NAPS 2017
NATIONAL ACUTE PAIN SYMPOSIUM

Acute Pain Management in Morbid Obesity

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Co- Director, Acute Pain Fellowship Program, uOttawa

VP (Education), International Society for the Perioperative Care of the Obese Patient

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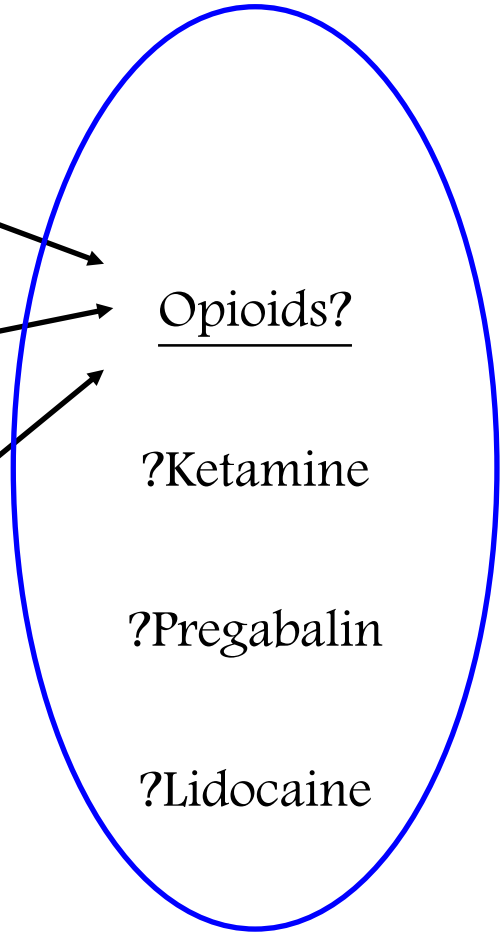
uOttawa
L'Université canadienne
Canada's university

International Society for the Perioperative Care of the Obese Patient
ISPCOP

Are all your **Analgesic** Roads paved with only **Opioid** Stones?

- 45F (BMI 55) **Leg Ischemia**– amputation– pain crises?
- 62M (BMI 48) OSA & Difficult Airway– Multiple Rib Fractures– **Rescue**?
- 33M (BMI 40) **Spine Sx**– chronic pain–POD#3 cannot mobilize & ileus?



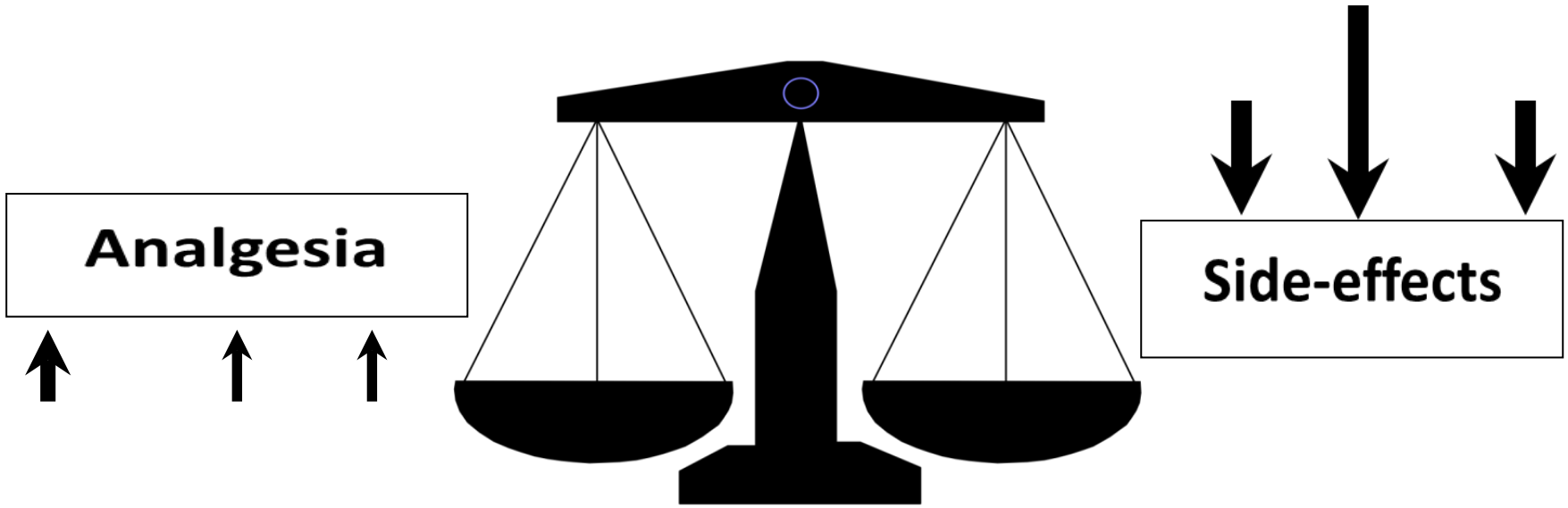
OBJECTIVES

1. Multimodal Analgesia & Acute Hyperalgesia
2. Perioperative Acute Pain Strategies & Bariatric Solutions
3. Pitfalls & Problems in the Morbidly Obese

Pain is a more terrible lord of mankind than even death itself.

Albert Schweitzer

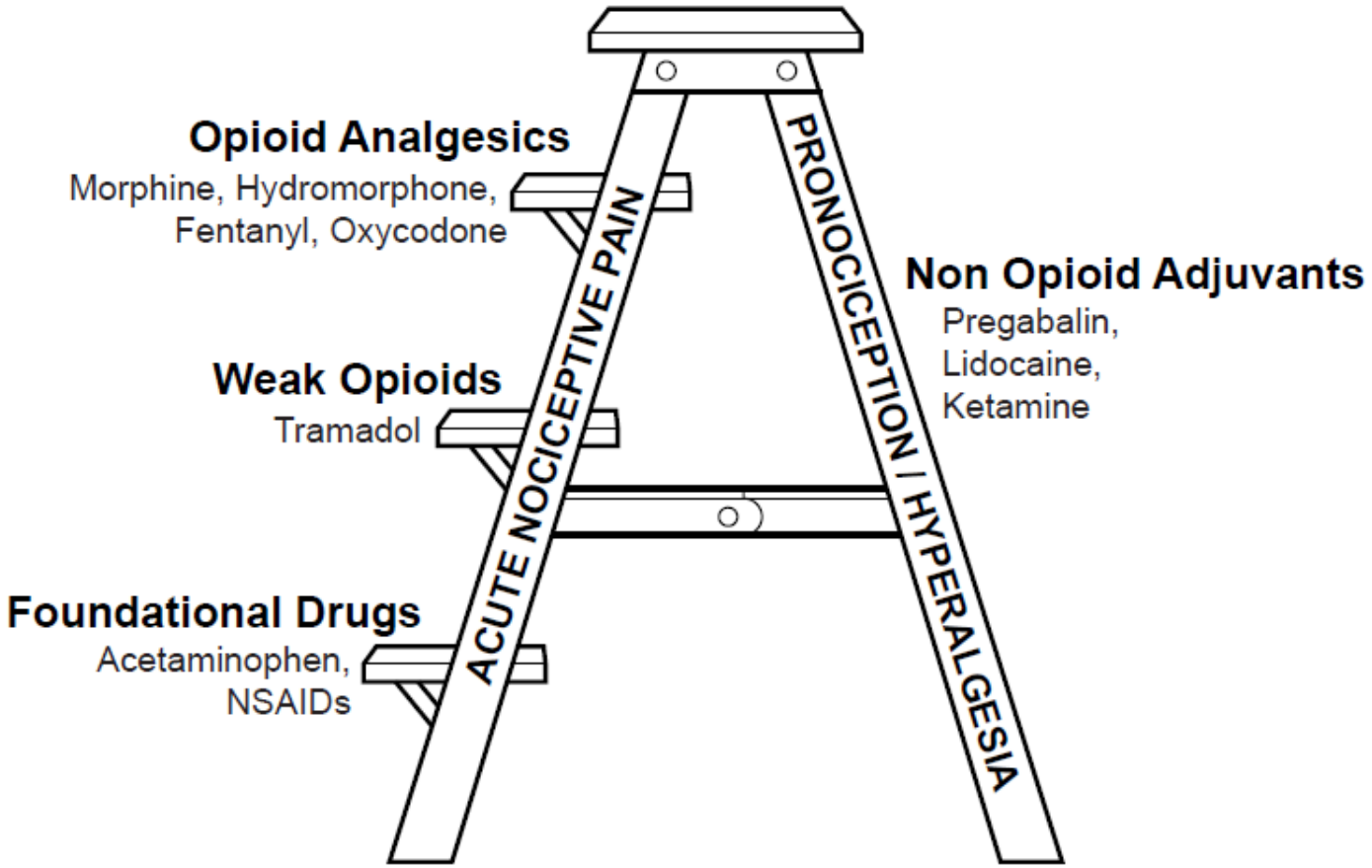
1. What is Multimodal Analgesia?



