

Tecnica di analgesia postoperatoria ed esito chirurgico

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Tecnica e outcome

- ▣ La tecnica appropriata e adeguata al tipo di intervento
- ▣ La tecnica appropriata e adeguata alla struttura e al modello organizzativo

Curare,
senza esagerare



20 anni fa: si apre una strada



Anesthesiology. 1987 Jun;66(6):729-36.

Epidural anesthesia and analgesia in high-risk surgical patients.

Yeager MP, Glass DD, Neff RK, Brinck-Johnsen T.

Abstract

The authors conducted a randomized controlled clinical trial to evaluate the effect of epidural anesthesia and postoperative analgesia (EAA) on postoperative morbidity in a group of high-risk surgical patients. A total of 53 patients were admitted to the study, 28 received EAA, and 25 received standard anesthetic and analgesic techniques without EAA. Surgical "risk" was evaluated preoperatively and found to be comparable in the two groups. When compared to control patients, patients who received EAA had a reduction in the overall postoperative complication rate ($P = 0.002$) and in the incidence of cardiovascular failure ($P = 0.007$) and major infectious complications ($P = 0.007$). Urinary cortisol excretion, a marker of the stress response, was significantly diminished during the first 24 postoperative hours in the group receiving EAA ($P = 0.025$). Finally, hospital costs were significantly reduced for patients who received EAA ($P = 0.02$).

The authors conclude that EAA exerted a significant beneficial effect on operative outcome in a group of high risk surgical patients.

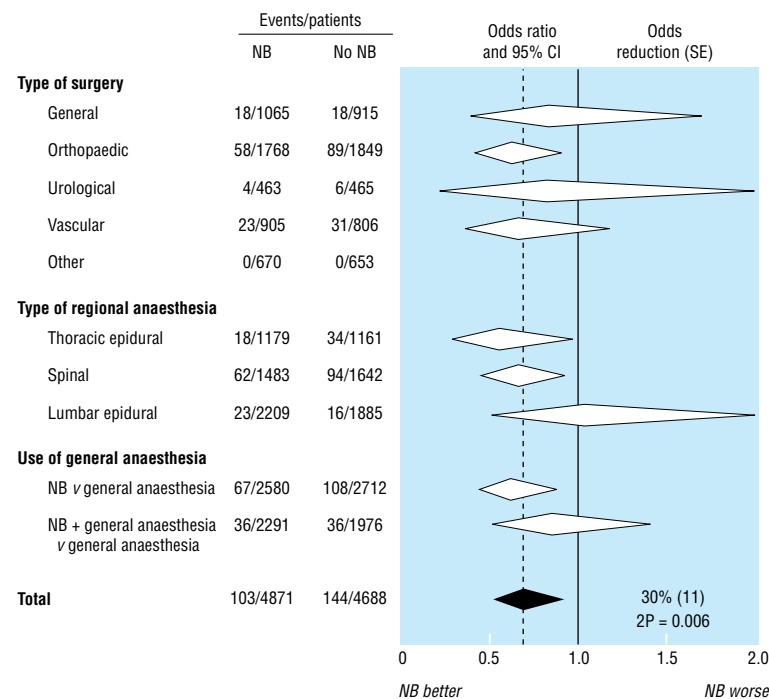
10 anni fa: le certezze

Reduction of postoperative mortality and morbidity with epidural or spinal anaesthesia: results from overview of randomised trials

BMJ 2000;321:1493-7



Anthony Rodgers, Natalie Walker, S Schug, A McKee, H Kehlet, A van Zundert, D Sage, M Futter, G Saville, T Clark, S MacMahon



Studies 141 trials including 9559 patients

1.9 vs. 2.8%; odds ratio (OR) = 0.7, 95%

10 anni fa

Ballantyne JC et al

The comparative effects of postoperative analgesic therapies on pulmonary outcome: cumulative meta-analyses on RCT

Anesthesia and Analgesia 1998

L'analgesia epidurale toracica riduce il rischio di complicanze polmonari del 60% con NNT=15

