4ª Reunión de Equipos de Anestesia y Cirugía de la Comunidad de Madrid y Zona Centro

INNOVACIÓN ASISTENCIAL

29 de Noviembre de 2018 - Real Academia de Medicina - C/ Arrieta, 12 (Metro Ópera)

EL QUIRÓFANO COMO TRABAJO EN EQUIPO: INNOVAR PARA MEJORAR

15:15 - 16:00 Comida buffet.

16:00 - 16:05 Objetivos. Necesidades y soluciones en Anestesia abdominal. Dra. ML Pindado.

16:05 - 16:15 Innovación en la Formación. Dr. JC Ruiz de Adana.

16:15 - 16:30 Infección quirúrgica ZERO. Normotermia y normoglucemia. Dr. LE Muñoz.

16:30 - 17:30 La relajación muscular como punto de encuentro de anestesiólogos y cirujanos. Dra. Pindado, Dr. Ruiz de Adana y Dra. A Valle Rubio.

- Presión intraabdominal y cirugía laparoscópica. Dr. O Díaz Cambronero.
- Necesidades por la técnica quirúrgica. Preguntas con respuestas.
  - Cirugía colorrectal. Dr. B Flor.
  - Cirugía de Pared. Dr. I Alarcón.
  - Soluciones y alternativas. Dr. O Díaz Cambronero.

17:30 - 17:45 Innovación tecnológica. Registro intraoperatorio del sistema nervioso autónomo (ANI). Dr. E Martínez.

17:45 - 18:15 Lo + Plus: anestesia libre de opioides (OFA). Inflamación y analgesia multimodal pre-emptiva. Dra. ML Pindado.

18:15 - 18:30 Clausura. Foto de familia.

Organiza Equipo de Cirugía de EG y O del Hospital de Getafe

Inscripción gratuita. Aforo limitado
Solicitada Acreditación Formación Continuada

4º EGYO
4ª Reunión de Equipos de Cirugía Esofagogastrica y Obesidad de la Comunidad de Madrid y Zona Centro
INNOVACIÓN ASISTENCIAL
29 de Noviembre de 2018 - Real Academia de Medicina
C/ Arrieta, 12 (Metro Ópera)

Innovación Tecnológica Registro Intraoperatorio del Sistema Nervioso Autónomo (ANI)

Dr. Ernesto Martínez García S.Anestesia y Reanimación

Agradecimientos y Conflicto de Intereses

Innovación Tecnológica.Resgistro Intraoperatorio del SNA. ANI. Dr.Ernesto Martínez García

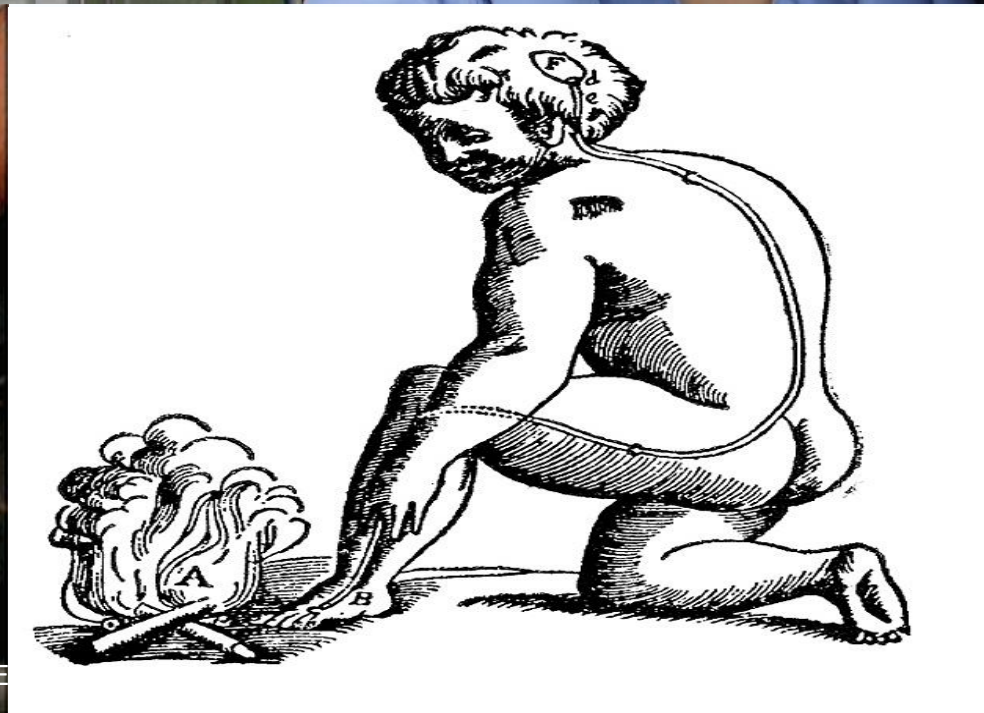
A REASSESSMENT OF THE SIGNS AND LEVELS OF ANAESTHESIA.

By Cecil Gray, M.D., F.F.A.R.C.S.

Department of Anaesthesia, University of Liverpool.

Conclusion.

I suggest, in conclusion, that the changes in respiration, eye movements, pupils and other reflexes should be taught from the view point of their aetiological significance and not as signs of the depth of anaesthesia—they are signs of muscle relaxation, of respiratory obstruction or of reflex activity. The attention of the anaesthetist should be directed towards producing various "modalities" of anaesthesia such as sleep, relaxation and depression of undesirable reflex responses to injury. Hypotension and depression of metabolism by hypothermia, when they are required for adequate reasons, are other modalities of normal physiological function which can be controlled by modern anaesthetists.



Innovación Tecnológica.Resgistro Intraoperatorio del SNA. ANI. Dr.E

Receptores simpáticos

α_1
- ↑ Contracción de músculo liso vascular
- ↑ Contracción del músculo dilatador de la pupila (midriasis)
- ↑ Contracción del esfínter de la vejiga e intestinal