Multimodal Analgesia is a **BALANCE**

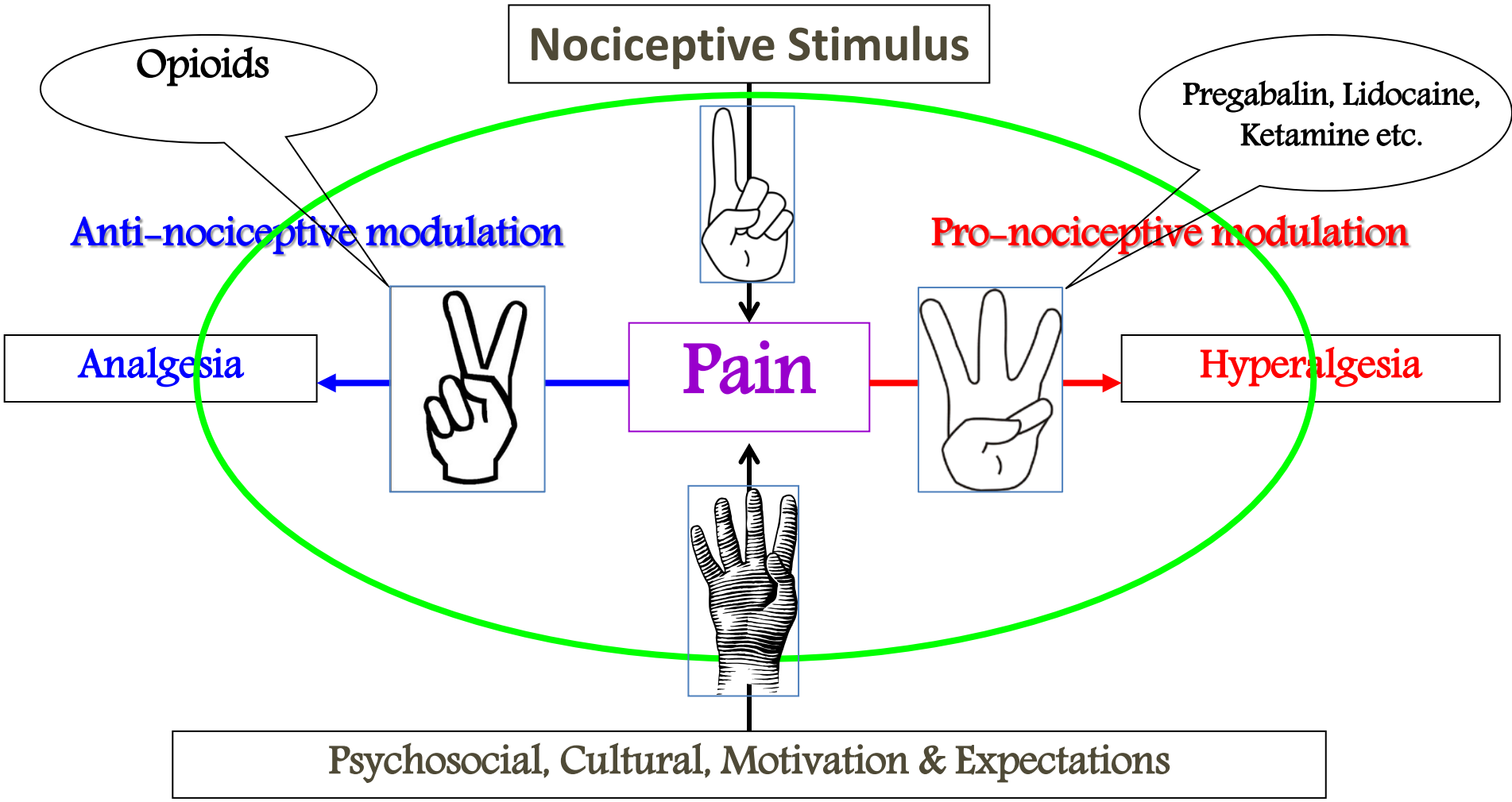
& the "Ideal Way" to manage Acute Pain.

How do we *do* Multimodal Analgesia?



The New "Ottawa" Ladder in Acute Pain?

