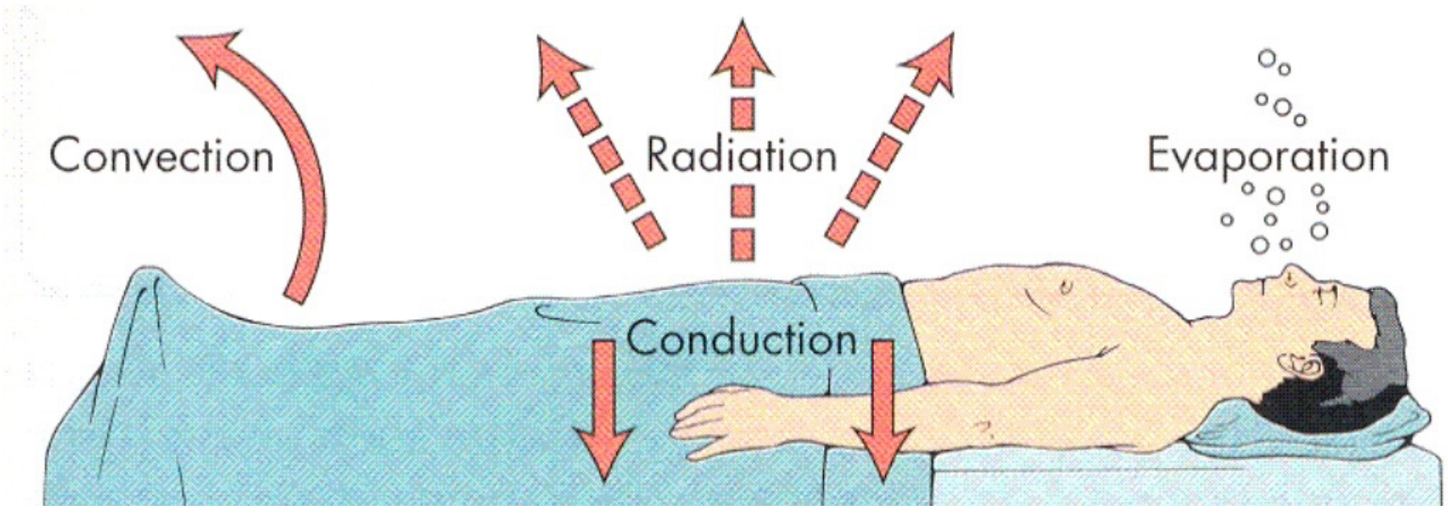


Figure 1



MONITORARE LA TEMPERATURA CORPOREA



- DURANTE L'INTERVENTO LE CAUSE DI PERDITA DI CALORE SONO NUMEROSE

Research suggests that patients who are hypothermic during the Perioperative phase of their care have an increased risk of developing the following:

- Surgical site infections
- Adverse cardiac events
- Discomfort
- Longer length of stay in the hospital
- More prone to bleeding during surgery

In randomized studies, efforts to maintain Normothermia:

Reduced infectious complications by 50%

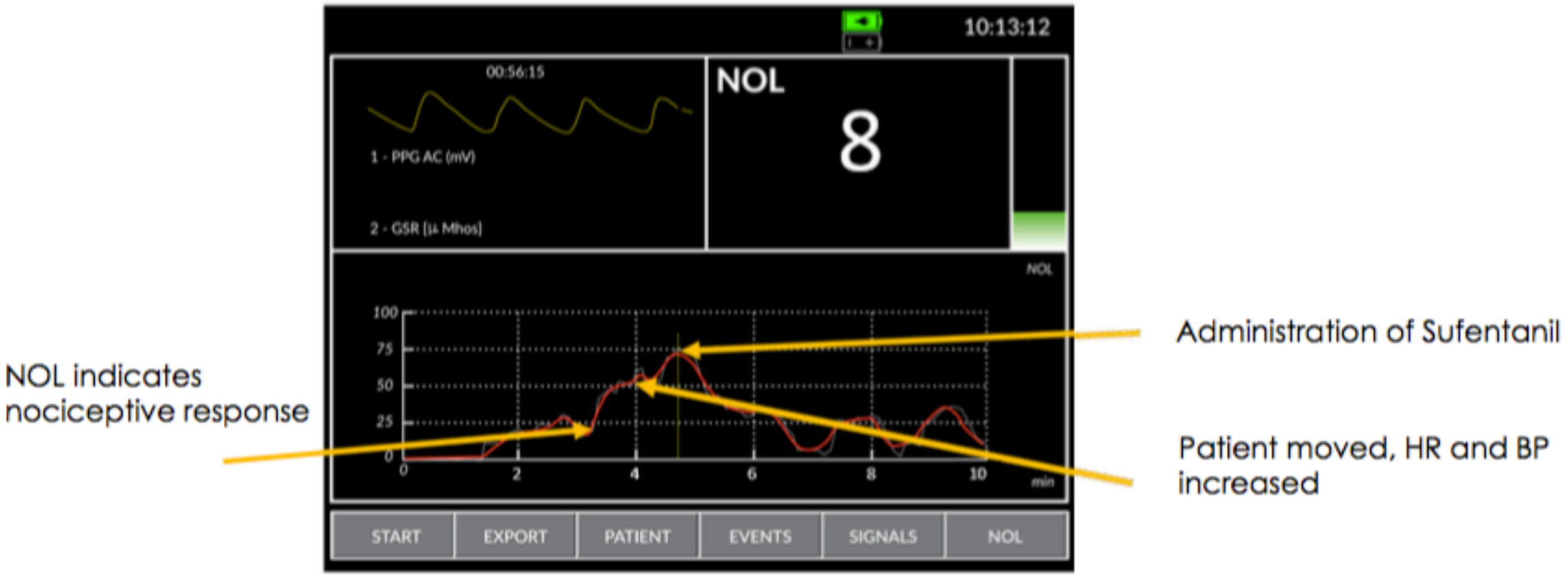
Reduced ileus, Hospital LOS for infected and uninfected patients

