

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



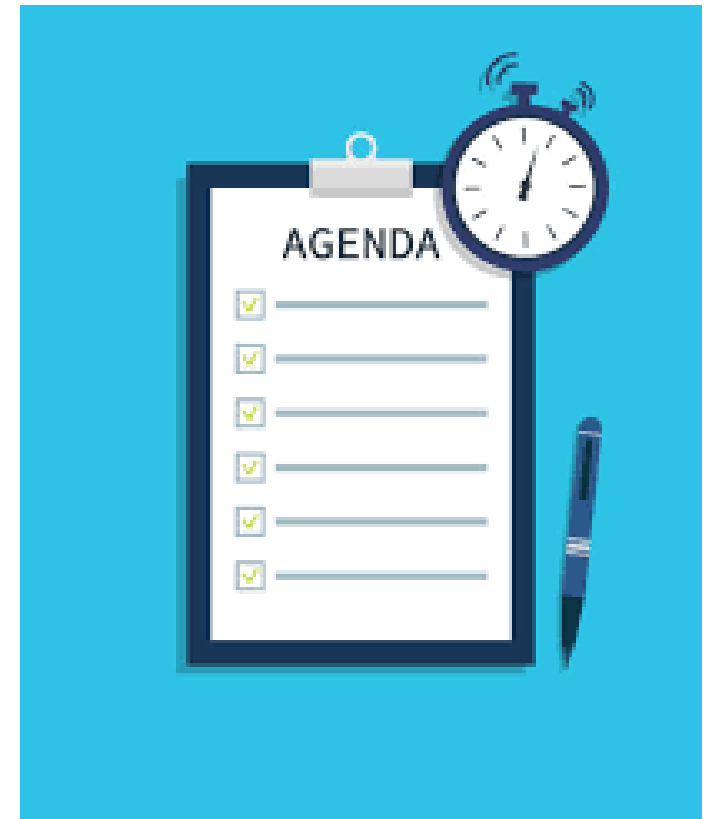
**Università
degli Studi
di Ferrara**

La gestione perioperatoria

Riccardo Ragazzi-UOARU



- Rischio perioperatorio
- Feocromocitoma
- Considerazioni sull'anestesia



Mortality after surgery in Europe: a 7 day cohort study

*Rupert M Pearse, Rui P Moreno, Peter Bauer, Paolo Pelosi, Philipp Metnitz, Claudia Spies, Benoit Vallet, Jean-Louis Vincent, Andreas Hoeft, Andrew Rhodes, for the European Surgical Outcomes Study (EuSOS) group for the Trials groups of the European Society of Intensive Care Medicine and the European Society of Anaesthesiology**

46,539 patients - 498 hospitals – 28 european countries

- In-Hospital Mortality is HIGH (3 – 4 % !!)
- 73% died non in ICU
- Age, ASA (IV-V) & Cancer
- Upper Abdominal, Vascular, Cardiac & Thoracic Surgery

Studio Vision

- 40.004 pz arruolati
- Mortalità a 30 gg 1,8%
- Mortalità intraoperatoria 0,7%
- Complicanze
- Sanguinamento maggiore 15,6%
- Danno miocardico 13%
- Sepsi 4,5%

RESEARCH ■ SEPSIS

Association between complications and death within 30 days after noncardiac surgery

The Vascular Events in Noncardiac Surgery Patients Cohort Evaluation (VISION) Study Investigators*

Table 1: Patient baseline characteristics

| Characteristic | No. (%) of patients <i>n</i> = 40 004 |
|----------------|--|
| Age, yr | |
| 45–64 | 22 141 (55.3) |
| 65–74 | 10 160 (25.4) |
| ≥ 75 | 7 703 (19.3) |
| Sex, female | 19 877 (49.7) |

| | |
|---|-------------------|
| Preoperative estimated glomerular filtration rate (mL/min/1.73 m ²) | <i>n</i> = 37 290 |
| < 30 | 1 515 (4.1) |
| 30–44 | 1 774 (4.8) |
| 45–59 | 3 707 (9.9) |
| > 60 | 30 294 (81.2) |