Beatties WS et al

Epidural analgesia reduces postoperative myocardial infarction: a meta-analyses

Anesthesia and Analgesia 2001

3,5% TEA vs 8,4% controlli OR 0,43

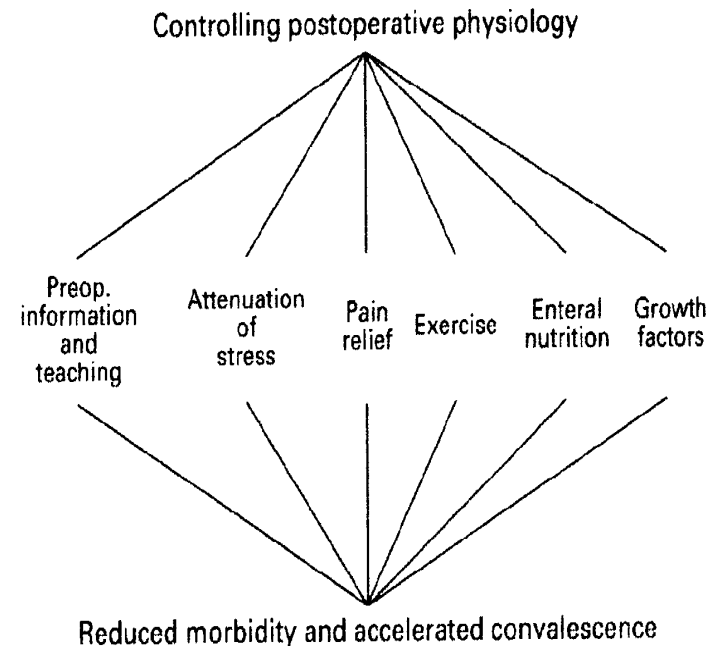
10 anni fa: i dubbi

Am J Surg. 2002 Jun;183(6):630-41.

Multimodal strategies to improve surgical outcome.

Kehlet H, Wilmore DW.

Reorganization of the perioperative team
(anesthesiologists, surgeons, nurses, and physical therapists) will be essential to achieve successful fast track surgical programs



Influence of anaesthetic and analgesic techniques on outcome after surgery

F. Bonnet* and E. Marret

- ❑ Possiamo ridurre morbilità e mortalità post-operatoria?
- ❑ Perché La metanalisi di Rodgers non ha trovato conferma in successive metanalisi?
 - ❑ La mortalità è un evento raro, difficilmente riconducibile ad un unico evento causale
 - ❑ Il management molto migliorato ha ridotto anche l'incidenza di eventi avversi
- ❑ I rischi di M&M dipendono alla procedura chirurgica e i potenziali benefici delle tecniche anestetiche/analgesiche vanno inseriti nel contesto:
 - ❑ Chirurgia ortopedica: TE e riabilitazione
 - ❑ Chirurgia vascolare: IM
 - ❑ Chirurgia addome superiore e toracica: Pneumonia

Pain Medicine

Section Editor: Spencer S. Liu

Effect of Postoperative Analgesia on Major Postoperative Complications: A Systematic Update of the Evidence

Anesth Analg 2007;104:689–702

CONCLUSIONS: Overall, **there is insufficient evidence** to confirm or deny the ability of postoperative analgesic techniques to affect major postoperative mortality or morbidity. This is primarily due to typically insufficient subject numbers to detect differences in currently low incidences of postoperative complications.

Pain Medicine

Section Editor: Spencer S. Liu

The Effect of Analgesic Technique on Postoperative Patient-Reported Outcomes Including Analgesia: A Systematic Review

Anesth Analg 2007;105:789–808

CONCLUSIONS: Although there are data suggesting that improved postoperative analgesia leads to better patient outcomes, **there is insufficient evidence to support subsequent improvements inpatient-centered outcomes such as quality of life and quality of recovery.**

Postoperative Pain Management and Patient Outcome: Time to Return to Work!

Paul F. White, PhD, MD*

Henrik Kehlet, MD, PhD†

The most recent systematic review of the pain literature by Liu and Wu (1) examined the effect of the postoperative analgesic technique on the incidence of complications after surgery. The authors reanalyzed 18

It is time to “roll up our sleeves and get back to work” doing high-quality clinical research rather than simply reanalyzing previously published studies.