The Four Dimensions of Pain



The Ottawa Hospital | L'Hôpital d'Ottawa

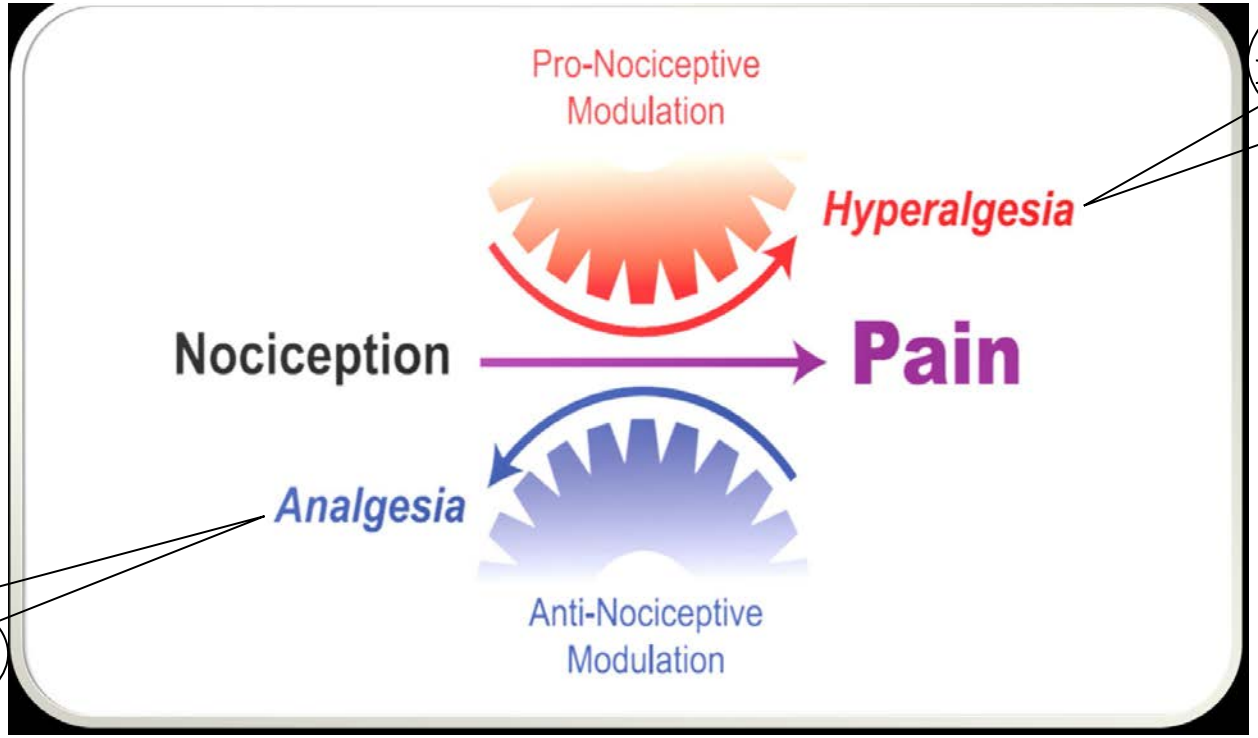
Compassionate People. World-Class Care.

Des gens de compassion. Des soins de calibre mondial.

Dr. John Penning

Medical Director, Acute Pain Service,
(Founded in 1989) The Ottawa Hospital.

Why Worry about Analgesia & Hyperalgesia?



Pregabalin, Lidocaine, Ketamine etc.

Opioids

Effect of pronociceptive and anti-nociceptive mechanisms on perception of pain.
Ottawa Anesthesia Primer copyright 2012 Fig. 17.6 (by **John Penning**, with permission).

Why worry, there should be laughter **after the pain**
There should be sunshine after rain
These things have always been the same
So why worry now — ***Dire Straits***

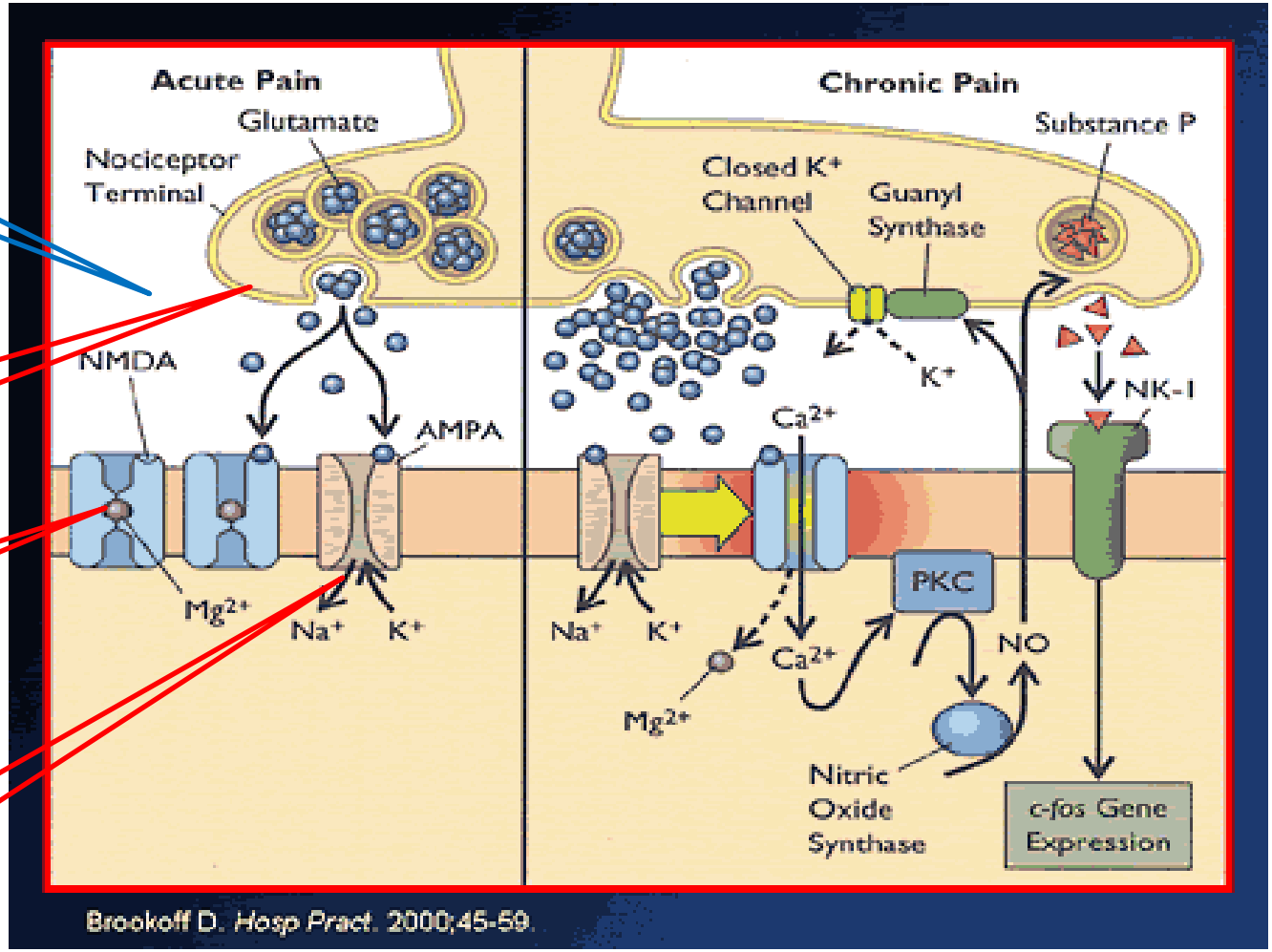
Why Worry Now about Acute Neuropathic Pain?
-Prevent the Development of Chronic Pain

Regional An.

Pregabalin

Ketamine

Lidocaine



Why worry, there should be laughter after the pain
There should be sunshine after rain
These things have always been the same
So why worry now ***Dire Straits***

How do we make the Diagnosis of **Acute Pronociception**?

DN4 – QUESTIONNAIRE

To estimate the probability of neuropathic pain, please answer yes or no for each item of the following four questions.