Reduced cardiac morbidity Reduced blood loss

Barie, PS Surgical Site Infections: Epidemiology and Prevention. *Surgical Infections*. Vol 3, Suppl 2002;s9-s21Jeran, L. American Society of PeriAnesthesia Nurses Development Panel. Clinical Guidelines for the Prevention of Unplanned Perioperative Hypothermia. *Journal of PeriAnesthesia Nursing*.Oct. 2001 Vol 16(5) pp305-314.

Tryba, M. Lehan, J. et al. Does active warming of severely injured trauma patients influence perioperative morbidity? *Anesthesiology*, 1996;85:A283.

NOL
(NOCICECTOR LEVEL TECNHOLOGY)



BJA

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doi: 10.1093/bja/aex140
Advance Access Publication Date: 9 June 2017
Review Article

Digital innovations and emerging technologies for enhanced recovery programmes

F. Michard[1,*], T. J. Gan[2] and H. Kehlet[3]

[1]MiCo, Chemin de Chapallaz 4, Denens, Switzerland, [2]Department of Anesthesiology, Stony Brook University, Stony Brook, NY 11794-8480, USA and [3]Section for Surgical Pathophysiology 7621, Rigshospitalet, Blegdamsvej, 92100 Copenhagen, Denmark

The "multi-parameter" approach

PARAMETRI PRINCIPALI MISURATI

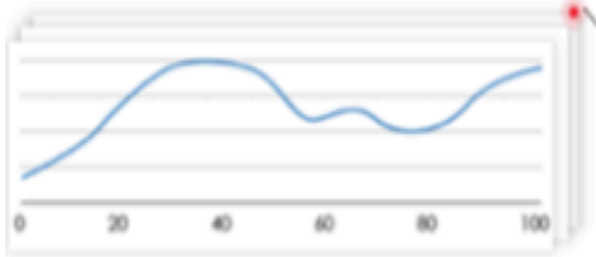
Temperature

Galvanic Skin Response

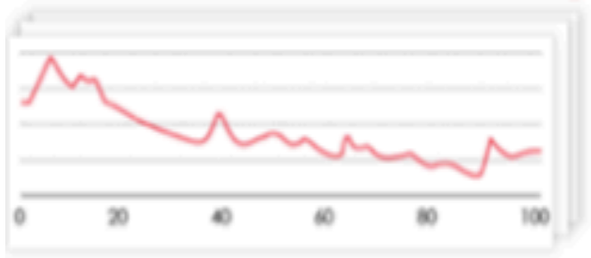
Accelerometer

Photoplethysmograph

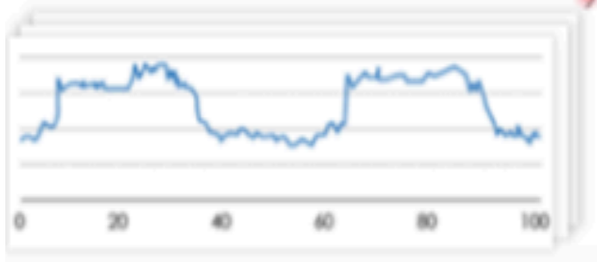
TEMPERATURA PERIFERICA (TEMP)



RISPOSTA GALVANICA DELLA PELLE (GSR):
LIVELLO BASE E FREQUENZA DI PICCO

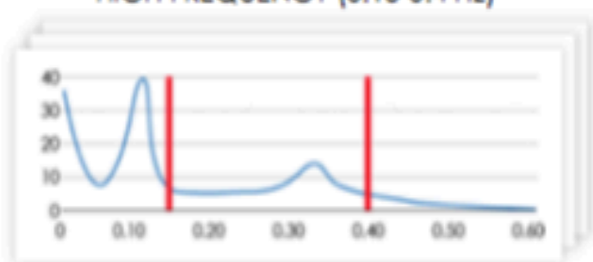


MOVIMENTO (ACCELEROMETER)

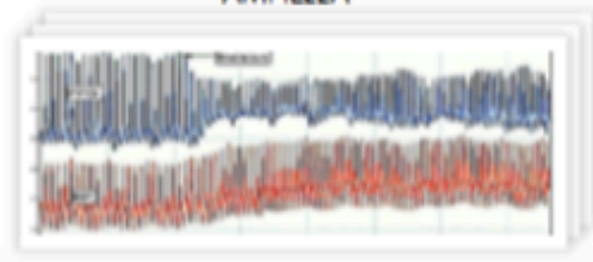


FREQUENZA CARDIACA

VARIAZIONE DELLA FREQUENZA CARDIACA
HIGH FREQUENCY (0.15-0.4 HZ)