Regional techniques and outcome: what is the evidence?

Marie N. Hanna, Jamie D. Murphy, Kanupriya Kumar and Christopher L. Wu

Perioperative use of regional analgesic techniques may provide improvement in conventional outcomes, **although the benefit appears to be limited to high-risk patients and those undergoing high-risk procedures.**

The benefits conferred by perioperative regional anesthetic techniques **need to be weighed against any potential risks** and this should be assessed on an individual basis.

Current Opinion in Anaesthesiology 2009,
22:672–677

REGIONAL ANAESTHESIA

Does regional anaesthesia really improve outcome?

S. C. Kettner, H. Willschke and P. Marhofer*

Department of Anaesthesia, Intensive Care Medicine and Pain Therapy, Medical University of Vienna, A-1090 Vienna, Austria

- La popolarità delle metanalisi è cresciuta moltissimo ma...
Spesso sono inconcludenti, mal condotte, interpretate in maniera discutibile
La stessa Cochrane ha pubblicato metanalisi con risultati diversi rispetto ad altre ma resta lo standard di riferimento più elevato
- C'è una aspettativa non realistica sull'influenza della tecnica anestetica sulla mortalità perioperatoria
- Le "Expert opinions" rappresentano il più basso livello di evidenza, ma possono essere utili se valutate con prudenza

Regional anaesthesia and outcome: what we know and what we wish

- ▣ Benefici sembrano limitati ai setting ad alto rischio
- ▣ Associare tecnica appropriata, utilizzare avanzate tecnologie e ottimizzare il dosaggio dei farmaci potrebbe consentire alle tecniche di anestesia regionale di impattare sul perioperatorio
- ▣ Nessuno studio di outcome considera la skillness e l'associata percentuale di successo
- ▣ I fallimenti procedurali sono probabilmente una delle cause principali dell'outcome negativo

British Journal of Anaesthesia **107** (S1): i90–i95 (2011)



Blocchi centrali

Meta-analysis of thoracic epidural anesthesia vs general anesthesia for cardiac surgery.

Svircevic V, van Dijk D, Nierich AP, et al.

- **Epidural anaesthesia during cardiac surgery reduces**
 - post- operative supraventricular arrhythmias
 - respiratory complications,

- **Definitive conclusions regarding mortality, myocardial infarction, and stroke were precluded** due to the diversity of data, although a reduced risk of cardiopulmonary complications was estimated

Anesthesiology 2011; 114: 271–82

Epidural anaesthesia and survival after intermediate-to-high risk non-cardiac surgery: a population-based cohort study

- ▣ **Findings:** 259 037 patients
- ▣ 56 556 (22%) received epidural anaesthesia.
- ▣ Within the matched-pairs cohort (n=88 188), **epidural anaesthesia was associated with a small reduction in 30-day mortality** (1·7% vs 2·0%; relative risk 0·89, 95% CI 0·81—0·98, p=0·02) NNT= 477

The Lancet, Volume 372, 9638, Pages 562 - 569, 2008

Strategies To Reduce Postoperative Pulmonary Complications after Noncardiothoracic Surgery: Systematic Review for the American College of Physicians

Ann Intern Med. 2006;144:596-608.

Valerie A. Lawrence, MD; John E. Cornell, PhD; and Gerald W. Smetana, MD

- Randomized trials of combined intraoperative and postoperative anesthetic or analgesic regimens **do not clearly indicate that a combined epidural approach prevents postoperative pulmonary complications**

Protective effects of epidural analgesia on pulmonary complications after abdominal and thoracic surgery: a meta-analysis.

Archives of Surgery 2008; 143(10): 990-999

Popping DM, Elia N, Marret E, Remy C, Tramer MR.