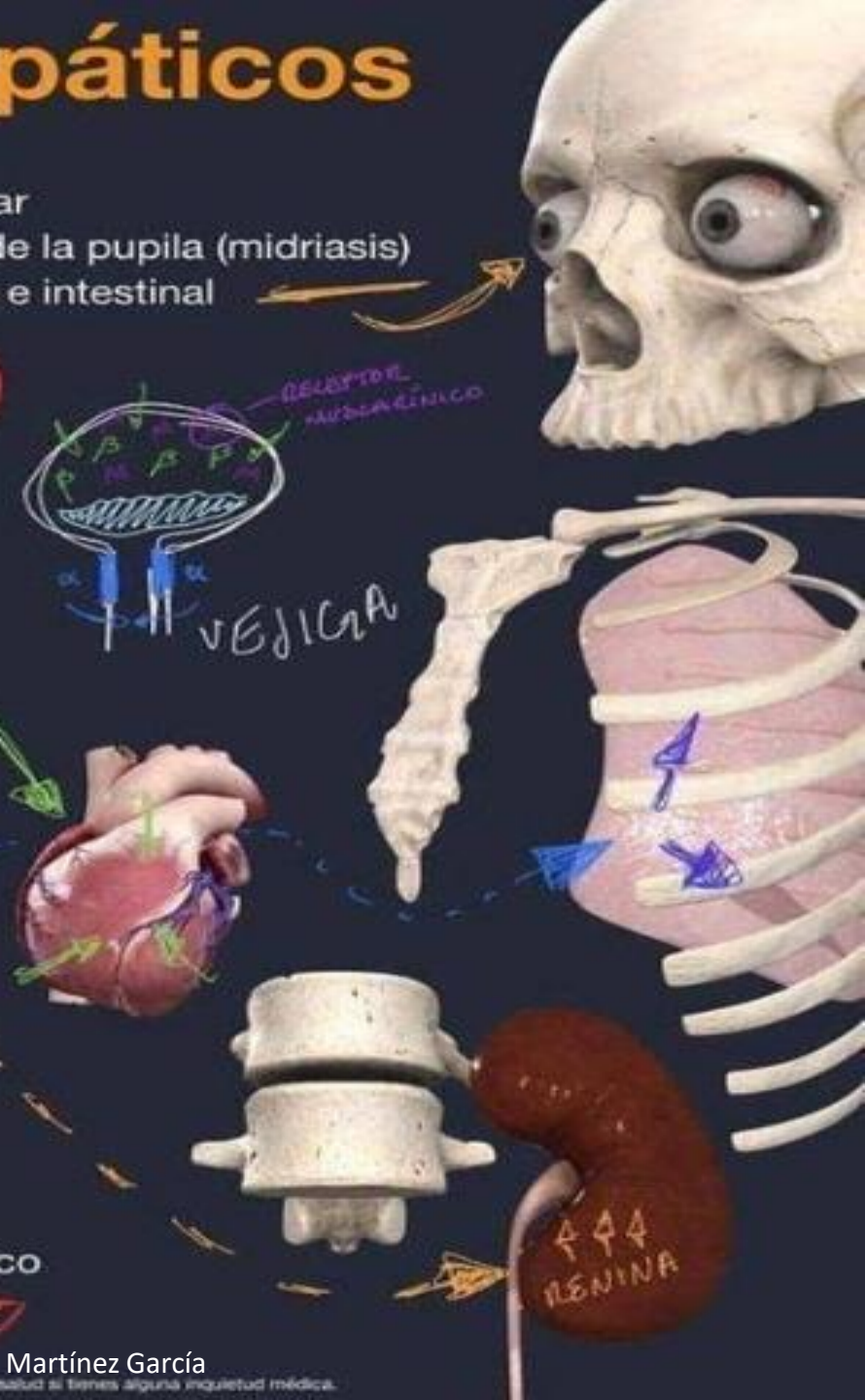
α_2
- ↓ Descarga simpática (adrenérgica)
- ↓ Liberación de insulina
- ↓ Lipólisis
- ↓ Agregación plaquetaria
- ↓ Producción de humor acuoso

SE OPONE

β_1
- ↑ Frecuencia cardíaca
- ↑ Contractibilidad
- ↑ Liberación de renina
- ↑ Lipólisis

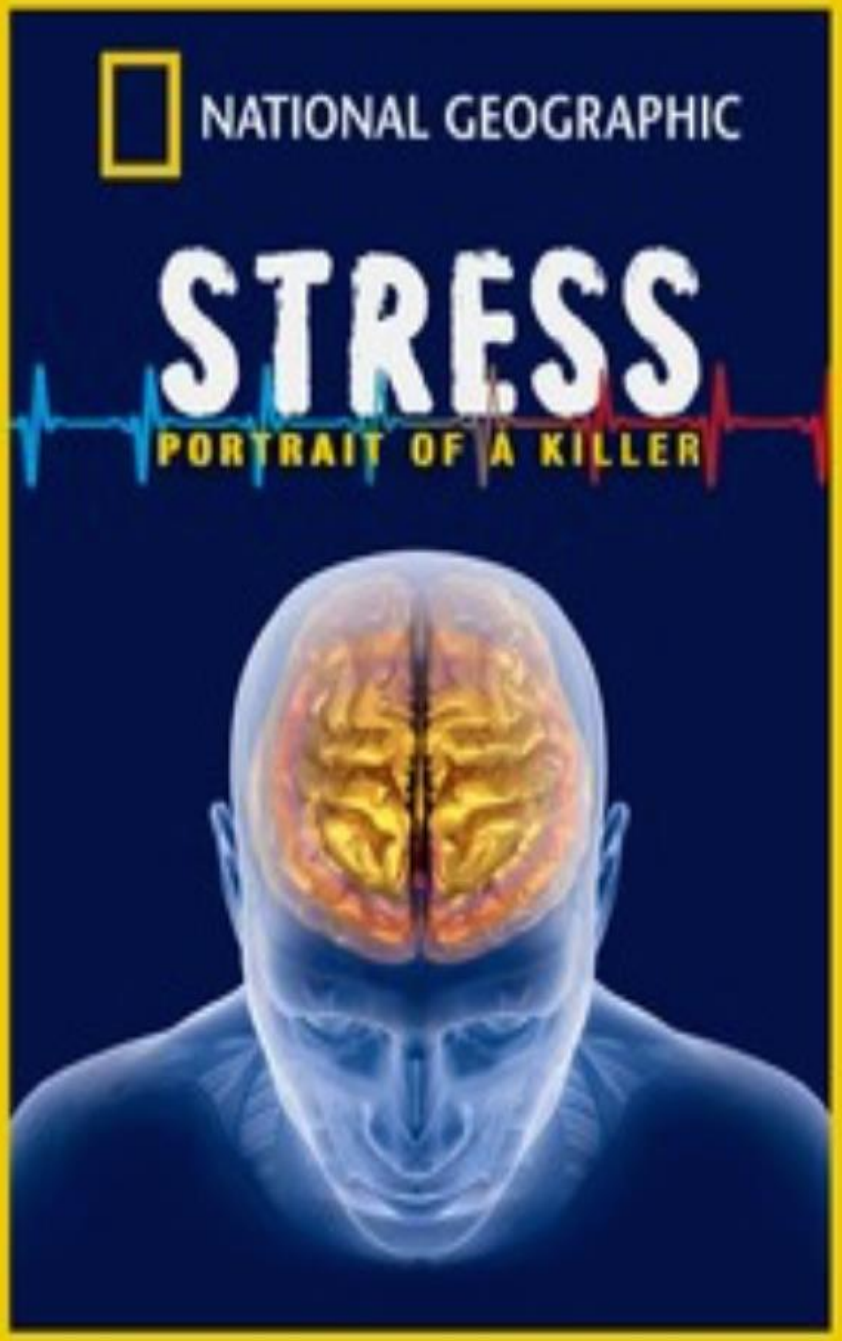
β_2
- Vasodilatación
- Broncodilatación
- Relajación del músculo ciliar
- ↑ Lipólisis
- ↑ Liberación de insulina
- ↑ Producción de humor acuoso
- ↓ Tono uterino (tocólisis)

β_3
- ↑ Lipólisis
- ↑ Termogénesis en músculo esquelético



SPOTLIGHTMed


FEBRUARY 23, 2004
TIME
BUSH'S MILITARY RECORDS IS DISNEY MOUSETRAPPED?
THE SECRET KILLER
The surprising link between INFLAMMATION and HEART ATTACKS, CANCER, ALZHEIMER'S and other diseases
What you can do to fight it