| | |
|--|------------------------------------|
| Hypertension | 20 152 (50.5) <i>n</i> = 39 917 |
| Diabetes | 8 332 (20.9) <i>n</i> = 39 905 |
| Coronary artery disease | 5 159 (12.9) <i>n</i> = 39 876 |
| Peripheral arterial disease | 3 203 (8.0) |
| Chronic obstructive pulmonary disease | 3 165 (7.9) |
| Coronary revascularization | 2 256 (5.7) <i>n</i> = 39 828 |
| Stroke | 1 682 (4.2) |
| Congestive heart failure | 1 424 (3.6) <i>n</i> = 39 870 |
| High-risk coronary artery disease | 384 (1.0) |
| Cardiac arrest | 235 (0.6) <i>n</i> = 39 868 |
| Coronary revascularization within 6 mo | 138 (0.3) <i>n</i> = 39 827 |



European Society
of Cardiology

European Heart Journal (2022) **43**, 3826–3924

<https://doi.org/10.1093/eurheartj/ehac270>

ESC GUIDELINES

2022 ESC Guidelines on cardiovascular assessment and management of patients undergoing non-cardiac surgery

Developed by the task force for cardiovascular assessment and management of patients undergoing non-cardiac surgery of the European Society of Cardiology (ESC)

Endorsed by the European Society of Anaesthesiology and Intensive Care (ESAIC)

IPERTENSIONE ARTERIOSA ESSENZIALE

(idiopatica o primaria)

Fattori genetici (30% della variazione di PA nelle popolazioni)

Introito di sale

Eccesso di alcool

Obesità

Razza nera

Personalità

IPERTENSIONE ARTERIOSA SECONDARIA

Malattie del parenchima renale

Iperensione renovascolare

Contraccettivi orali

Feocromocitoma

Iperaldosteronismo primitivo

Sindrome di Cushing

Altri disordini endocrini

(ipotiroidismo, ipertiroidismo, iperparatiroidismo; etc..)

Sindrome delle apnee notturne (sleep apnea)

Coartazione aortica

Feocromocitoma

Approach to the Patient: Perioperative Management of the Patient with Pheochromocytoma or Sympathetic Paraganglioma

Inhalation agents

Safe

Sevoflurane (42, 73, 94)
Isoflurane (73, 93, 95-97)
Enflurane (95, 97, 98)
Nitrous oxide (94, 97)

Not safe

Halothane
Desflurane

Intravenous agents

Safe

Propofol (42, 94, 104)
Etomidate (42, 94, 95)
Dexmedetomidine (42, 105)

Not safe

Ketamine
Thiopental (thiopentone)

Neuromuscular blocking agents

Safe

Rocuronium (42, 110)
Vecuronium (42, 94, 95, 97, 110, 111)

Not safe

Succinylcholine (suxamethonium)
Pancuronium

Atracurium
Tobucurarine
Mivacurium

Cisatracurium

Antiemetic agents

Safe

Ondansetron (123)