- Over the past 35 years, the incidence of pneumonia with epidural analgesia remained about 8% but has decreased from 34 to 12% with systemic analgesia, and, as a result, **the relative benefit of epidural analgesia has diminished**

Epidural Analgesia Is Associated with Improved Health Outcomes of Surgical Patients with Chronic Obstructive Pulmonary Disease

Anesthesiology 2011; 115:315–21

Felix van Lier, M.D., Ph.D.,* Patrick J. van der Geest, M.D.,† Sanne E. Hoeks, Ph.D.,‡

This observational retrospective study included 556 consecutive patients with COPD who underwent elective major abdominal surgery between 1995 and 2007 at the Erasmus Medical Center, Rotterdam

In this analysis, the use of EDA was associated with reduced risk of postoperative pneumonia (OR 0.5; 95% CI: 0.3– 0.9; $P < 0.03$)

What This Article Tells Us That Is New

- In a propensity-controlled analysis of more than 500 patients with COPD undergoing major abdominal surgery, epidural anesthesia and analgesia were associated with a 50% reduction in the risk of postoperative pneumonia

A prospective, multicentre, observational cohort study of analgesia and outcome after pneumonectomy

E. S. Powell¹, D. Cook¹, A. C. Pearce², P. Davies¹, G. M. R. Bowler³, B. Naidu¹, F. Gao^{1*}
British Journal of Anaesthesia **106** (3): 364–70 (2011)

- Confronto tra **blocco paravertebrale e epidurale** su complicanze post-pneumonectomy in 312 pazienti

Thoracic Epidural or Paravertebral Catheter for Analgesia After Lung Resection: Is the Outcome Different?

Hany Elsayed, FRCS, Cth,*† James McKeivith, FRCA,‡ James McShane, BS,§ and Nigel Scawn, FRCA‡

- Retrospective analysis 1,592 patients who had undergone thoracotomy for lung resection between May 2000 and April 2008
- **Conclusions: Paravertebral catheter analgesia with morphine PCA seems as effective as thoracic epidural** for reducing the risk of postoperative complications. **Paravertebral catheter use is associated with a shorter hospital stay** and may be a better form of analgesia for fast-track thoracic surgery.

Journal of Cardiothoracic and Vascular Anesthesia, Vol 26, No 1 (February), 2012

A systematic review of postoperative analgesia following laparoscopic colorectal surgery

Levy BF, Tilney HS, Dowson HM, Rockall TA
Colorectal Disease 2010; 12(1): 5-15

- 8 studies were included (n=331 patients)
- 3 RCT Epidural versus PCA or IV analgesia : **No difference in LOS; Reduced time to diet, flatus**
- 1 cohort study Epidural versus IV analgesia: significant shorter hospital in the epidural ropivacaine group.
Systematic review British Journal of Surgery 2007; 94: 665-673.

Meta-analysis of epidural analgesia *versus* parenteral opioid analgesia after colorectal surgery

E. Marret, C. Remy and F. Bonnet and the Postoperative Pain Forum Group

Sixteen trials published between 1987 and 2005

Conclusion: Despite improved analgesia and a decrease in ileus, EA has some adverse effects and **does not shorten the duration of hospital stay after colorectal surgery**

Chirurgia oncologica e anestesia regionale

La possibile **relazione tra anestesia regionale e “cancer recurrence”** è uno dei topics oggi

L'ipotesi che l'anestesia possa influenzare l'outcome del paziente oncologico porta la disciplina su un altro livello

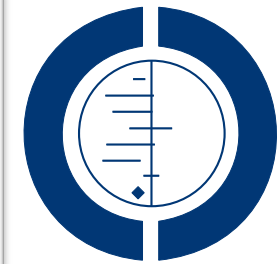
Sessler DI, Can regional analgesia reduce the **risk of recurrence after breast cancer**? Methodology of a multicenter randomized trial. Contemp Clin Trials 2008; 29: 517 – 26

Biki B, Anesthetic technique for **radical prostatectomy surgery** affects cancer recurrence: a retrospective analysis. Anesthesiology 2008; 109: 180 – 7

Myles PS Perioperative epidural analgesia for **major abdominal surgery for cancer** and recurrence-free survival: randomised trial. Br Med J 2011; 342: d1491

Epidural pain relief versus systemic opioid-based pain relief for abdominal aortic surgery (Review)