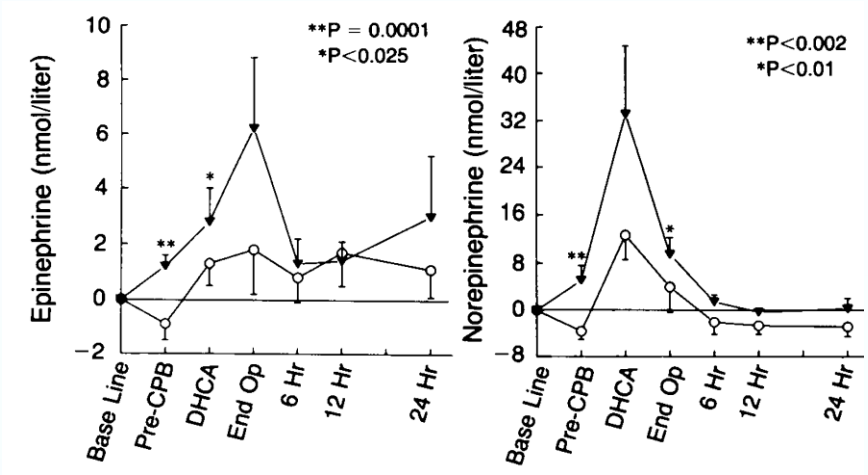

NATIONAL GEOGRAPHIC
STRESS
PORTRAIT OF A KILLER

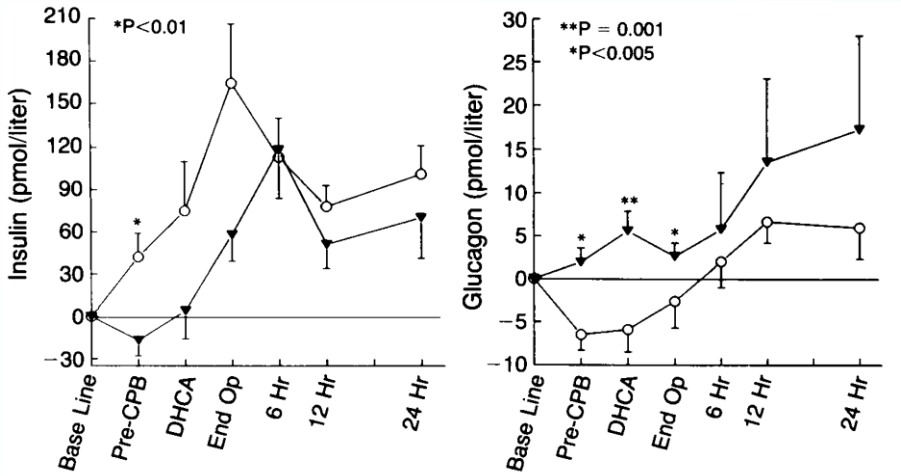
The New England
Journal of Medicine

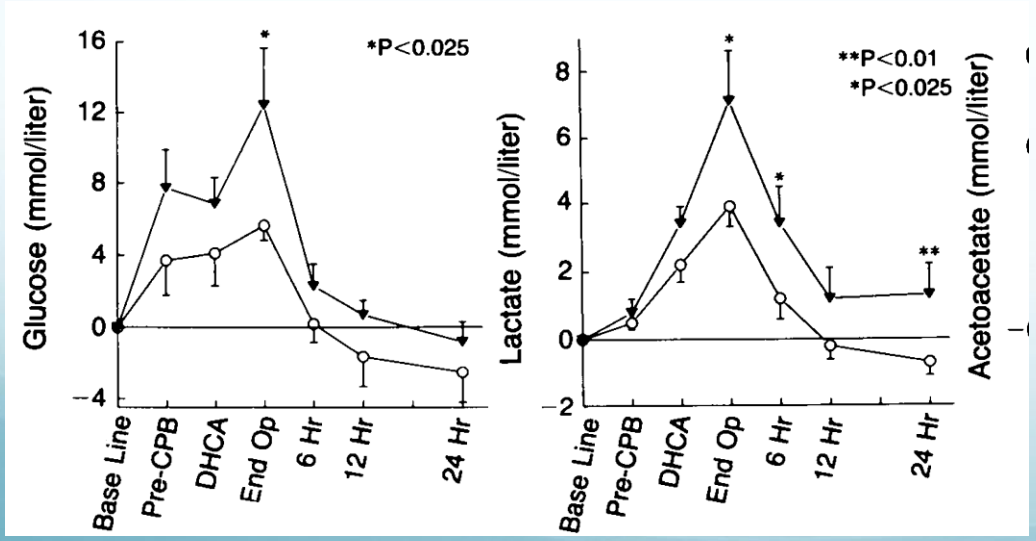
Volume 326 JANUARY 2, 1992 Number 1

HALOTHANE–MORPHINE COMPARED WITH HIGH-DOSE SUFENTANIL FOR ANESTHESIA AND POSTOPERATIVE ANALGESIA IN NEONATAL CARDIAC SURGERY

K.J.S. Anand, M.B., B.S., D.Phil., and P.R. Hickey, M.D.


Epinephrine (nmol/liter)
**P = 0.0001
*P<0.025
Norepinephrine (nmol/liter)
**P<0.002
*P<0.01
Base Line
Pre-CPB
DHCA
End Op
6 Hr
12 Hr
24 Hr


Insulin (pmol/liter)
*P<0.01
Glucagon (pmol/liter)
**P = 0.001
*P<0.005
Base Line
Pre-CPB
DHCA
End Op
6 Hr
12 Hr
24 Hr


Glucose (mmol/liter)
*P<0.025
Lactate (mmol/liter)
**P<0.01
*P<0.025
Acetoacetate (mmol/liter)
Base Line
Pre-CPB
DHCA
End Op
6 Hr
12 Hr
24 Hr

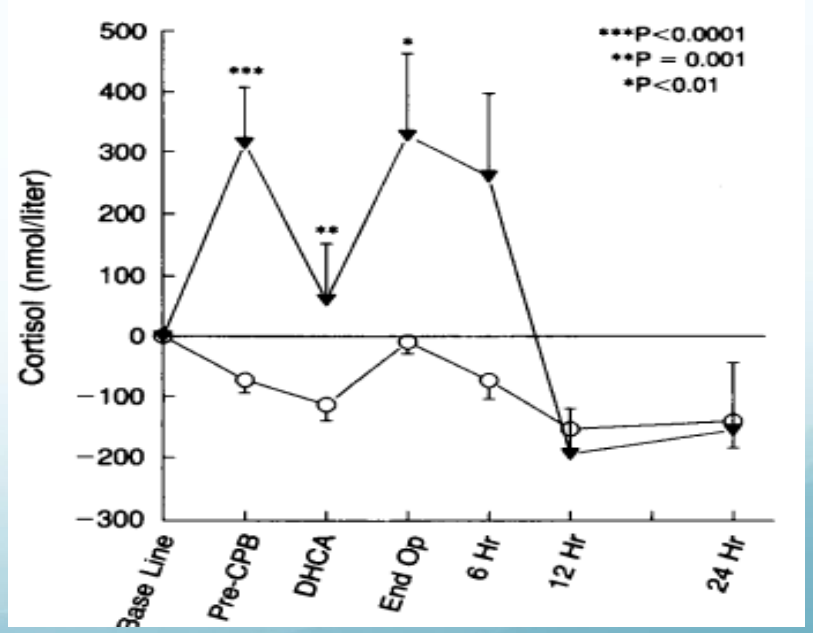

Cortisol (nmol/liter)
***P<0.0001
**P = 0.001
*P<0.01
Base Line
Pre-CPB
DHCA
End Op
6 Hr
12 Hr
24 Hr

Table 4. Postoperative Complications and Outcome in the Two Groups of Neonates.*

Finding	Halothane Group (N = 15)	Sufentanil Group (N = 30)	P Value†
Hypotension	11 (73)	13 (43)	0.055
Arrhythmias	7 (47)	6 (20)	0.154
Sepsis or necrotizing enterocolitis	3 (20)	0	0.032
Disseminated intravascular coagulation	3 (20)	0	0.032
Seizures	4 (27)	3 (10)	0.154
Metabolic acidosis	4 (27)	0	0.009
Death	4 (27)	0	0.009
Postoperative ventilation (hr)	125±45‡	127±21	0.086§
Postoperative ICU stay (days)	9.0±2.0‡	8.6±0.9	0.413§
Postoperative hospital stay (days)	16.1±3.6‡	16.9±2.3	0.214§