Not safe

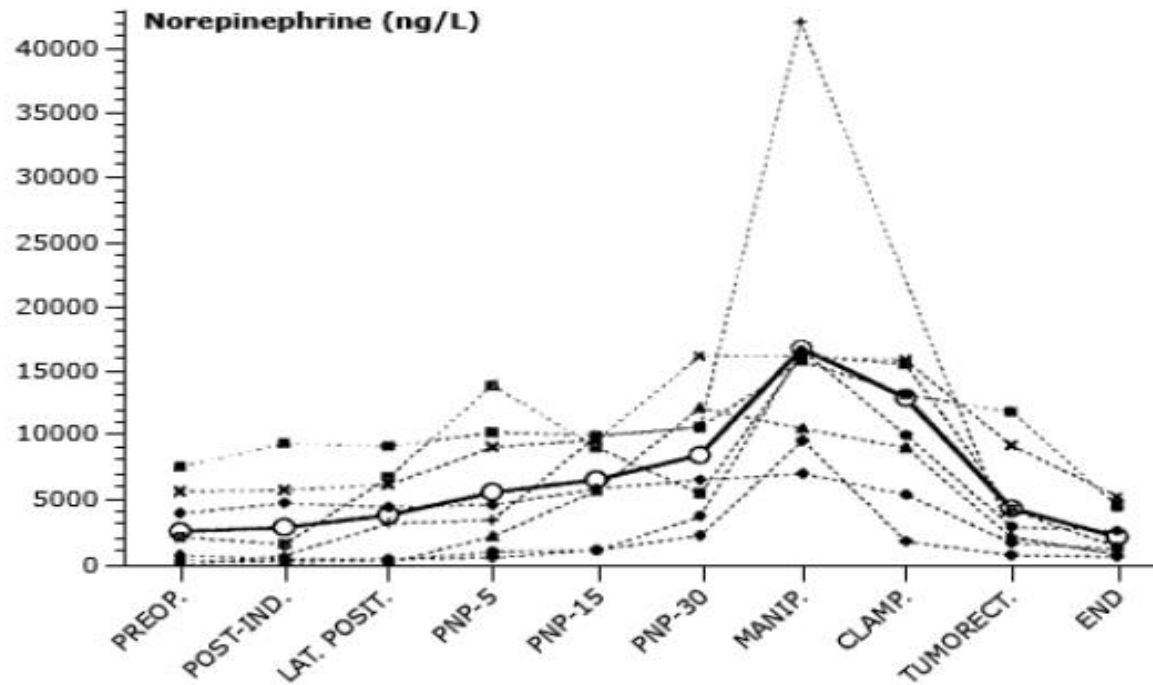
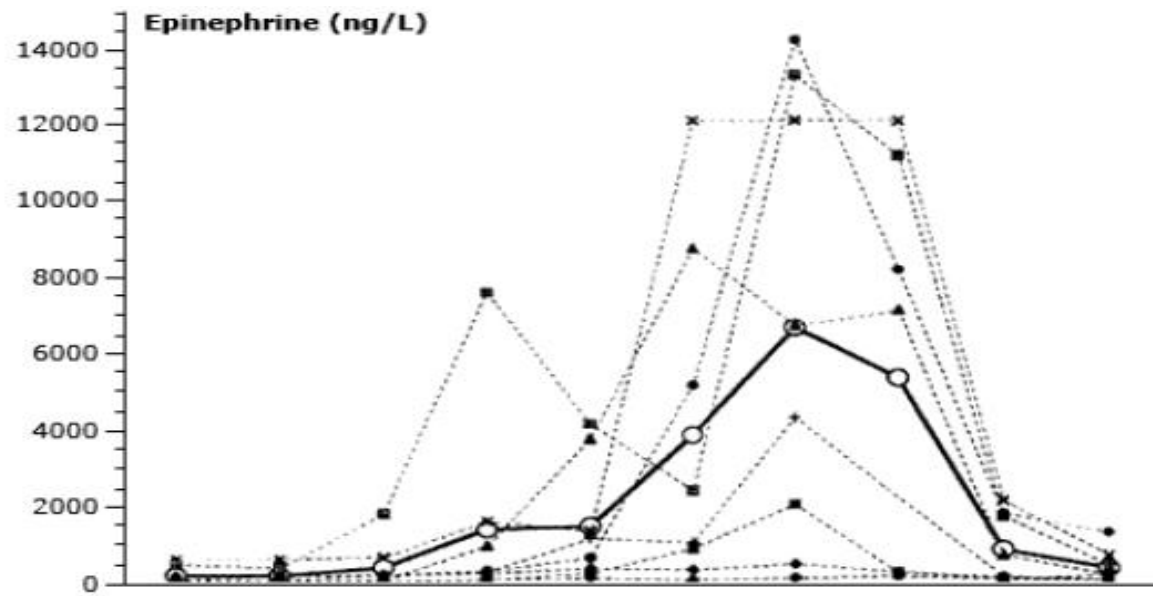
Metoclopramide
Chlorpromazine
Prochlorperazine

