

PEUT ON EVITER LA MORPHINE EN POSTOPERATOIRE ?

MORPHINE est le Gold Standard pour l'analgésie post opératoire MAIS...

Elle provoque des effets secondaires qui peuvent altérer le confort des patients et leur possibilité de récupération

Ces effets secondaires sont particulièrement préoccupants chez les patients ambulatoires

SPINAL MORPHINE

A 7 years Experience : 5969 patients

Gwirtz, Anesth Analg, 1999

Surgery

Dose

- | | |
|-------------------|-----------|
| • périneal | 0.2 - 0.3 |
| • Hip-knee | 0.4 - 0.5 |
| • abd. sub meso. | 0.4 - 0.5 |
| • abd. sus meso. | 0.5 - 0.6 |
| • retroperitoneal | 0.6 - 0.8 |

Side effects

- | | |
|---------------------|---------------|
| • prurit | 37 % |
| • Nausea/Vomiting | 25 % |
| • resp. depression | 0.3 % |
| • headaches | 0.5 % |
| • Urinary retention | not evaluated |

PCA for postoperative pain - a systematic review

- RCTs up to Jan 2000, i.v. PCA versus same opioid s.c., i.m. or i.v.
- 32 trials: 22 morphine (n=1139), five pethidine (n=682), three piritramide (n=184), one nalbuphine (n=47), one tramadol (n=20)

Adverse effects	Reports % (n)	
	i.v. PCA	parenteral opioid
Bradypnoea (RR<10/min)	1.6 (332)	1.1 (367)
Hypoxia (SaO ₂ <90%)	15.2 (92)	18.2 (88)
Nausea	19.0 (252)	22.5 (253)
Vomiting	18.1 (83)	20.5 (83)
Nausea and/or vomiting	30.9 (440)	31.1 (450)
Sedation	25.7 (261)	30.6 (258)
Pruritus	17.9 (263)	15.1 (284)
Urinary retention	17.9 (220)	19.1 (220)

Les effets secondaires de la morphine ne sont pas limités à la dépression respiratoire (= 1 ‰)

- Prurit (30 % - 40 %) (Obstétrique)
- Nausées (25 % ... 50 %)
- Vomissements (5 % 10 %)
- Rétention d'urines (jusqu'à...50 % !)
- Prolongation de l'ileus postopératoire +++

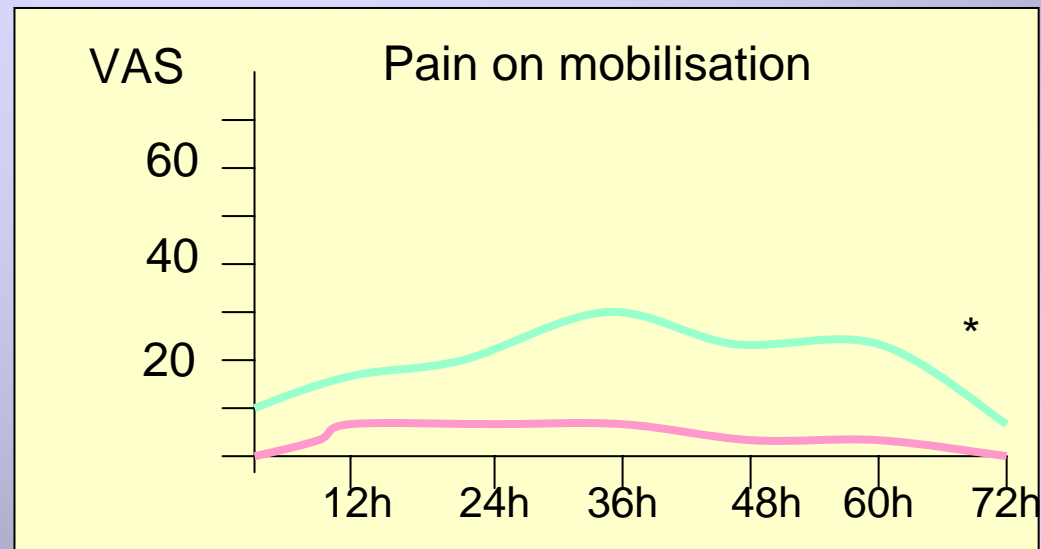
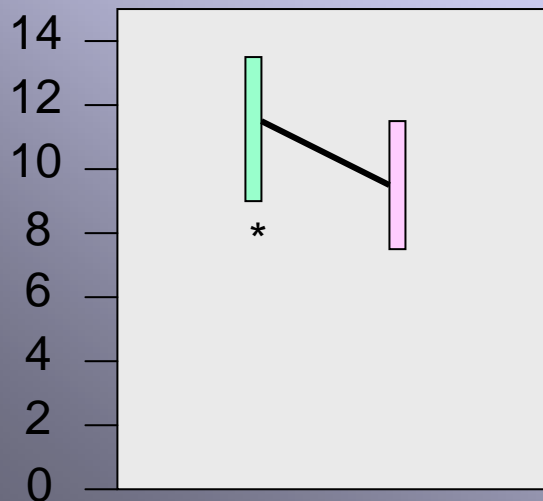
Epidural analgesia and colon surgery