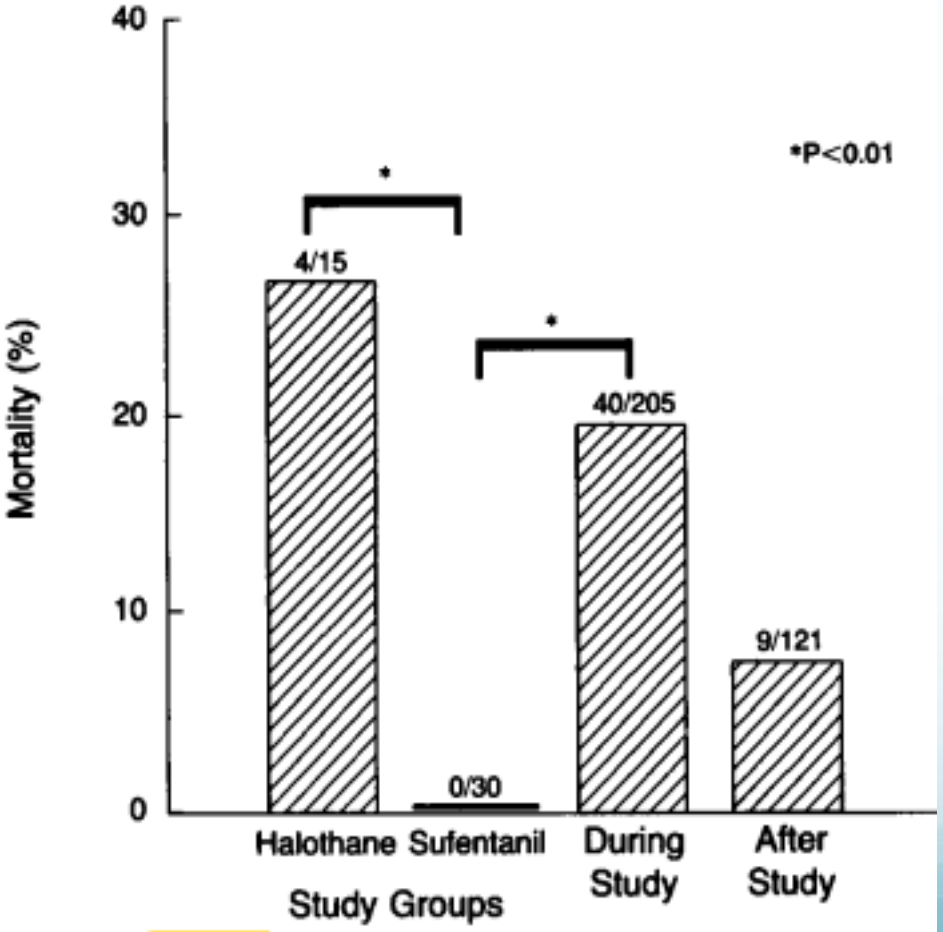
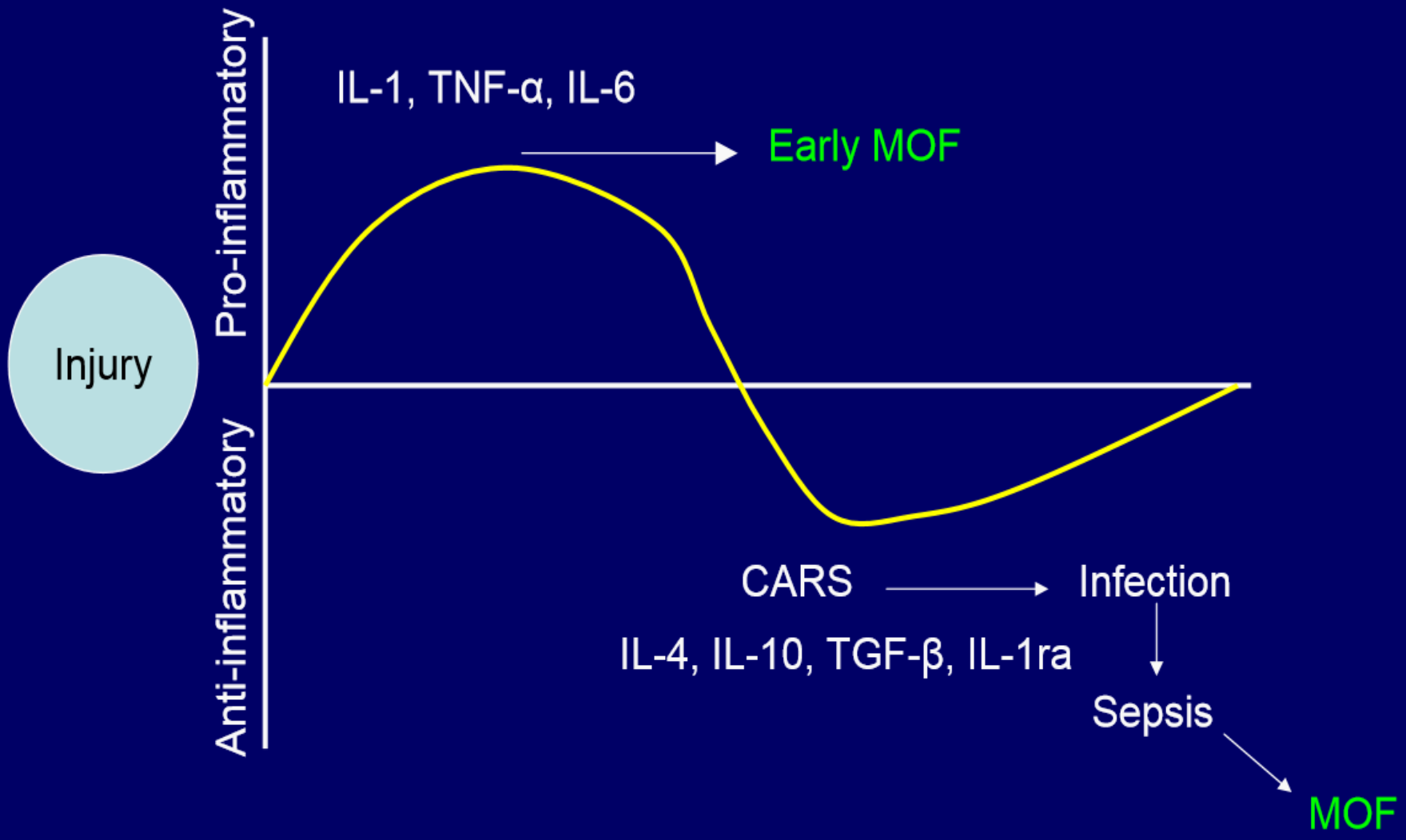


Figure 5. Mortality in the Study Groups and Hospital Mortality in All Neonates Undergoing Cardiopulmonary Bypass and Hypothermic Circulatory Arrest during the Study Period (July 1985 to December 1987) and afterward (July 1990 to June 1991).

Inflammatory Response



Adapted from EE Moore, *et al*, Shock, 2005;24:71-74

Editorial Views | March 1999

Is Gaining Control of the Autonomic Nervous System Important to Our Specialty?