Domperidone

Droperidol
Haloperidol

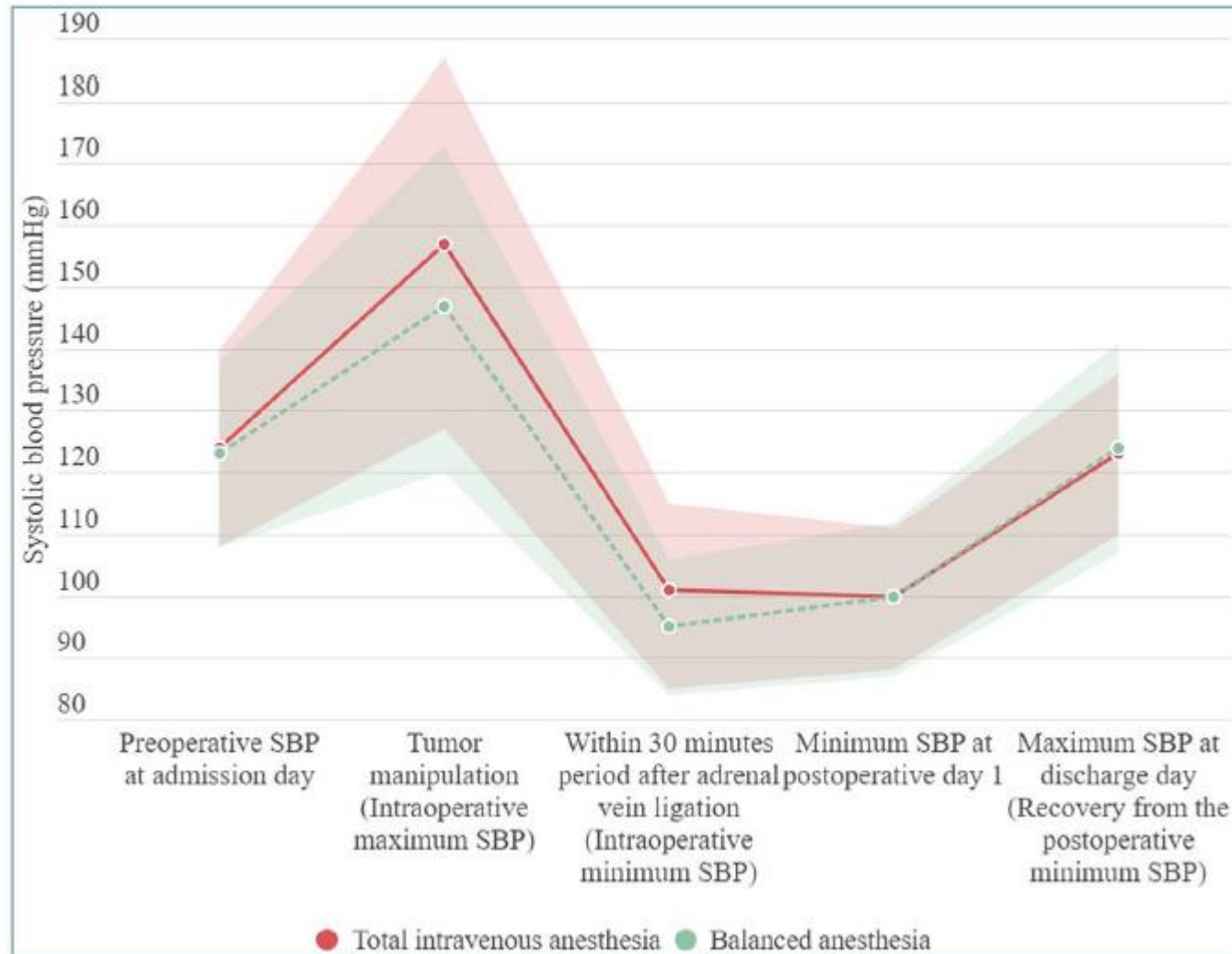
Cisapride

From: Joris JL, Hamoir EE, Hartstein GM, et al. Hemodynamic Changes and Catecholamine Release During Laparoscopic Adrenalectomy for Pheochromocytoma. *Anesth Analg* 1999; 88:16. DOI: 10.1213/00000539-199901000-00004. Copyright © 1999 International



The association between the type of anesthesia and hemodynamic instability during pheochromocytoma surgery: a retrospective cohort study

Surgical Endoscopy (2022) 36:5491–5500
<https://doi.org/10.1007/s00464-021-08910-3>