FOTOPLATISMOGRAFIA (PPG)
AMPIEZZA



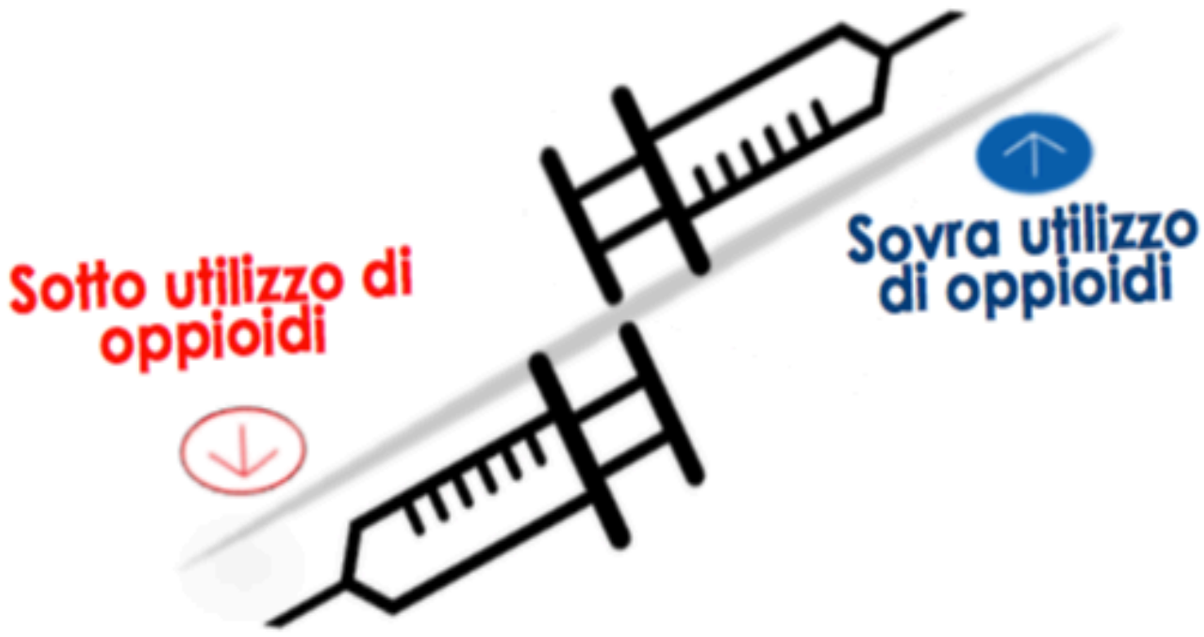
L'uso eccessivo / sotto l'uso di oppioidi può causare complicanze

Ipertensione
Tachicardia

Intenso dolore
Post-operatorio

Sensibilizzaione
che può causare
Dolore post-
operatorio
peristente

Recupero post-operatorio ritardato



Ipotensione

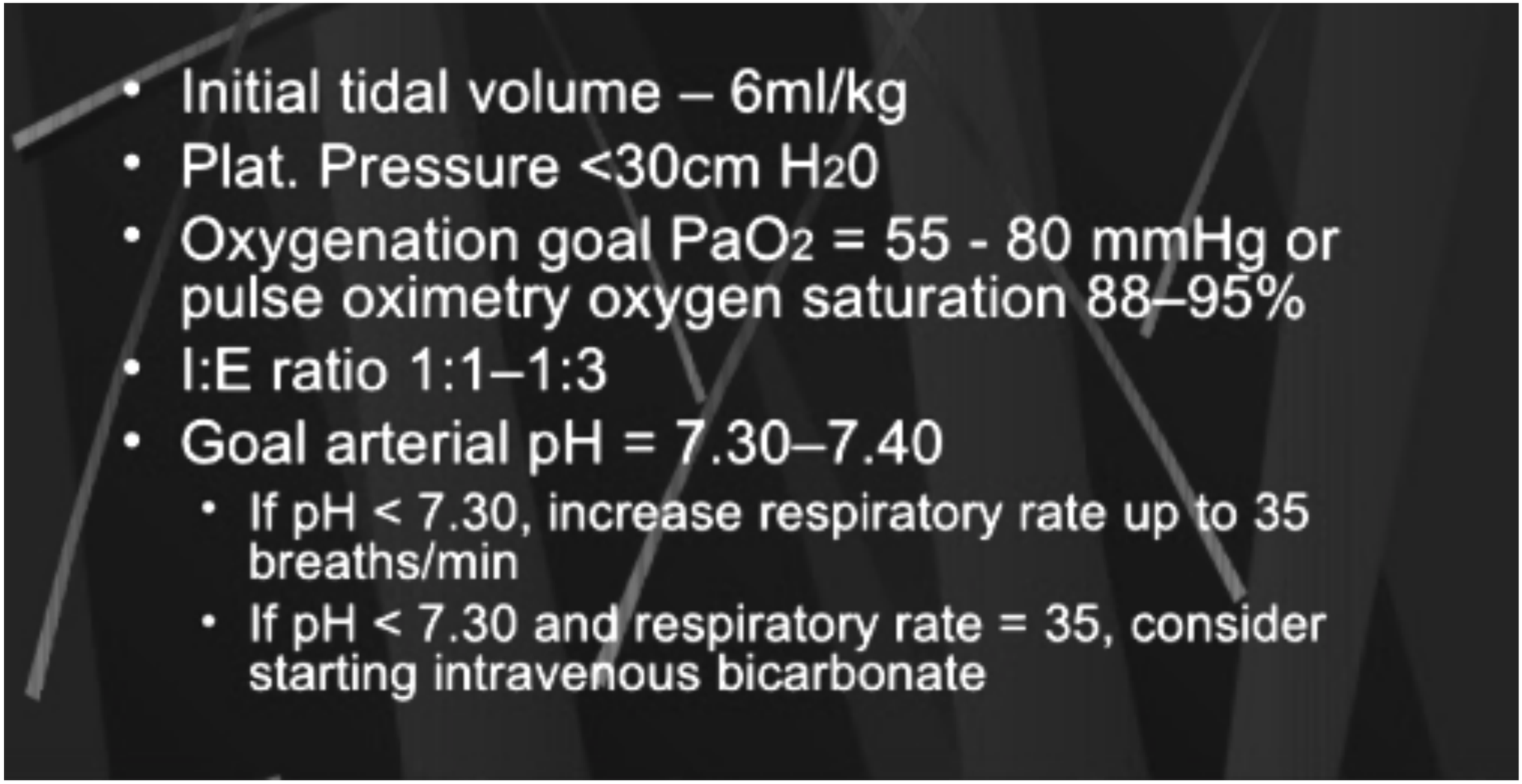
Sensibilizzazione che
può causare
iperalgesia indotta da
oppioidi e dolore
persistente
postoperatorio