Nishimori M, Low JHS, Zheng H, Ballantyne JC



THE COCHRANE
COLLABORATION®

- ❑ **Epidural analgesia provides better pain management** up to postoperative day three, regardless of the site of the epidural catheter and epidural formulations.
- ❑ **Epidural analgesia also reduces postoperative time to extubation** by approximately 48%.
- ❑ Epidural anaesthesia and analgesia, especially thoracic, **reduces the incidence** of cardiovascular, respiratory and renal complications.
- ❑ **Findings on mortality were inconclusive**; although no difference in mortality was demonstrated, there were fewer patients studied than would be needed to show a difference

Chirurgia
Vascolare

Epidural analgesia for pain relief following hip or knee replacement (Review)

Choi P, Bhandari M, Scott J, Douketis JD



- Epidural analgesia may be useful for postoperative pain relief following major lower limb joint replacements.
- The benefits may be limited to the early (four to six hours) postoperative period.
- The magnitude of pain relief must be weighed against the frequency of adverse events.
- **The current evidence is insufficient to draw conclusions** on the frequency of rare complications from epidural analgesia, postoperative morbidity or mortality, functional outcomes, or length of hospital stay.

*Cochrane Database of Systematic Reviews 2003, Issue 3
Published in Issue 4, 2013 (no change to conclusions).*

Protesica maggiore

Pain management in the elderly and cognitively impaired patient: the role of regional anesthesia and analgesia

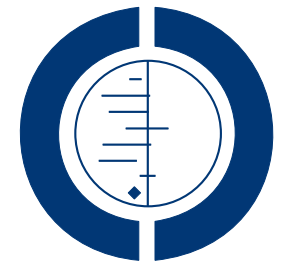
Thomas M. Halaszynski

Current Opinion in Anaesthesiology 2009,
22:501-506

Analgesic techniques that provide optimal pain control and low side effect profiles with minimal opioid exposure should always be considered for elderly high-risk and cognitively impaired patients.

Local anaesthetic wound infiltration and abdominal nerves block during caesarean section for postoperative pain relief (Review)

Bamigboye AA, Hofmeyr GJ



**THE COCHRANE
COLLABORATION®**

Local analgesia infiltration and abdominal nerve blocks as adjuncts to regional analgesia and general anaesthesia are of benefit in caesarean section by reducing opioid consumption

Cochrane Database of Systematic Reviews 2009, Issue 3.



Blocchi periferici

Does regional anesthesia improve outcome after total knee arthroplasty?

Macfarlane AJ, Prasad GA, Chan VW, Brull R

- Twenty-eight trials (n=1,538) compared general anaesthesia and/or specific systemic analgesia with specific regional anaesthesia and/or regional analgesia for total knee arthroplasty
- One trial (n=262) assessed **mortality** There were **no differences in the number of deaths** over an eight-week postoperative period
- For **cardiovascular morbidity** (nine trials), there **was no difference** in terms of postoperative myocardial infarction and pulmonary embolism
- Three trials indicated **that length of hospital stay could be reduced.**
- Six trials reported that **rehabilitation could be improved** with regional anaesthesia, specifically in terms of range of motion and ambulation

Martin F, Martinez V, Mazoit JX, et al.

Antiinflammatory effect of peripheral nerve blocks after knee surgery: clinical and biologic evaluation.

- ▣ They showed that combined sciatic and femoral nerve block **reduced clinical inflammation (evaluated by local skin temperature and circumference of the knee)** after major knee surgery compared with morphine analgesia

Anesthesiology 2008; 109: 484 – 90

Peri-operative interventions producing better functional outcomes and enhanced recovery following total hip and knee arthroplasty: an evidence-based review

Mazin S Ibrahim*, Muhammad A Khan, Ikram Nizam and Fares S Haddad



- In this review, we present an evidence-based summary of common interventions available to **achieve enhanced recovery, reduce hospital stay, and improve functional outcomes following THA and TKA.**
- It covers pre-operative patient education and nutrition, pre-emptive analgesia, neuromuscular electrical stimulation, pulsed electromagnetic fields, peri-operative rehabilitation, modern wound dressings, standard surgical techniques, minimally invasive surgery, and fast-track arthroplasty units.