Thomas J. Ebert, MD, PhD

+ Author Notes

Anesthesiology 3 1999, Vol.90, 651-653. doi:

Similarly, preliminary data have suggested that low HR variability (HRV), an index of impaired cardiac-vagal tone, is an independent predictor of mortality after non-cardiac surgery.

Contemporary Reviews in Cardiovascular Medicine

Parasympathetic Nervous System and Heart Failure

Pathophysiology and Potential Implications for Therapy

Brian Olshansky, MD; Hani N. Sabbah, PhD; Paul J. Hauptman, MD; Wilson S. Colucci, MD

Parasympathetic Activation: A New Treatment Paradigm?

Summary Autonomic regulation of the heart has an important influence on the progression of HF. Although elevated **sympathetic activity is associated with an adverse prognosis**, a high level of parasympathetic activation confers cardioprotection by several potential mechanisms. These parasympathetic actions on the heart are mediated not only by the direct consequences of cardiac muscarinic receptor stimulation but also by a multitude of indirect mechanisms. **Direct vagus nerve stimulation** has only recently been investigated in human subjects with HF and could provide new insights into how **parasympathetic activation affects disease progression and clinical outcomes**.

Cómo monitorizar SNA…?

Balance del S.N.A.

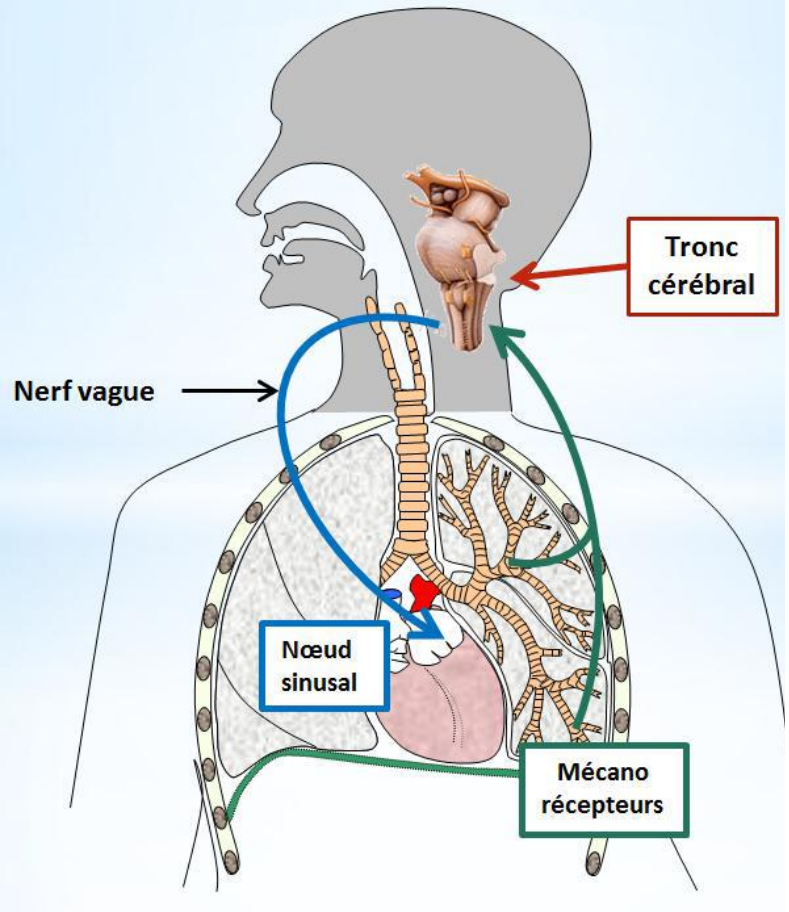
Sistema simpático

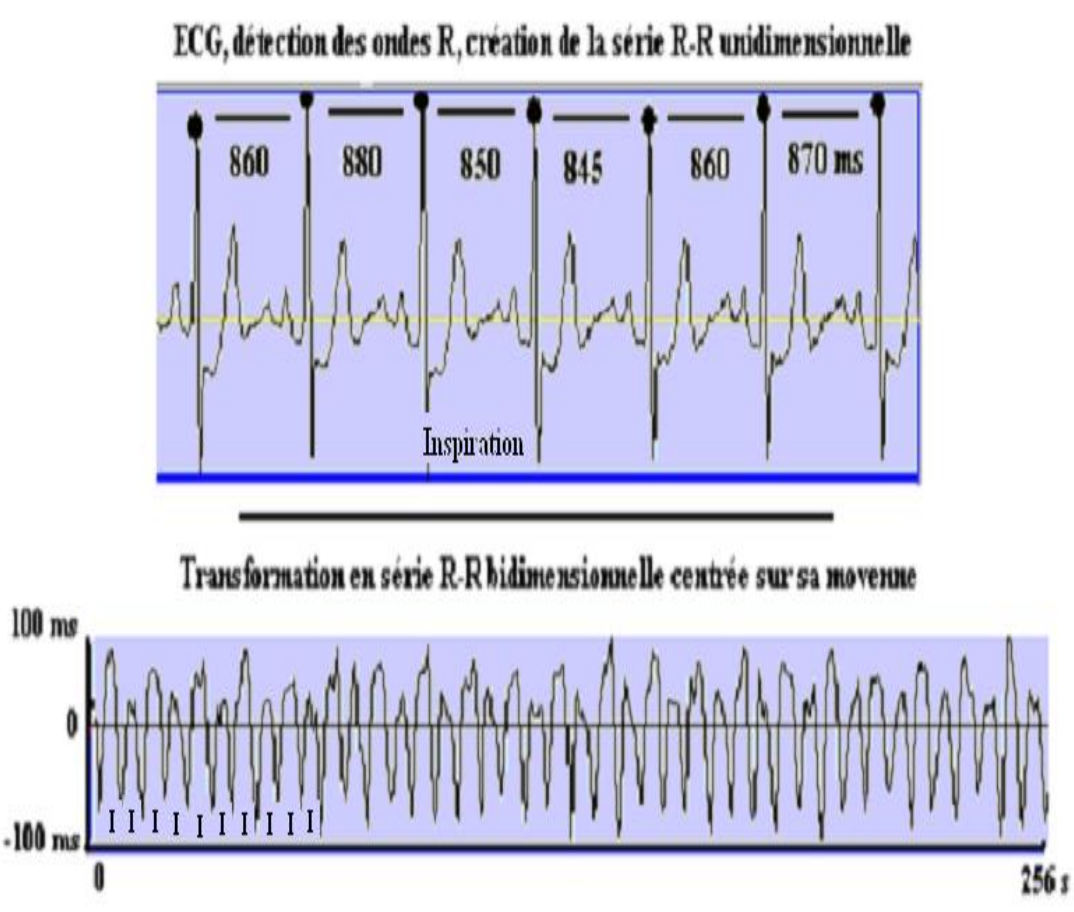
- Disminuye variabilidad respiratoria FC
- Dilatación pupilar
- Incremento en la FC y la TA
- Broncodilatación
- Peristaltimo disminuido
- Sudoración

Sistema parasimpático

- Aumenta variabilidad respiratoria FC
- Miosis
- Descenso de la FC y la TA
- Broncoconstricción
- Peristaltismo aumentado
- Conductancia cutanea baja