Depressione
respiratoria

Nausea post
operatoria
vomito

Recupero post-operatorio rifardato

PROTECTIVE LUNG VENTILATION (tab 1)



APFEL SCORE (tab2)

Determine the number of risk factors for PONV using the simplified risk score from Apfel.

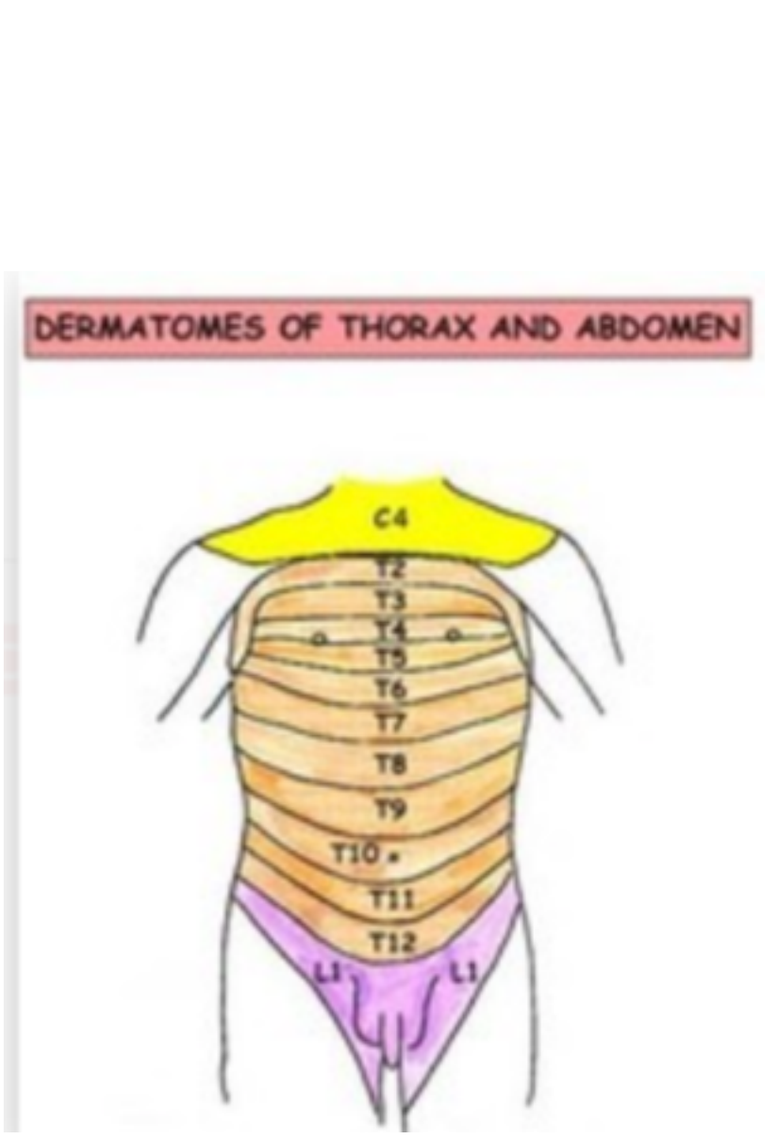
Risk Factors	**Points**
Post operative Opioids	1
Non Smoker	1
Female Gender	1
History of PONV/Motion Sickness	1
Risk score = sum	**0 ... 4**

Base prophylaxis on risk score:

Risk Score	**Prevalence PONV**	**Prophylaxis: No of Anti-emetics**	**Examples***
0	9%	0-1	± Ondansetron 4 mg
1	20%	1	Ondansetron 4 mg ± Dexamethasone 4mg
2	39%	2	Ondansetron 4 mg +Dexamethasone 4mg ± Propofol infusion
3	60%	3	Ondansetron 4 mg + Dexamethasone 4 mg + Propofol infusion ± Scopolamine patch
4	78%	4	Ondansetron 4 mg + Dexamethasone 4 mg + Propofol infusion + Scopolamine patch

Antrolateral abdominal wall nerves

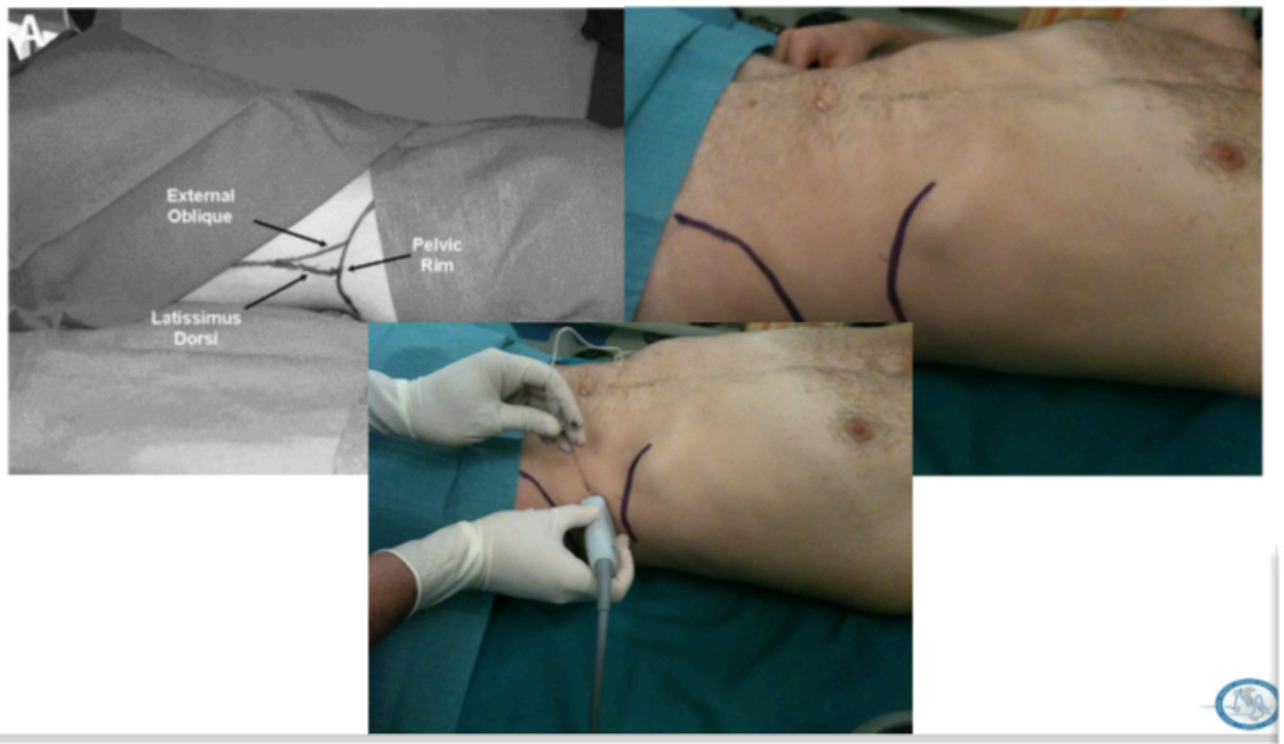
- T7 – T11 Thoracoabdominal Nerves
- T12 Sub-costal nerve
- L1 Ilio-hypogastric Nerve
  Ilio inguinal Nerves