INTERVIEW OF THE PATIENT

QUESTION 1:

Does the pain have one or more of the following characteristics?	YES	NO
Burning	❑	❑
Painful cold	❑	❑
Electric shocks	❑	❑

QUESTION 2:

Is the pain associated with one or more of the following symptoms in the same area?	YES	NO
Tingling	❑	❑
Pins and needles	❑	❑
Numbness	❑	❑
Itching	❑	❑

EXAMINATION OF THE PATIENT

QUESTION 3:

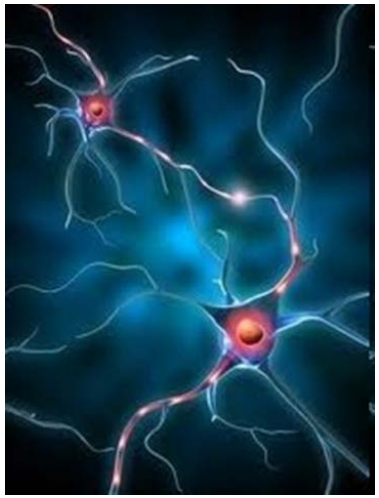
Is the pain located in an area where the physical examination may reveal one or more of the following characteristics?	YES	NO
Hypoesthesia to touch	❑	❑
Hypoesthesia to pinprick	❑	❑

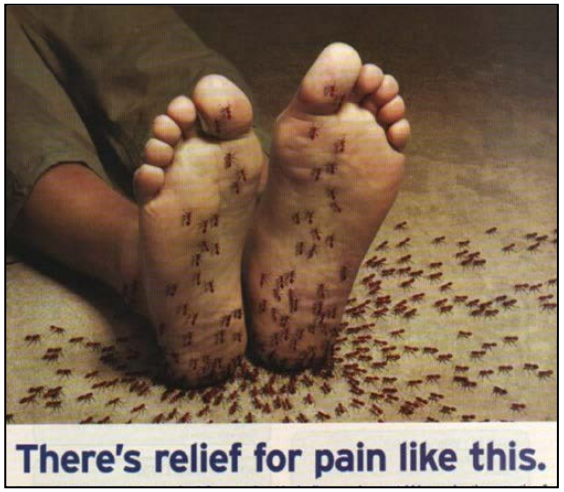
QUESTION 4:

In the painful area, can the pain be caused or increased by:	YES	NO
Brushing?	❑	❑

YES = 1 point
NO = 0 points

Patient's Score: /10



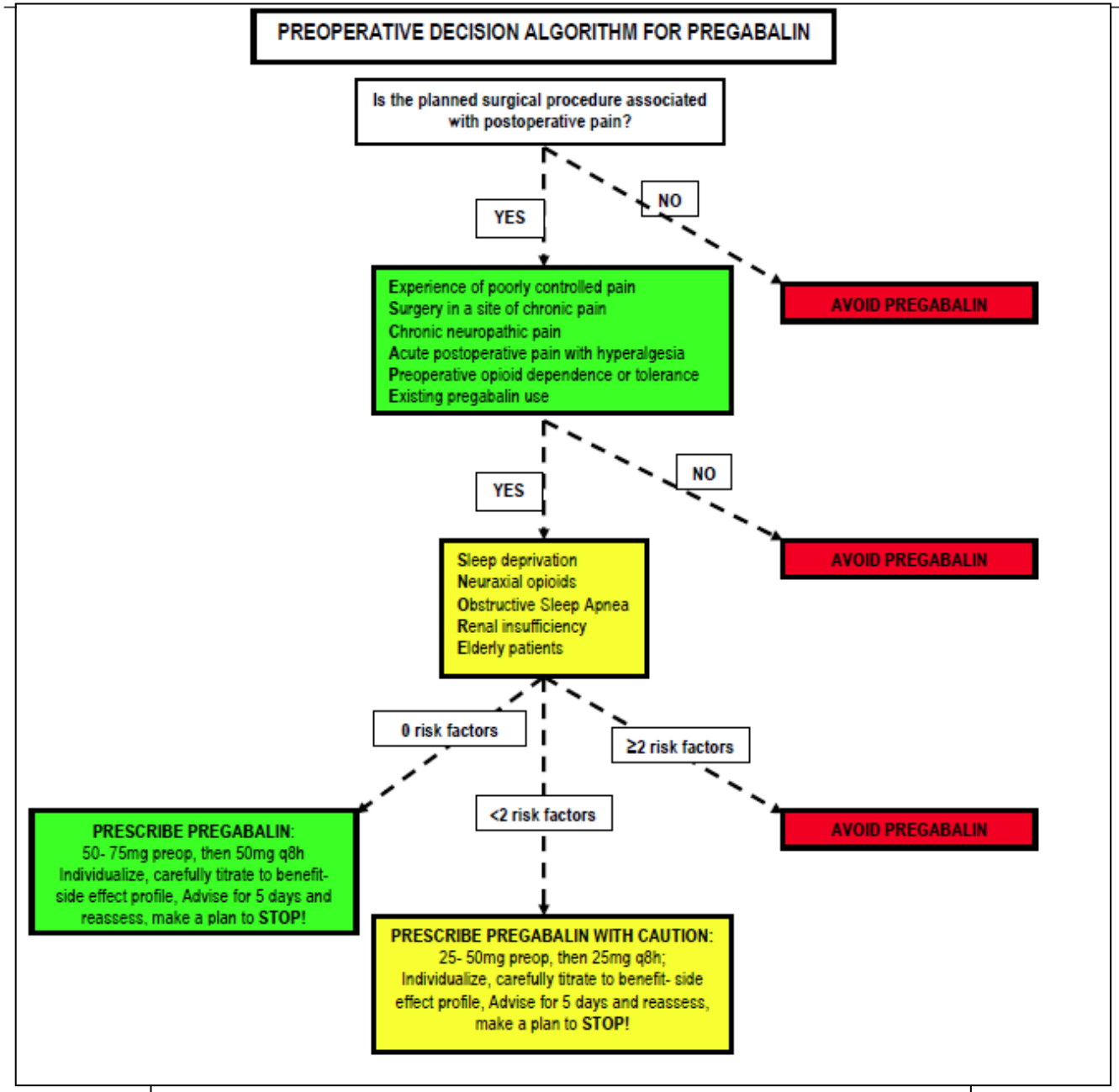


DN4 *(Douleur Neuropathique en 4)*

Bouhassira D et al. Pain 2005.

2. Perioperative Acute Pain Strategies in Morbid Obesity

Rembrandt: Tobias Returns Sight to His Father. *1636.*



Pain Res Manage Vol 16 No 5 September/October 2011

EVIDENCE FOR PERIOPERATIVE PREGABLIN USE (updated May 2014)

Definite Benefit

Spine Surgery[1-8]
Joint Replacement[9- 13]
Breast surgery[14, 15]

Limited Benefit

Lap .Cholecystectomy[16- 20]
Abdominal Hysterectomy[21- 27]
Tonsillectomy[28]
Thyroidectomy[29]
Lap. Sleeve Gastrectomy[30]
Laparoscopic Gynecology[31]
Laparoscopic urology[32]
Keratotomy[33]
Cosmetic surgery[34]
Minor Gynecology[35]
Laparoscopic Nephrectomy[35]

Unclear Benefit

[37]Dental
[38, 39]Cardiac Surgery
[40 -43]Orthopedic Surgery

FDA/ HC (**EU*) Approved

Fibromyalgia
Anti epileptic
Post Herpetic Neuralgia
Diabetic Peripheral Neuropathy
**Generalized Anxiety Disorder*


PAIN

Most Cited Paper Award

AWARD FOR HIGHLY CITED ARTICLE IN PAIN IN 2015

Perioperative use of pregabalin for acute pain-a systematic review and meta-analysis