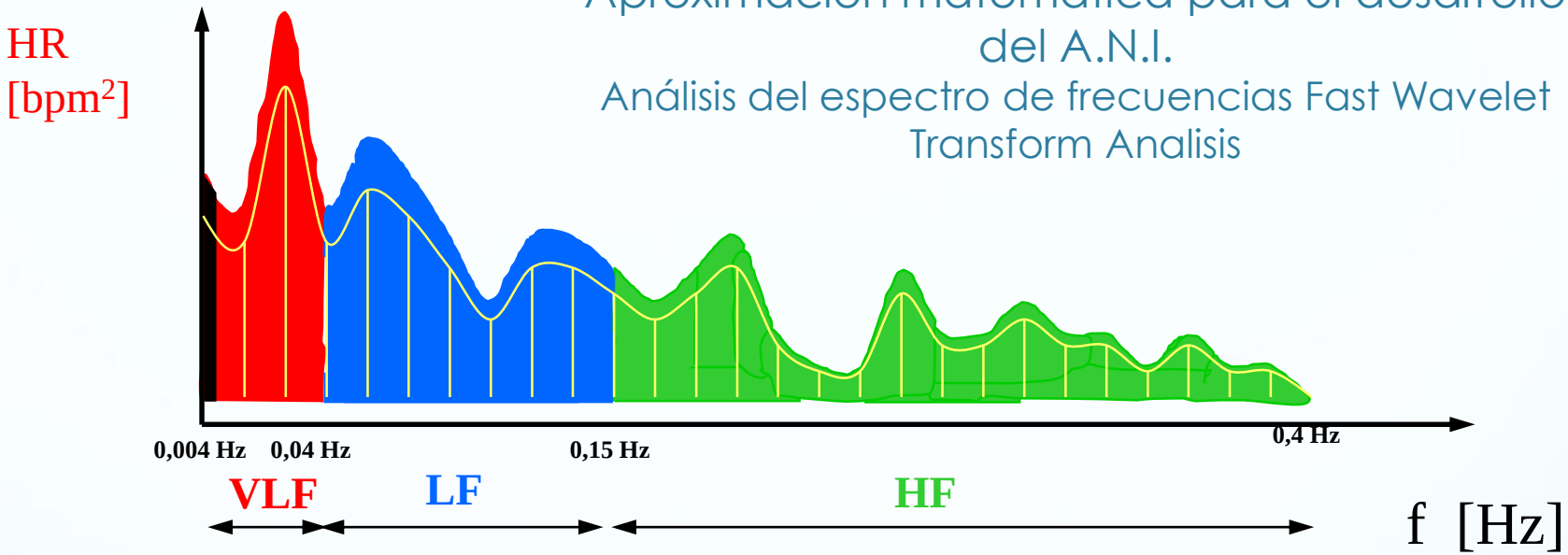
Arritmia Sinusal Respiratoria





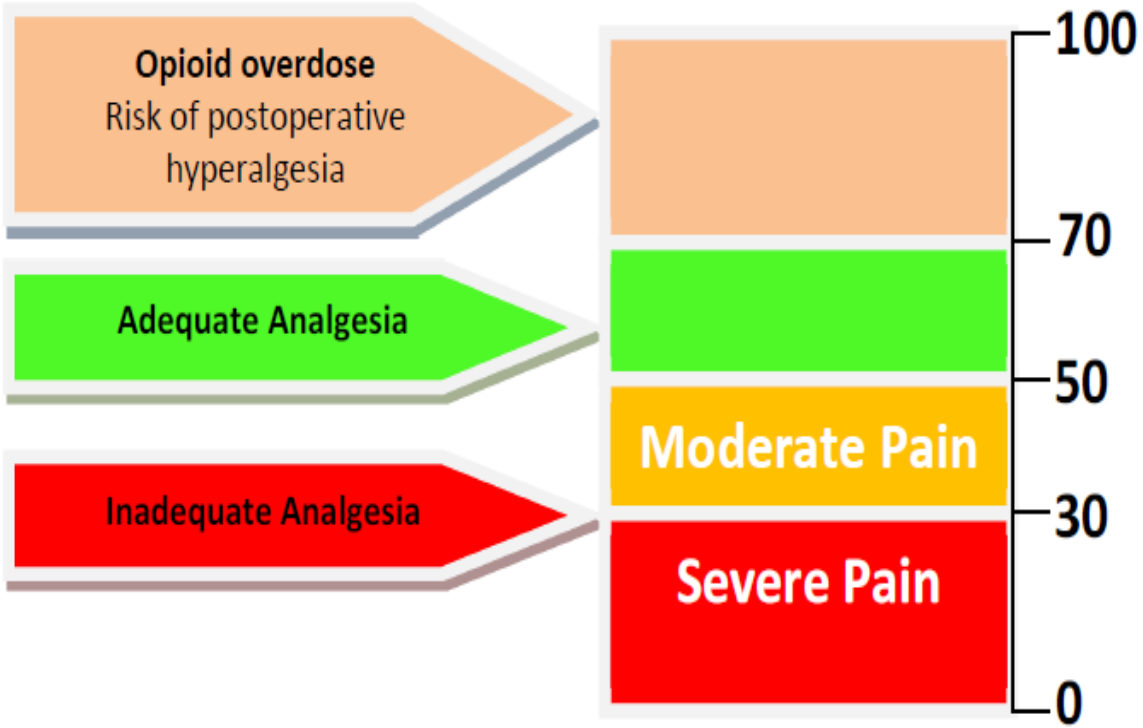
Aproximación matemática para el desarrollo del A.N.I.

Análisis del espectro de frecuencias Fast Wavelet Transform Analisis



- VLF (0,004-0,04 Hz) muestran actividad de termorregulación y del sistema endocrino.
- LF (0,04-0,15 Hz) muestran actividad modulada por TonoS y al TonoP, así como barorrefleja.
- HF (0,15-0,40 Hz) pone de manifiesto actividad del TonoP, fundamentalmente relacionada con la ASR.

How to interpret A.N.I.
in unconscious patients?



ANI = tonus pΣ
= Nociception + ~~psychological stress~~

Anesthesiology 2017; 127:272-83

Validation of Innovative Techniques for Monitoring Nociception during General Anesthesia

A Clinical Study Using Tetanic and Intracutaneous Electrical Stimulation

Sandra Funcke, M.D., Sven Sauerlaender, Hans O. Pinnschmidt, Ph.D., Bernd C. Saugel, M.D., Kai Bremer, C.R.N.A., Daniel A. Reuter, M.D., Rainer Nitzschke, M.D.

What We Already Know about This Topic

- Analgesic administration is a critical component of anesthetic management
- Physiologic variables alone or in combination are used to measure analgesic status

What This Article Tells Us That Is New

- Changes in the Analgesia Nociception Index and Surgical Pleth Index, as well as pupillary dilatation, were sensitive and specific for painful stimulation
- The bispectral index is sensitive neither to painful stimuli nor to the effects of analgesics and therefore is a poor marker of analgesia

Registro del SNA……por qué?