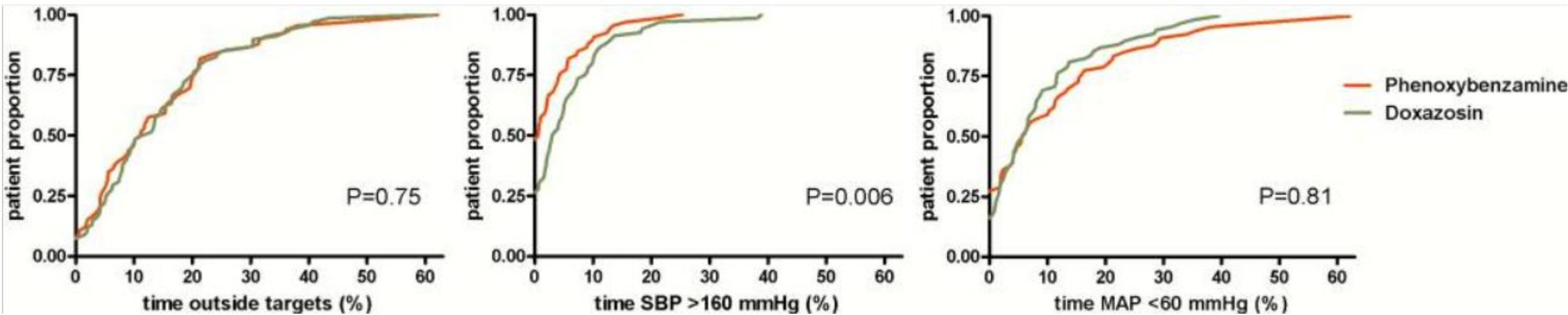


Research Paper

The effect of combined Epidural-general Anesthesia on Hemodynamic Instability during Pheochromocytoma and Paraganglioma Surgery: A multicenter retrospective cohort study

Conclusions: The combined epidural-general anesthesia was not effective in attenuating hypertensive responses, but could have exacerbated intraoperative hypotension. These findings should be taken into account before selecting the anesthetic technique in pheochromocytoma and sympathetic paraganglioma surgery.

Efficacy of α -Blockers on Hemodynamic Control during Pheochromocytoma Resection: A Randomized Controlled Trial



Predictors of prolonged hypotension requiring vasopressor support after resection of pheochromocytoma and paraganglioma



[Volume 95, Issue 6](#)

December 2021

Pages 841-848

TABLE 3 Multivariable analysis for predictors of prolonged hypotension requiring postoperative vasopressor support

| Variables | Odds ratio (95% CI) | <i>p</i> Value |
|----------------------------------|---------------------|----------------|
| 24 h urine NE/upper limit value | 1.091 (1.052–1.132) | <.001 |
| Operative time, min | 1.008 (1.004–1.011) | <.001 |
| Phenoxybenzamine dose, mg/kg/day | 0.336 (0.150–0.753) | .008 |