Eipe, Naveen; Penning, John; Yazdi, Fatemeh; Mallick, Ranjeeta; Turner, Lucy; Ahmadzai, Nadera; Ansari, Mohammed Tose

PAIN 156(7):1284-1300, July 2015

Francis J. Keefe, Editor-in-Chief

Sarah Carrera, Senior Publisher

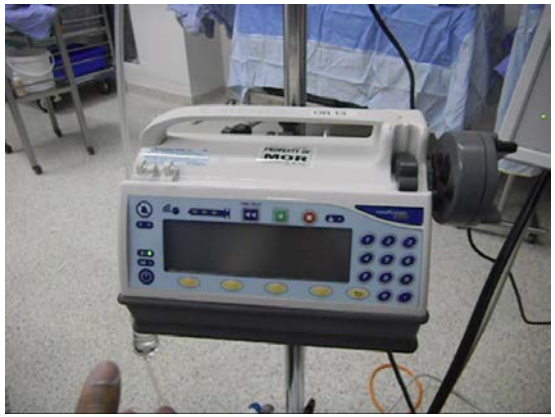
IASP

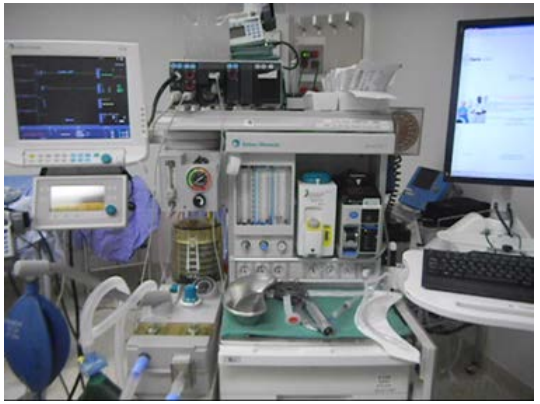
Wolters Kluwer

ABSOLUTE CI

Hypersensitivity
Pregnancy
Lactation

FentaKetaCaine– The Ottawa Cocktail!





1– 2mcg/kg/hr	Fentanyl	**200mcg**
0.1–0.2mg/kg/hr	Ketamine	**20mg**
1–2 mg/kg/hr	Lidocaine	**200mg**

- Program Syringe Pump for Lidocaine
- Take **Ideal BW** & Dose 1–2mg/kg/hr
- Monitor HR & BP and +BIS

Intraoperative Anti Hyperalgesia– **Ketamine & Lidocaine**

Sans peridurale (No Epidural)
- Colorectal ERAS
- GI/ GU/ HPB/ Vascular
- Contraindicated, refused
- Difficult, failed– **Morbid Obesity**

Douleur difficile (Difficult Pain)
- major Spines, trauma
- Previous Experience
- chronic pain, opioid tolerant,
- substance abuse etc.

BJA Education Advance Access published April 12, 2016

BJA Education, 2016, 1–7

doi: 10.1093/bjaed/mkw008

Intravenous lidocaine for acute pain: an evidence-based clinical update

N Eipe MBBS MD[1,*], S Gupta MD FRCPC[1], and J Penning MD FRCPC[1,2]

[1]Staff Anesthesiologist, Department of Anesthesiology, The Ottawa Hospital, University of Ottawa, Ottawa, Ontario, Canada and [2]Director, Acute Pain Service, Department of Anesthesiology, The Ottawa Hospital, University of Ottawa, Civic Campus, 1053 Carling Ave. Suite B310, Ottawa, ON, Canada K1Y 4E9

*To whom correspondence should be addressed. Tel: +1 6137614169; Fax: +1 6137615209. E-mail: neipe@toh.on.ca

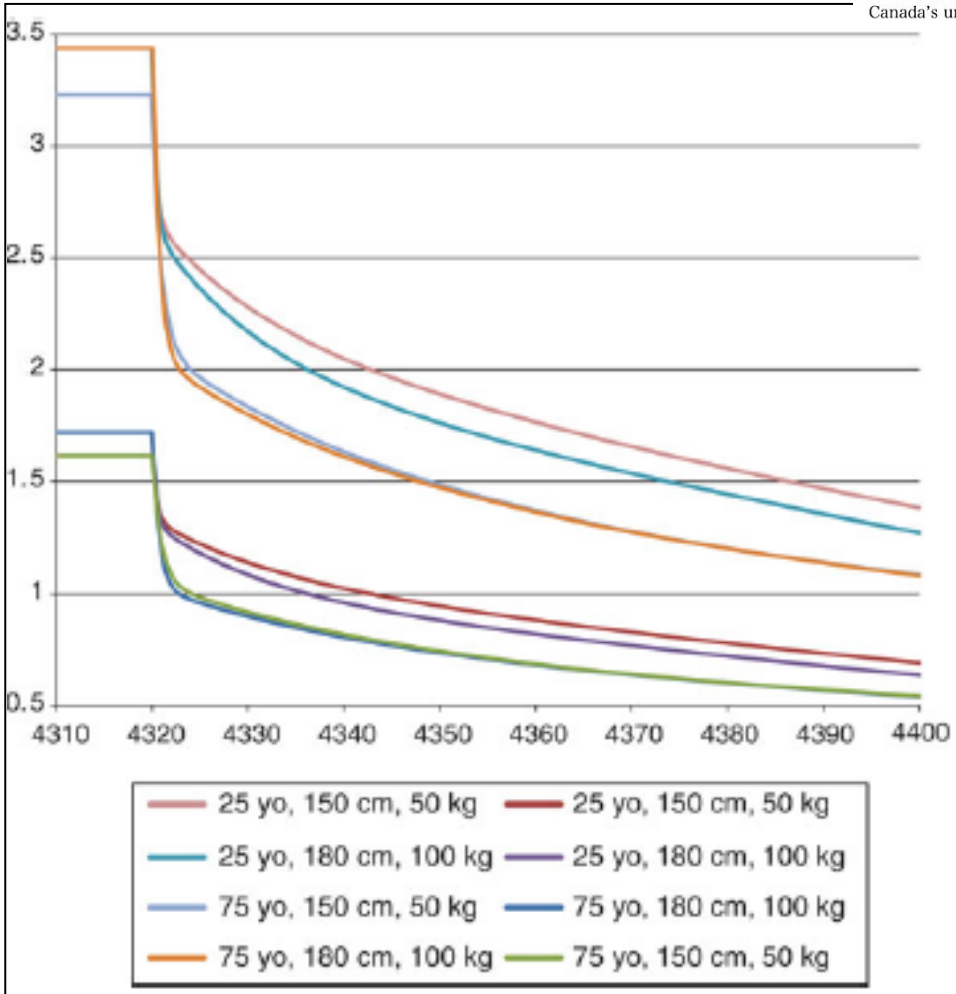


Fig 2 Pharmacokinetic simulation for i.v. lidocaine on discontinuation of infusion—plasma concentration in microgram per millilitre is represented on the Y-axis and time (since initiation) in minutes on the X-axis.