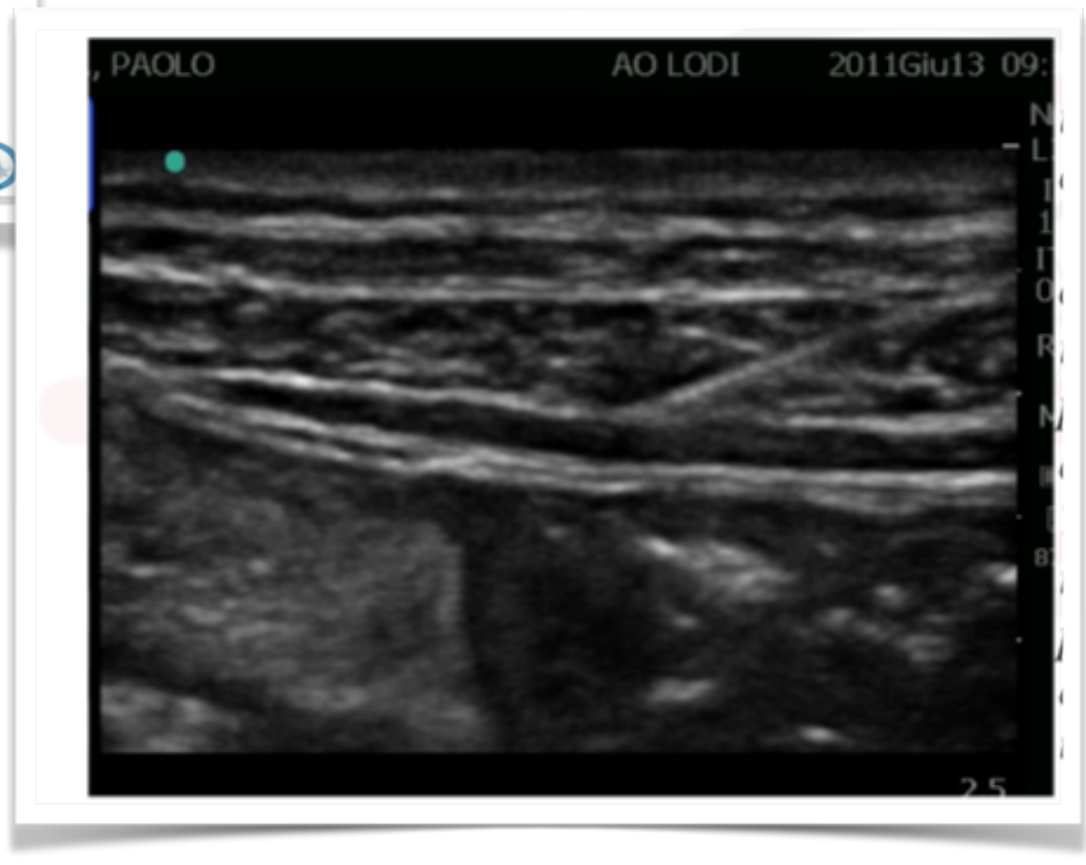


Indicazioni al TAP BLOCK

- large bowel resection
- laparoscopic appendectomy,
- cesarean section
- total abdominal hysterectomy
- laparoscopic cholecystectomy
- open prostatectomy
- renal transplant surgery
- abdominoplasty
- iliac crest bone graft

La Tecnica


External
Oblique
Pelvic
Rim
Latissimus
Dorsi


, PAOLO
AO LODI
2011Giu13 09:

Corso BASE SIAARTI
"Ultrasuoni in Anestesia e Terapia del Dolore"

Tap block nella chirurgia laparoscopica

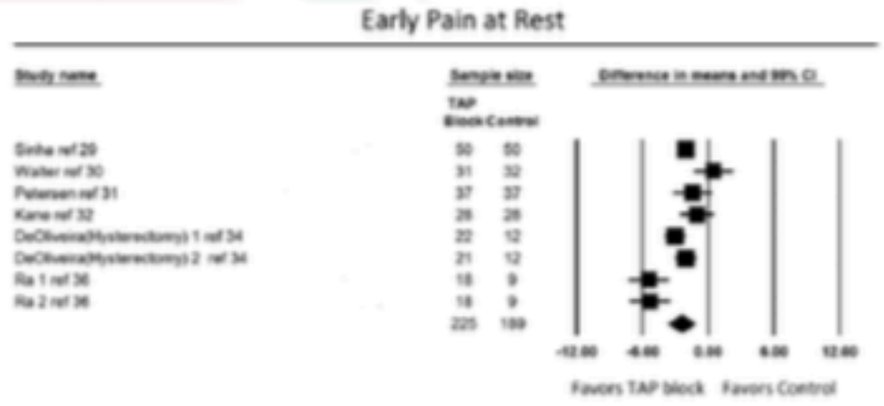
Table 1. Summary of Studies Included in Analysis