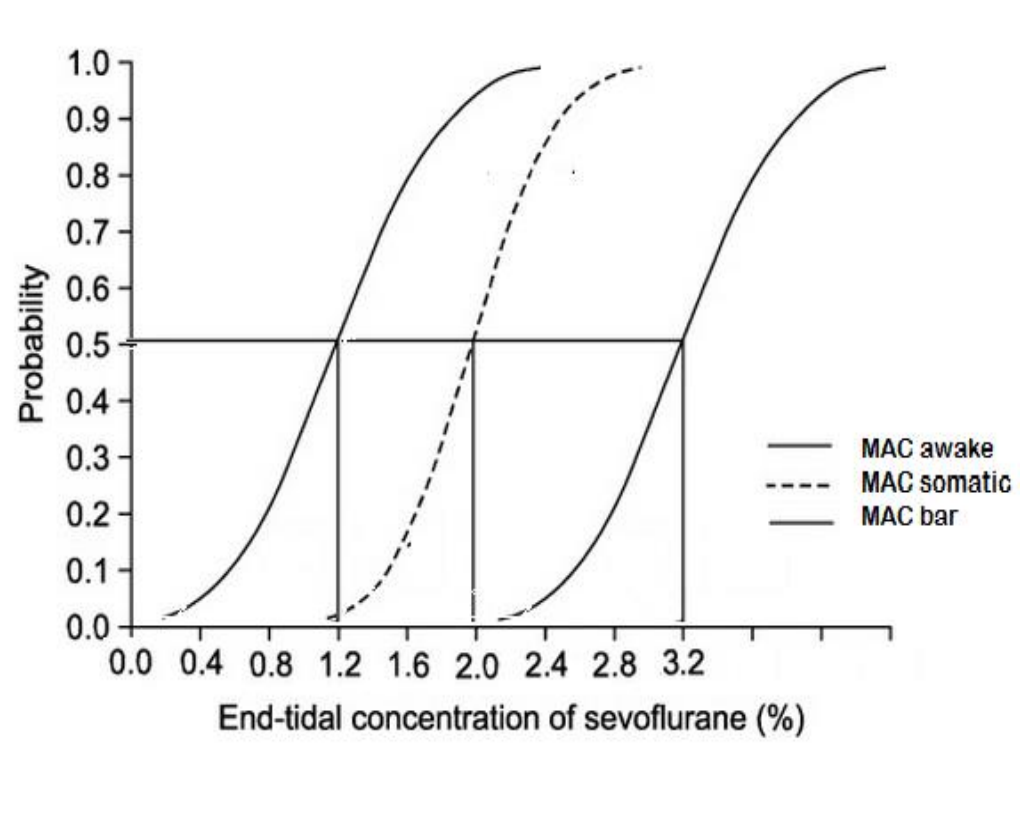
- Dosificación de opiáceos:
  - Cuanto (Evitar efectos adversos e hiperalgesia)
  - Cuando
- Alternativas a los opiáceos
  - Analgesia Multimodal
  - Analgesia regional
- Control Hemodinámico
  - Preventivo
  - Etiología
- Postoperatorio
  - Analgesia
  - Ansiolisis
- Limitaciones: arritmias, marcapasos, antimuscarínicos.

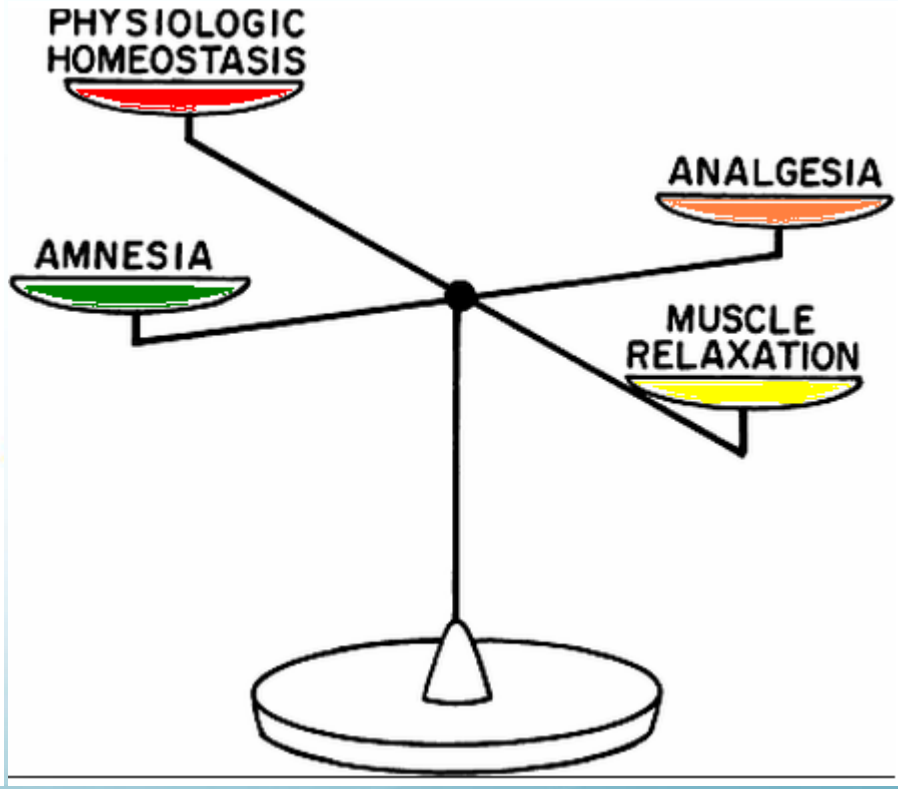
EDITORIAL

The Analgesia Nociception Index: Tailoring Opioid Administration

Georges Daccache, MD,*† Mathieu Jeanne, MD, PhD,‡§ and Dominique Fletcher, MD, PhD||

Cuantitative Anesthesia
Cualitative Anesthesia





Balance during surgical procedure
Nociceptive Antinociceptive

Simpathetic | **Parasimpathetic**

Nociception	Antinociception
Catabolism	Anabolism
Surgeon	Anesthesiologist
Stress	Confort

The Evolution of Anesthesiology and Perioperative Medicine

Anesthesiology 2013; 118:1005-7

"It is not the strongest of the species that survives, nor the most intelligent that survives. It is the one that is the most adaptable to change."

—*Leon C. Megginson,*
paraphrase of Charles Darwin

"Impacto del Anestesiólogo en los resultados en cirugía de alto riesgo"

LOGY
ıal meeting

American Society of Anesthesiologists®

Table 1: Patient, procedure, and hospital risk adjusted mortality and morbidity analyses (2010-2013 Medicare Beneficiaries)

		30 day morbidity or mortality				Anesthesia morbidity		
Surgery Group	Total Patients (n)	Event Rate (n, %)	Outcome Variation Attributable to Anesthesiology Provider ICC (95% CI)	Outcome Variation Attributable to Surgery Provider ICC (95% CI)		Event Rate (n, %)	Outcome Variation Attributable to Anesthesiology Provider ICC (95% CI)	Outcome Variation Attributable to Surgery Provider ICC (95% CI)
AAA	168,715	36,892 (22%)	4.4% (3.5 – 5.7)	4.2% (3.5 – 5.1)		33,784 (20%)	4.4% (3.4 – 5.7)	4.1% (3.4 – 5.0)
CABG	434,874	190,805 (44%)	4.5% (4.2 – 4.8)	5.1% (4.7 – 5.5)		187,368 (43%)	4.6% (4.3 – 4.9)	5.1% (4.7 – 5.5)
Colectomy	437,846	59,140 (14%)	3.1% (1.8 – 5.3)	5.2% (4.0 – 6.7)		54,655 (13%)	3.4% (2.0 – 5.6)	5.1% (3.9 – 6.7)

* AAA = Abdominal Aortic Aneurysm Repair
* ICC = Intraclass Correlation Coefficient
* CI = Confidence Interval

Anesthesia and Neurodevelopment in Children

Perhaps the End of the Beginning

David O. Warner, M.D., Yu Shi, M.D., Ph.D., Randall P. Flick, M.D.