Postoperative *Multimodal* Analgesia

- ✓ **WHO Step 1**– *First On, Last Off* & **Step 2**– Tramadol
- ✓ **DN4**: Part of Routine daily Assessments

++++ Adjuvants **IV**– Ketamine, Lidocaine (or Dexmedetomidine)

PO– Pregabalin, Clonidine & Nortryptiline

- ✓ **IV PCA**– **Same** Settings– bolus/ lock out/ 1 hr. limit– **no basal**
- ✓ **« Ketamine plus » PCA**– Ratio Ket: Morphine (1:1)

1. **T**rauma– burns, crush & rib fractures
2. **O**pioid dependance, substance abuse
3. **N**europathic pain– neuro (spine), ischemia, sickle
4. **G**I Sx, ERAS–Laparoscopic & Converted
5. **S**ensitive to or side effects–**Obese**/ OSA & Elderly.

[Other PCA Additives– Ondansetron (1:10), Naloxone (1:100)]

Analgesia for Morbid Obesity- Lessons from Bariatric Anesthesia

❖ Analgesia suitable for **morbid obesity**:

1. OSA- undiagnosed, untreated or non-compliant
2. Rapid Onset, Short Duration & Hemodynamic stability
3. Limited postoperative confusion, sedation or resp. depressant effects
4. Avoiding PONV, PCA need & delayed discharge

? Ultra Short Acting Opioids

Remifentanil- rebound pain, *catch up* with sedation & PONV, ^LOS, <QOL

✓ **Dexmedetomidine-** Cost, Availability & Familiarity, ?Better/Best!

Journal of Clinical Anesthesia (2006) 18, 24–28

ELSEVIER

Journal of Clinical Anesthesia

Original contribution

Fentanyl or dexmedetomidine combined with desflurane for bariatric surgery☆

James M. Feld MD, William E. Hoffman PhD*, Martin M. Stechert MD,

Table 2 Measurements made at the end of surgery in the PACU

	Fentanyl	Dexmedetomidine
Duration of surgery (min)	229 ± 30	234 ± 28
End of surgery to extubation (min)	14.2 ± 6.6	9.4 ± 2.7*
PACU pain score (0-10, 1 h)	7 (5.25-8.75)	3.5 (0-5.0)*
PACU pain score (0-10, 2 h)	6.0 (5.0-7.0)	2.0 (2.0-3.5)*
PACU morphine (mg, 2 h)	14.6 ± 5.9	6.1 ± 3.5*
PACU mean blood pressure (mm Hg, 1 h)	89 ± 12	77 ± 9*
PACU heart rate (min^{-1}, 1 h)	94 ± 13	75 ± 5*

Parametric data are reported as mean ± SD; nonparametric data are reported as median (25%-75% range). SaO_2 indicates arterial oxygen saturation.

* $P < 0.05$ compared with fentanyl.

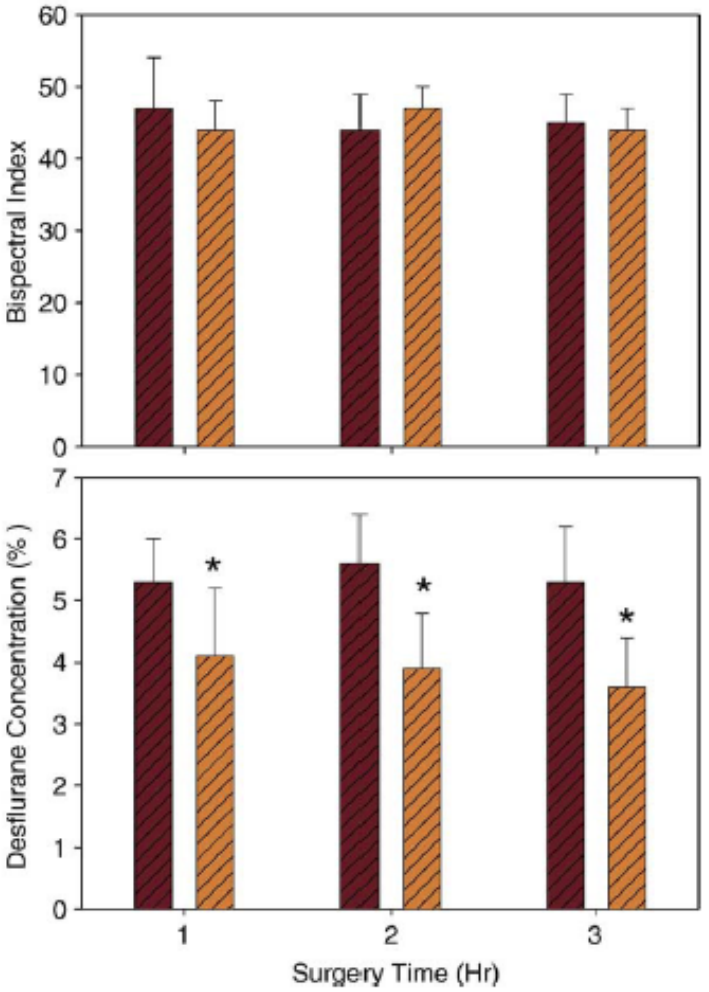


Fig. 2 Bispectral index and end-tidal desflurane concentration during gastric bypass surgery. The dexmedetomidine group required less desflurane at all measurements during surgery. Mean ± SD, *$P < 0.05$ compared with fentanyl.

- BIS titrated MAC sparing effect– Intraoperative Stability
- PACU– decreased analgesic consumption and pain scores

J Gastrointest Surg (2007) 11:1556–1559
DOI 10.1007/s11605-007-0290-0

The Impact of Perioperative Dexmedetomidine Infusion on Postoperative Narcotic Use and Duration of Stay after Laparoscopic Bariatric Surgery

Chirag Dholakia · Gretchen Beverstein · Michael Garren · Christopher Nemergut · John Boncyk · Jon C. Gould

Table 1 Outcomes in Laparoscopic Gastric Bypass Patients According to Dexmedetomidine Infusion Status

	Dex (n=23)	Control (n=19)	p value
MSO4 equiv total (mg)	66*	130*	0.04
MSO4 equiv/day (mg)	47	67	0.53
Duration of stay (days)	1.4*	1.9*	0.02
D/C criteria met POD 1	14/23 (61%)*	5/19 (26%)*	0.02
Pain score PACU (0–10)	3.5	2.7	0.37
Pain score floor day 0	2.4	3.3	0.15
Antiemetic doses	3.0	2.7	0.83
Mean HR PACU	75	72	0.21
Mean SBP PACU (mmHg)	121	124	0.63
Initial RR PACU	17	16	0.58

MSO4 equiv Morphine equivalents; *D/C* discharge; *PACU* Post-anesthesia Care Unit; *HR* heart rate; *SBP* systolic blood pressure, *RR* respiratory rate
*p<0.05, statistically significant

- In Lap Band– Sig. reduction in Opioids & Anti Emetic Use
- Gastric Bypass– Total 24hr (MS) 66mg vs 130mg
- Early discharge on POD1– 2/3 vs 1/4

British Journal of Anaesthesia **112** (5): 906–11 (2014)
Advance Access publication 18 February 2014 · doi:10.1093/bja/aet551

BJA

Opioid-free total intravenous anaesthesia reduces postoperative nausea and vomiting in bariatric surgery beyond triple prophylaxis