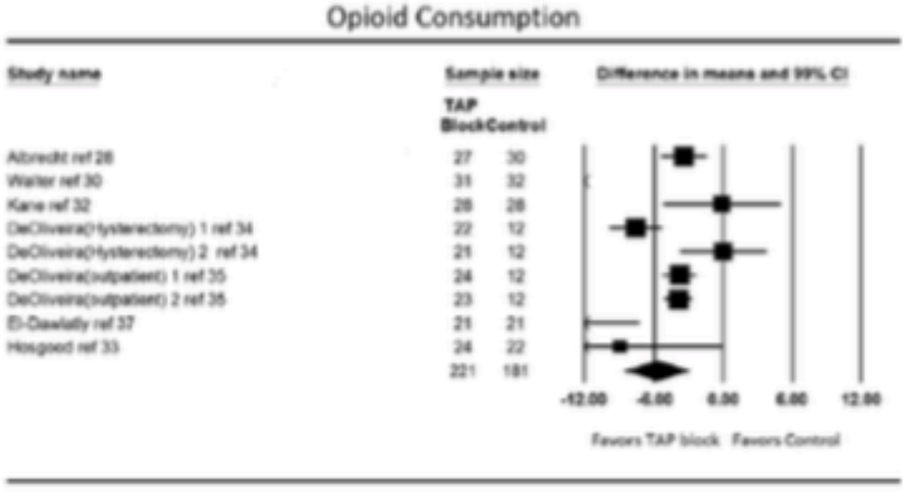
Authors	Year of publication	Procedures	No. of treatment/ control	Treatment	TAP block technique	Type of anesthesia	Postoperative analgesia	Modified Jadad score (1–5)*	Method of data extraction
Albrecht et al.[28]	2013	Laparoscopic gastric bypass	27/30	Preoperative bilateral TAP blocks using 30 mL of 0.25% bupivacaine with epinephrine	Oblique subcostal approach	Fentanyl/ propofol/ remifentanil/ desflurane	Acetaminophen 1000 mg per os q6h + oxycodone 5–10 mg per os q4h + morphine 2–6 mg IV as needed	5	Text/table/ figure
Sinha et al.[29]	2013	Laparoscopic bariatric surgery	50/50	Postoperative bilateral TAP blocks using 20 mL of 0.375% ropivacaine	Not described	Not standardized	Tramadol not standardized	4	Table/text
Walter et al.[30]	2013	Laparoscopic colorectal surgery	33/35	Preoperative bilateral TAP block using 40 mL of 2 mg/kg bupivacaine	Not described	Fentanyl/ propofol/ morphine/ volatile anesthetic	Acetaminophen 1 g IV q6h PCA morphine	4	Table/text
Petersen et al.[31]	2012	Laparoscopic cholecystectomy	37/37	Preoperative bilateral TAP block using 20 mL of 0.5% ropivacaine with epinephrine	Triangle of Petit approach	Remifentanil/ propofol/ sufentanil	Acetaminophen 1000 mg per os q6h and ibuprofen 400 mg per os q6h, morphine IV and oral ketobemidone	5	Table/text/ figure
Kane et al.[32]	2012	Laparoscopic hysterectomy	28/28	Postoperative bilateral TAP block using 20 mL of 0.5% ropivacaine with epinephrine	Not described	Not standardized	Not standardized	3	Table/text
Hoogood et al.[33]	2012	Laparoscopic nephrectomy	24/22	Preoperative bilateral TAP block using 20 mL of 0.375% bupivacaine	Triangle of Petit approach	Propofol/ fentanyl/ isoflurane	PCA morphine + oral tramadol and oral acetaminophen 1 g q6h	5	Table/text
De Oliveira et al.[34]	2011	Laparoscopic hysterectomy	43/23	Preoperative bilateral TAP blocks using 20 mL of 0.5% ropivacaine or 0.25% ropivacaine	Triangle of Petit approach	Remifentanil/ propofol/ sevoflurane	Ketorolac 30 mg IV, hydromorphone and hydrocodone	5	Author's data
De Oliveira et al.[35]	2011	Laparoscopic outpatient gynecology	47/23	Preoperative bilateral TAP blocks using 15 mL of 0.5% ropivacaine or 0.25% ropivacaine	Triangle of Petit approach	Remifentanil/ propofol/ sevoflurane	Ketorolac 30 mg IV hydromorphone and hydrocodone	5	Author's data
Ra et al.[36]	2010	Laparoscopic cholecystectomy	36/18	Preoperative bilateral TAP blocks using 15 mL of 0.5% bupivacaine or 0.25% bupivacaine	Triangle of Petit approach	Remifentanil/ propofol/ nitrous oxide	Ketorolac 30 mg IV q8h, fentanyl	3	Table/text
El-Dawlatly et al.[37]	2009	Laparoscopic cholecystectomy	21/21	Preoperative bilateral TAP blocks using 15 mL of 0.5% bupivacaine	Triangle of Petit approach	Sufentanil/ propofol/ sevoflurane	PCA morphine	4	Table/text

Pain Medicine
Section Editor: Spencer S. Liu

Transversus Abdominis Plane Block to Ameliorate Postoperative Pain Outcomes After Laparoscopic Surgery: A Meta-Analysis of Randomized Controlled Trials

Gildasio S. De Oliveira Jr, MD, MSCI, Lucas Jorge Castro-Alves, MD, Autoun Nader, MD, Mark C. Kendall, MD, and Robert J. McCarthy, PharmD





Tap block nella chirurgia laparotomica

Duration of analgesic effectiveness after the posterior and lateral transversus abdominis plane block techniques for transverse lower abdominal incisions: a meta-analysis

F. W. Abdallah[1,2*], J. G. Laffey[1,2], S. H. Halpern[1,3] and R. Brull[1,4,5]

Br. J. Anaesth. (2013) 111 (5):721-735.