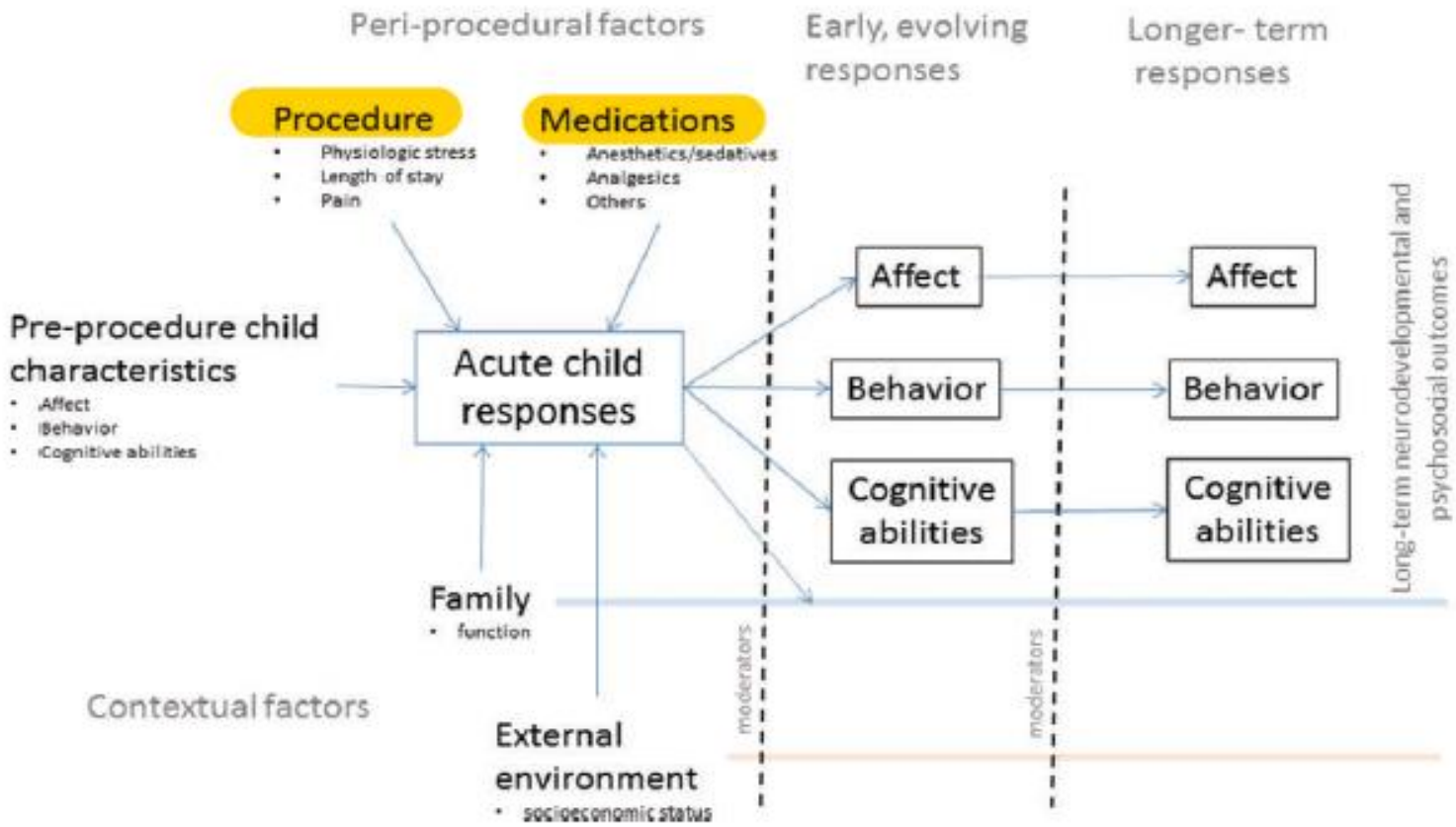
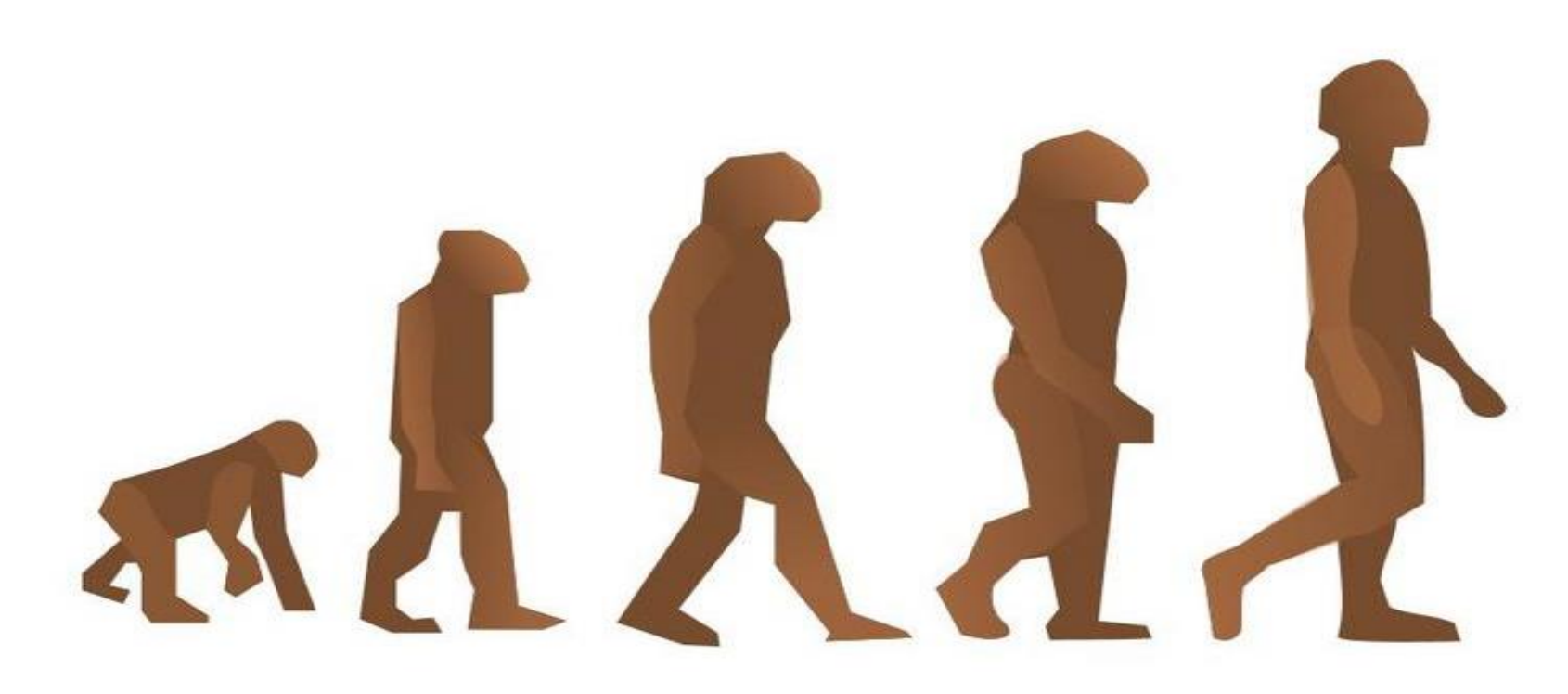


Fig. 1. Example of a conceptual framework describing potential factors that affect outcomes after procedures requiring anesthesia. Periprocedural and contextual factors interact to determine acute child responses to the procedure; early and longer-term responses in affect, behavior, and cognitive abilities continue to be moderated by these contextual factors as they evolve.

NOCICEPTION MONITORING EVOLUTION SCALE



MAC HR NIMAP IMAP ANS

Innovación Tecnológica-Anestesia del Futuro?

GRACIAS