American Association of Endocrine Surgeons

Hypoglycemia after resection of pheochromocytoma

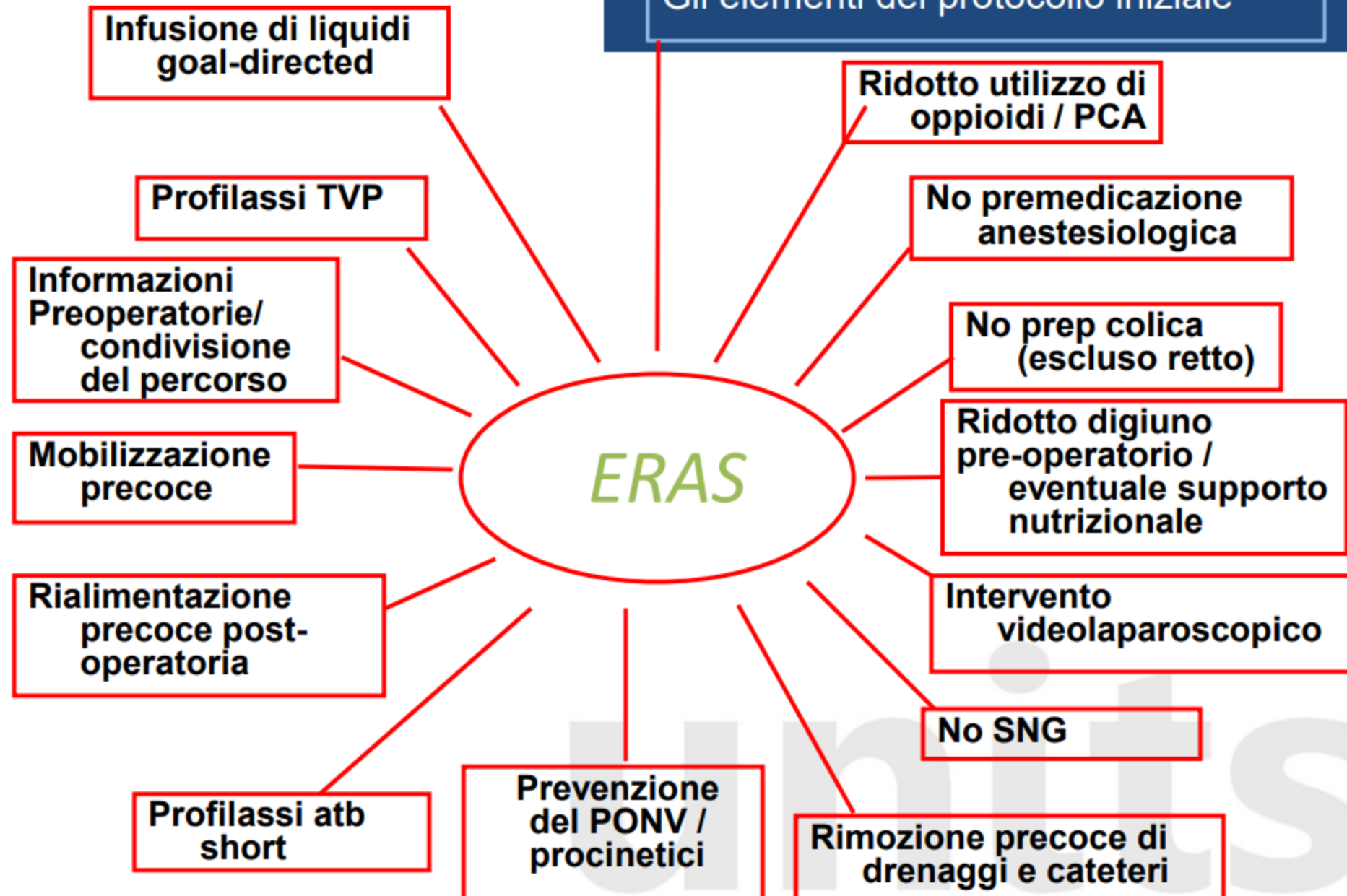
- 4,2 %
- 8-9 episodi
- Prime 24 ore

Surgery

Volume 156, Issue 6, December 2014, Pages 1404-1409

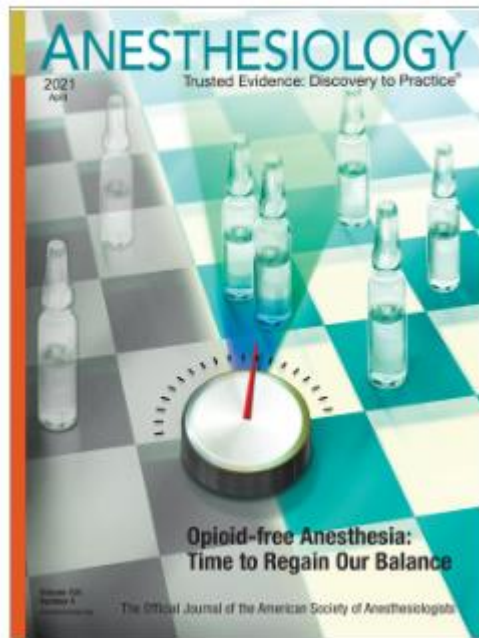
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Gli elementi del protocollo iniziale