Capdevila X, Effects of perioperative analgesic technique on the surgical outcome and duration of rehabilitation after major knee surgery. *Anesthesiology* 1999; 91

CME

Continuous Peripheral Nerve Blocks: A Review of the Published Evidence

Brian M. Ilfeld, MD, MS

- **Documented benefits appear to be dependent on successfully improving analgesia**, and include decreasing baseline/breakthrough/dynamic pain, supplemental analgesic requirements, opioid-related side effects, and sleep disturbances.
- **In some cases, patient satisfaction and ambulation/functioning may be improved**
- **Only through prospective research** will we fully reveal and maximize the potential benefits, while minimizing the potential risks, of CPNB for our patients.

Improving Postoperative Pain Management

What Are the Unresolved Issues?

Paul F. White, Ph.D., M.D., F.A.N.Z.C.A.,* Henrik Kehlet, Ph.D., M.D.†

	Efficacy of Single Modality Analgesic Therapy	Multimodal Analgesic Recommendations		General Comments
		First Choice	Rescue Analgesic	
Laparoscopic cholecystectomy	1, 2, 3, 6	1 + 2 + 3 + 6	4/5	Epidural analgesia effective, but not recommended due to low benefit:risk ratio
Open groin hernia repair	1, 2, 6, 7, 10	1 + 2 + 6	4/5	Continuous LA wound infusion, spinal or epidural analgesia, and paravertebral block techniques are effective, but not recommended due to low cost-benefit:risk ratio
Open abdominal hysterectomy	1, 2, (6/7)	1 + 2 + 6	4/5	Consider LA wound infiltration and/or infusion; epidural analgesia not recommended due to low benefit:risk ratio
Open colonic resection	1, 2, 7, 9	9 + 1 + 2	4/5	Consider gabapentanoids (transferable evidence), and continuous wound LA infusion if continuous epidural infusion is not feasible
Thoracotomy	2, 9, 10	1 + 2 + 9 or 10	4/5	Consider continuous intercostal block if continuous epidural or paravertebral nerve blocks are not feasible
Knee replacement	1, 2, 6/7, 8, 11	1 + 2 + 7/8 or 9	4/5	Consider gabapentanoids (transferable evidence); epidural analgesia not recommended due to low benefit:risk ratio compared with continuous wound infusion, or peripheral nerve block, spinal LA + potent opioid analgesic

1. Acetaminophen
2. Nonsteroidal antiinflammatory drugs and cyclooxygenase type-2 inhibitors
3. Glucocorticoids
4. Strong opioid agonists (e.g., morphine, hydromorphone, fentanyl, sufentanil)
5. Weak opioid agonists (e.g., oxycodone, hydrocodone, tramadol)
6. Local anesthetic wound infiltration
7. Local anesthetic wound infusion
8. Continuous peripheral nerve block
9. Continuous epidural analgesia
10. Continuous paravertebral block
11. Subarachnoid block with local anesthetic + potent opioid agonist (e.g., fentanyl, sufentanil)

Conclusioni: perché tante controversie?

- L'incapacità a dimostrare influenza sull'outcome chirurgico delle differenti tecniche di analgesia post-operatoria:
 - Studi inadeguati per numerosità e metodologia
 - Valutazione di un solo intervento su popolazioni eterogenee
 - Controllo del dolore non adeguato
 - Fallimenti tecnici
 - La tentazione dei grandi numeri: le grandi metanalisi
 - La necessità di studi con obiettivi specifici: non solo studi di coorte...
-

Conclusioni: le certezze o quasi..

I vantaggi delle tecniche di analgesia regionale sull'outcome sono più evidenti nelle fasce ad alto rischio

- ▣ **SI** Epidurale in Chirurgia Toracica, Cardiochirurgia, Chirurgia Vascolare maggiore
- ▣ **SI** Paravertebrale in Chirurgia Toracica
- ▣ **SI** Epidurale in COPD Chirurgia addominale
- ▣ ? Chirurgia addominale (efficacia-ileo)
- ▣ **SI** Analgesia regionale nella chirurgia protesica ortopedica (epidurale??)



Conclusioni: le certezze

- E' necessario migliorare il target degli studi e la skillness per ridurre i fallimenti delle tecniche regionali e l'outcome negativo
- Il beneficio certo/probababile/incerto che consegue all'utilizzo di alcune procedure deve essere pesato sulla base del rischio
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