P. Ziemann-Gimmel*, A. A. Goldfarb, J. Koppman and R. T. Marema

Table 3 Patients
vomiting; AE_{PACU}
PACU; AE_{total}, nu

AE_{PACU}, *n* (%)
AE_{post}, *n* (%)
AE_{total}, *n* (%)
$PONV_t$, *n* (%)

Table 4 Comparison of PONV severity. CI, confidence interval; n/a, not applicable. *Wilcoxon rank-sum test; †Fisher's exact test

PONV severity	Classic group (*n*=59)	TIVA group (*n*=60)	*P*-value	RR (95% CI)
None	37 (62.7%)	48 (80.0%)		
Mild	13 (22.0%)	9 (15.0%)		
Moderate	2 (3.4%)	3 (5.0%)		
Severe	7 (11.9%)	0 (0%)	0.02*	n/a
Retching	7 (11.9%)	0 (0%)	0.006†	1.13 (1.02, 1.25)
Vomiting	5 (8.5%)	0 (0%)	0.02†	1.09 (1.00, 1.19)

erative nausea and
period, excluding

RR (95% CI)
1.13 (0.91, 1.40)
1.17 (0.97, 1.41)
1.28 (0.97, 1.69)
1.27 (1.01, 1.61)

Standardized Anesthetic Protocol for Intra-Peritoneal Ropivaciane (IPR) in Bariatric Surgery.

Premed-Acetaminophen 975mg+ Celecoxib 400mg

>>>>

Induction- Ketamine 20mg, Propofol, Fentanyl, Sux/ Roc-Intubation

Post induction- Antibiotics, Heparin 5K, Dexamethasone 8mg & Ondansetron 8mg

Maintenance- Air/O2- volatile, Dexmedetomidine 0.4-0.7 mcg/kg/hr (from pneumoperitoneum to closure) & Boluses of Fentanyl as required

No ketorolac, hydromorphone, lidocaine or remifentanil either by bolus or Infusion

Reverse and Extubate

>>>>

PACU- Ketorolac, Fentanyl and Hydromorphone as per routine orders.

Please contact Naveen Eipe @6137190321 if you have any questions or concerns!