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April 2021



ANESTHESIOLOGY

Perioperative Opioid Administration

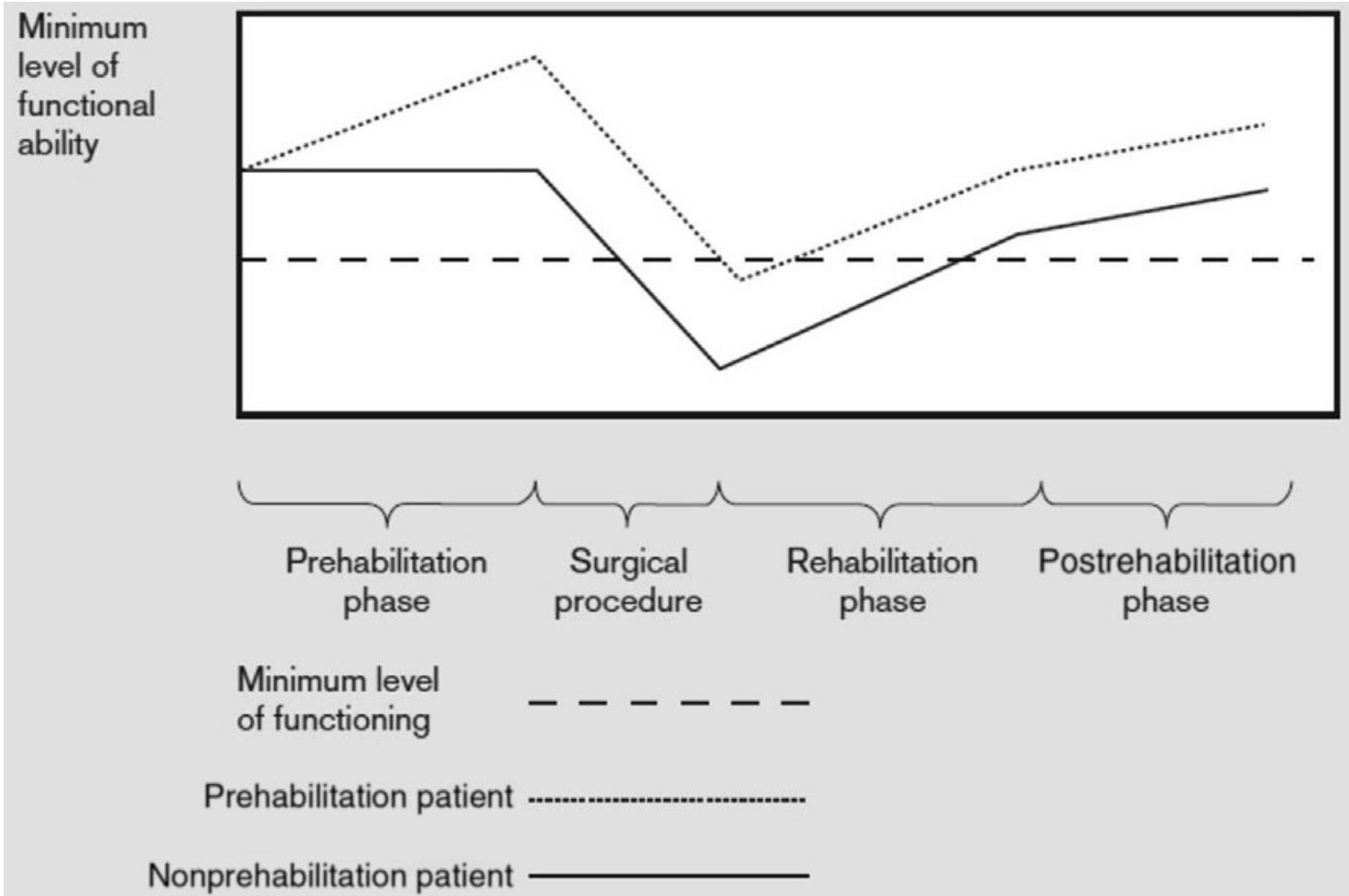
A Critical Review of Opioid-free *versus* Opioid-sparing Approaches

Harsha Shanthanna, M.D., Ph.D., F.R.C.P.C.,
Karim S. Ladha, M.D., M.Sc., F.R.C.P.C.,
Henrik Kehlet, M.D., Ph.D.,
Girish P. Joshi, M.B.B.S., M.D., F.F.A.R.C.S.I.

ANESTHESIOLOGY 2021; 134:645–59

Preoperative muscle weakness as defined by handgrip strength and postoperative outcomes: a systematic review

Pervez Sultan¹, Mark A Hamilton² and Gareth L Ackland^{3,4*}





Grazie!