Consumo morfina

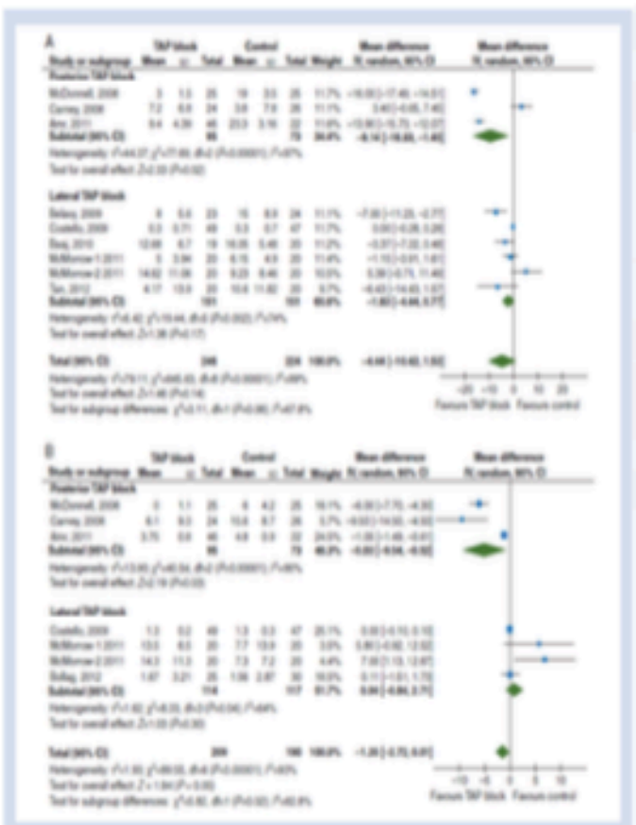


Fig 2 Forest plots of morphine consumption for (a) 12–24 h interval; (b) 24–48 h interval. The sample size, mean, SD, and the pooled estimates of the mean difference are shown. The 95% CIs are shown as lines for individual studies and as diamonds for pooled estimates.

Dolore a riposo

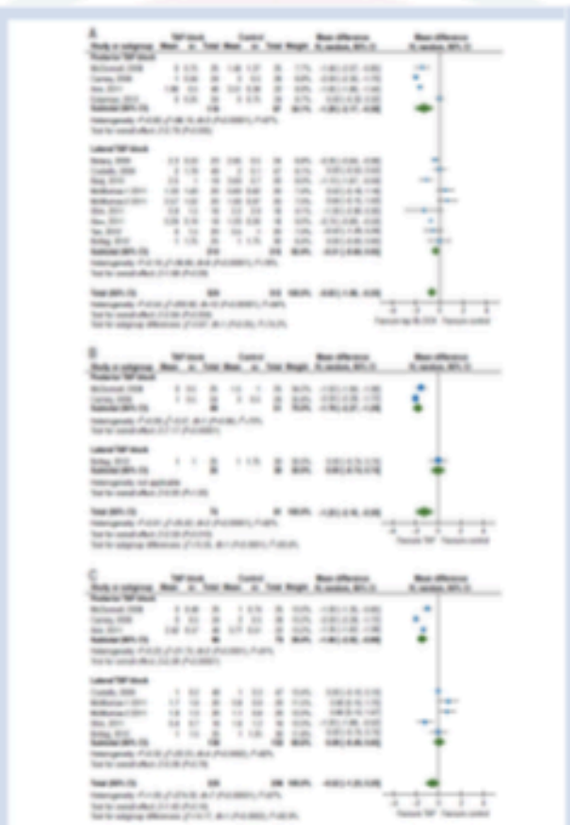


Fig 3 Forest plots of rest pain VAS scores at (a) 2–6 h; (b) 12–24 h; (c) 30 h–2 d. The sample size, mean, SD, and the pooled estimates of the mean difference are shown. The 95% CIs are shown as lines for individual studies and as diamonds for pooled estimates.

Dolore a movimento

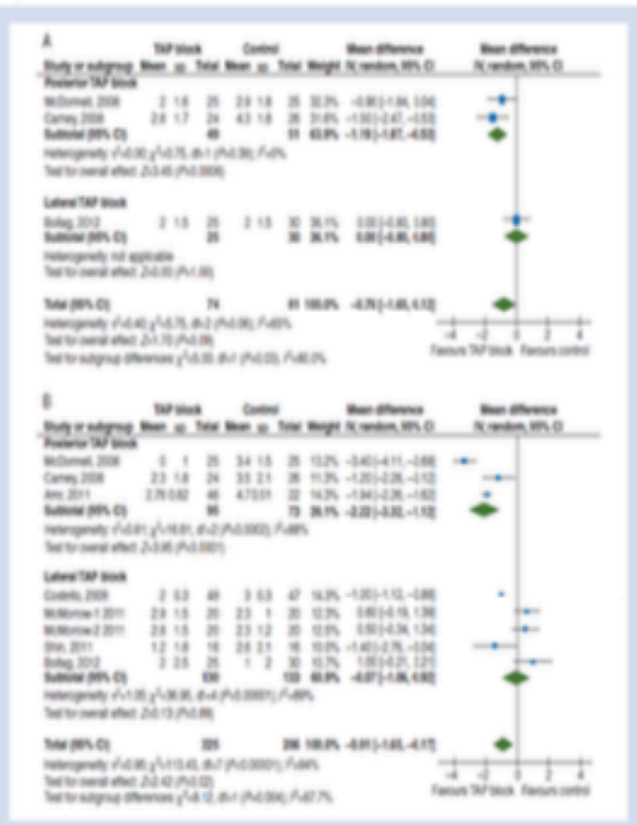


Fig 4 Forest plots of dynamic pain VAS scores at (a) 30 h; (b) 48 h. The sample size, mean, SD, and the pooled estimates of the mean difference are shown. The 95% CIs are shown as lines for individual studies and as diamonds for pooled estimates.

POSTOPERATORIO

- posizionare il pz in posizione semiseduta ed ossigenare il paziente obeso affetto da OSAS
- l'utilizzo di C-PAP non è raccomandata nei pazienti non complicati da OSAS
- Nei pazienti con BMI> 50 KG/m2, OSAS severa e saturimetria < 90% applicare CPAP nell'immediato postoperatorio


Thanks!