NAPS 2017

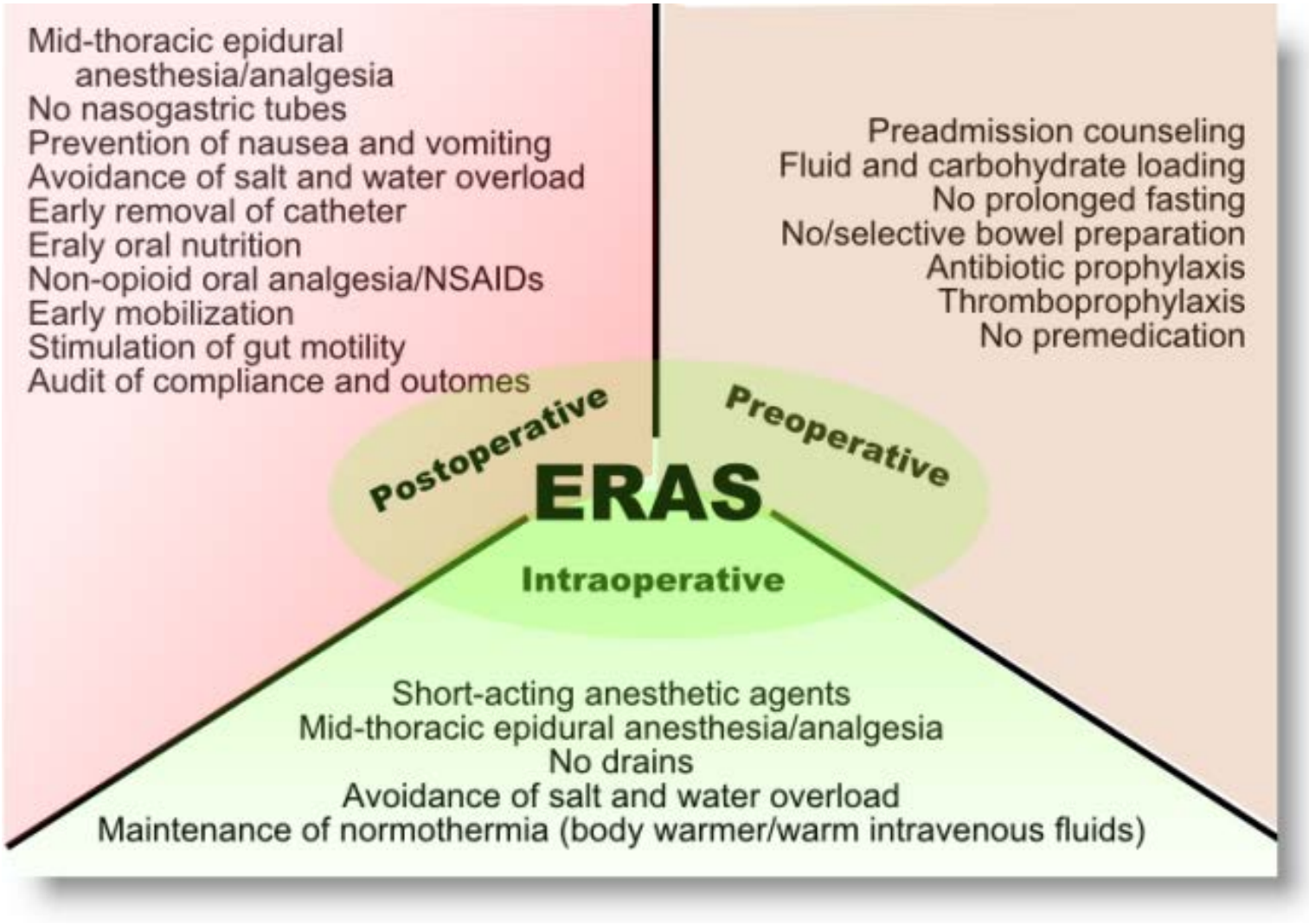
Open Access Protocol

BMJ Open

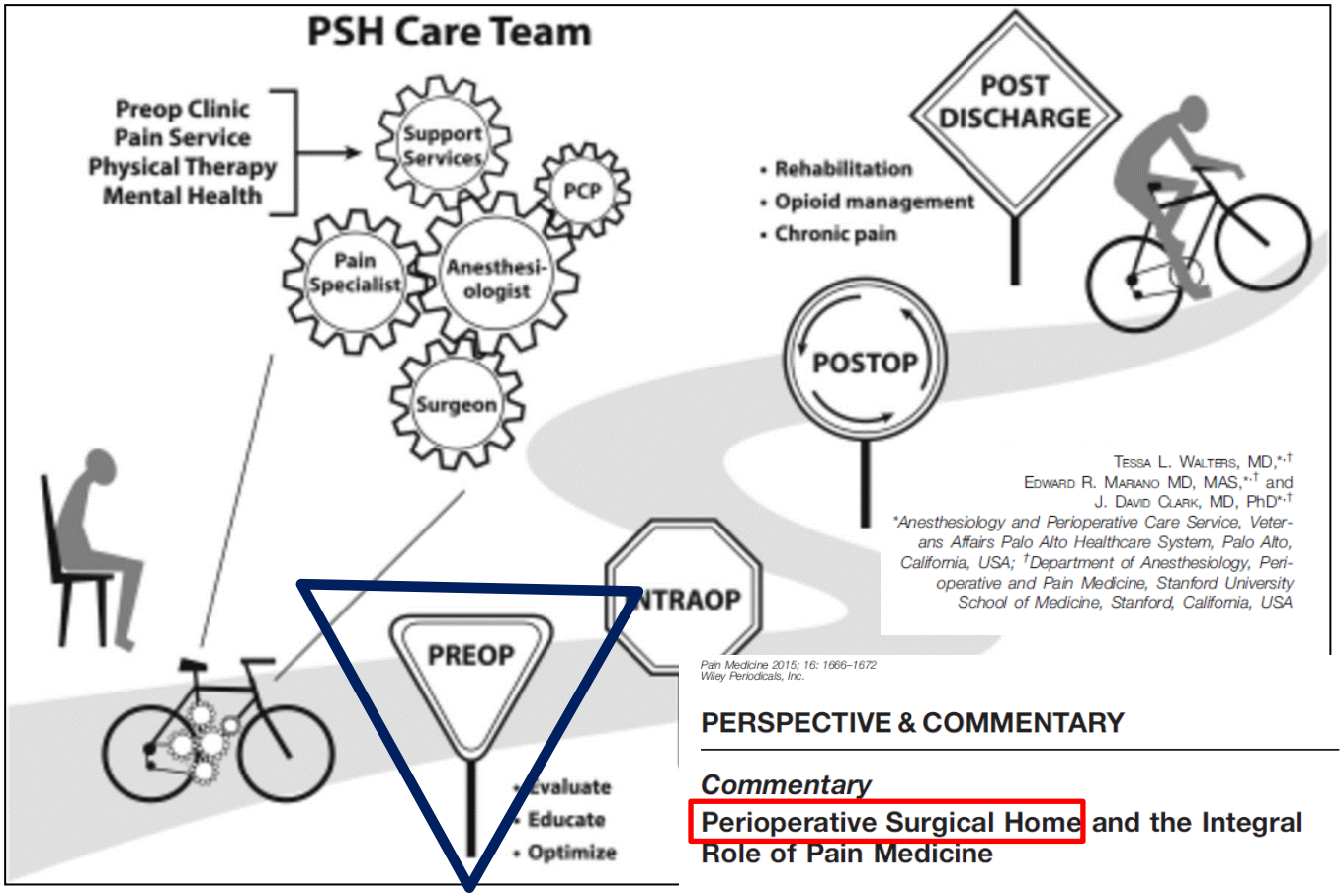
Assessing the feasibility of a randomised, double-blinded, placebo-controlled trial to investigate the role of intraperitoneal ropivacaine in gastric bypass surgery: a protocol

Robert Wu,[1] Fatima Haggar,[2] N'Gai Porte,[3] Naveen Eipe,[4] Isabelle Raiche,[4] Amy Neville,[4] Jean Denis Yelle,[4] Tim Ramsay,[2] Joseph Mamazza[4]

Implementation of ERAS in Bariatrics?



ERAS in Bariatric Surgery=ERABS



Tessa L. Walters, MD,*,† Edward R. Mariano MD, MAS,*,† and J. David Clark, MD, PhD*,†

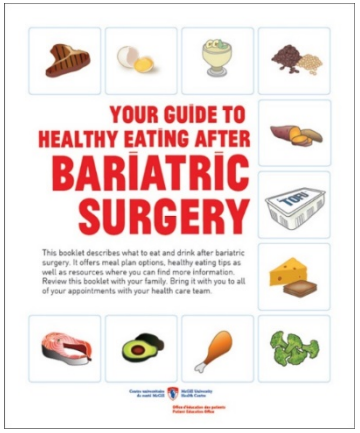
*Anesthesiology and Perioperative Care Service, Veterans Affairs Palo Alto Healthcare System, Palo Alto, California, USA; †Department of Anesthesiology, Perioperative and Pain Medicine, Stanford University School of Medicine, Stanford, California, USA

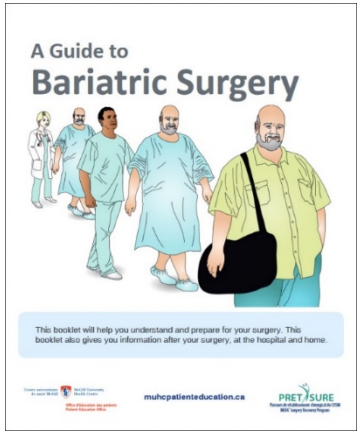
Pain Medicine 2015; 16: 1666–1672
Wiley Periodicals, Inc.

PERSPECTIVE & COMMENTARY

Commentary

Perioperative Surgical Home and the Integral Role of Pain Medicine





Preoperative ERABS– Multidisciplinary Teams

1. Pre– Surgical evaluation & optimization
2. Smoking and Alcohol cessation, Diet & Exercise
3. Patient education– enrolment in ERAS
4. Functional Prehabilitation– †6MWT & PEFR
5. Engagement and Consistent Messaging

THE OTTAWA HOSPITAL
L'HÔPITAL D'OTTAWA

McGill University Health Centre

All Analgesic Roads do not lead to the Opioid Home!

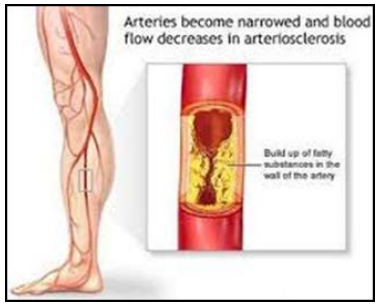
- Limb Ischemia?
- Rib Fractures?
- Post– Spine Sx?

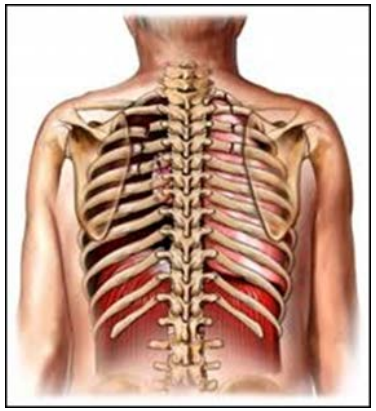
Opioids?

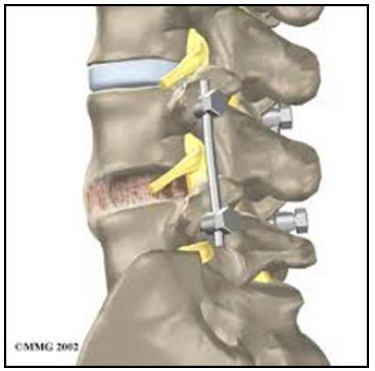
?Ketamine

?Lidocaine

?Pregabalin







Summary

- ✓ **Multimodal** step-wise, severity-based, opioid-sparing **Analgesia-** provides high quality pain relief with both short and long term benefits
- ✓ Identify Acute **Pronociception** (DN4) & treat with anti-hyperalgesics–*lidocaine, ketamine & pregabalin*
- ✓ Standardized Anesthetic & Acute Pain protocols improves safety in Morbid Obesity
- ✓ **Prehabilitation** and Multidisciplinary Approach to achieve **ERABS** Outcomes