Epidural ropivacaine 2mg/ml for 72h

- with fentanyl 2 μ g/ml
- without fentanyl

Infusion rate adapted to pain

Mean value of infusion rate (ml/h)

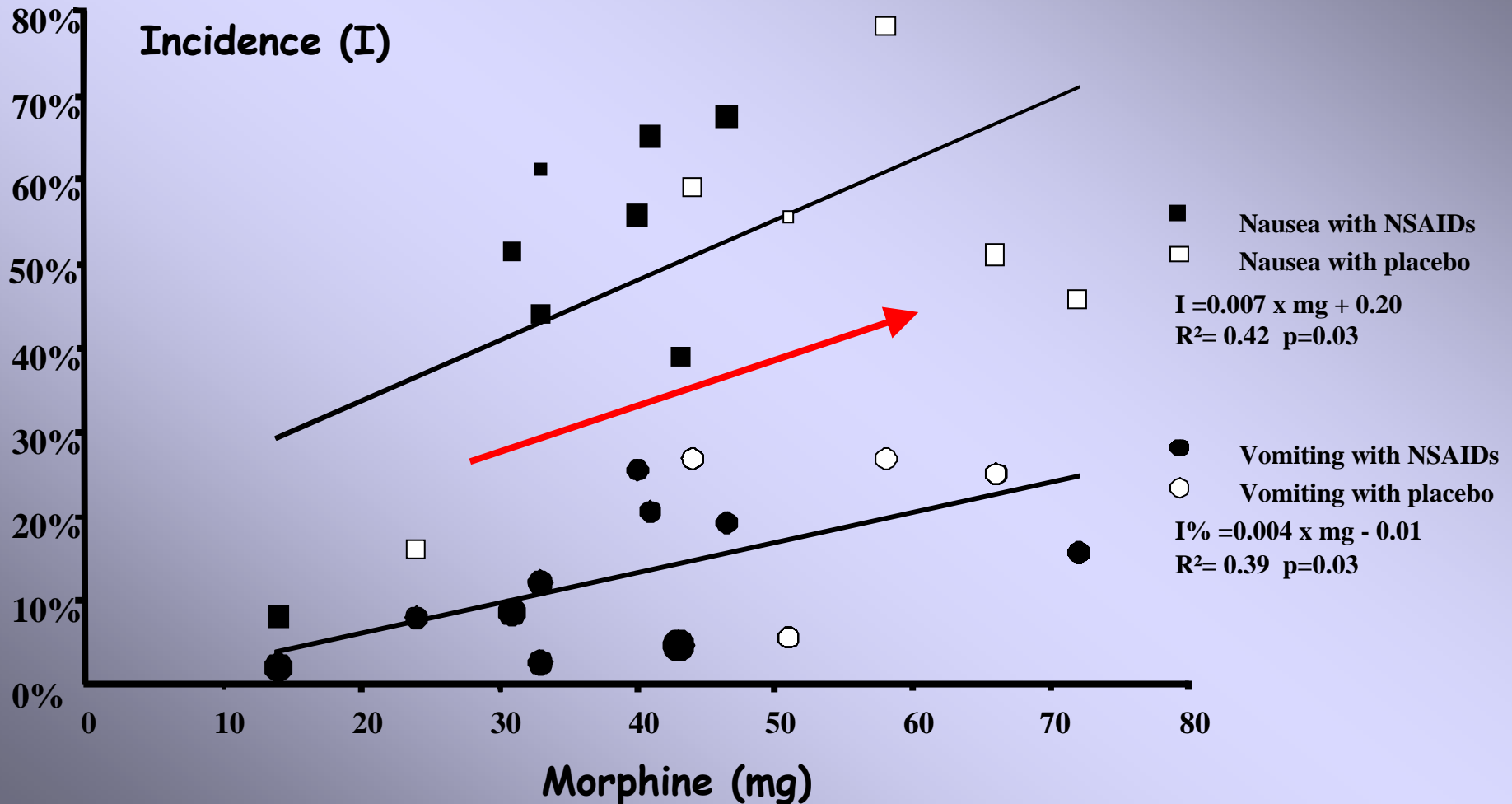


Epidural analgesia after colon surgery

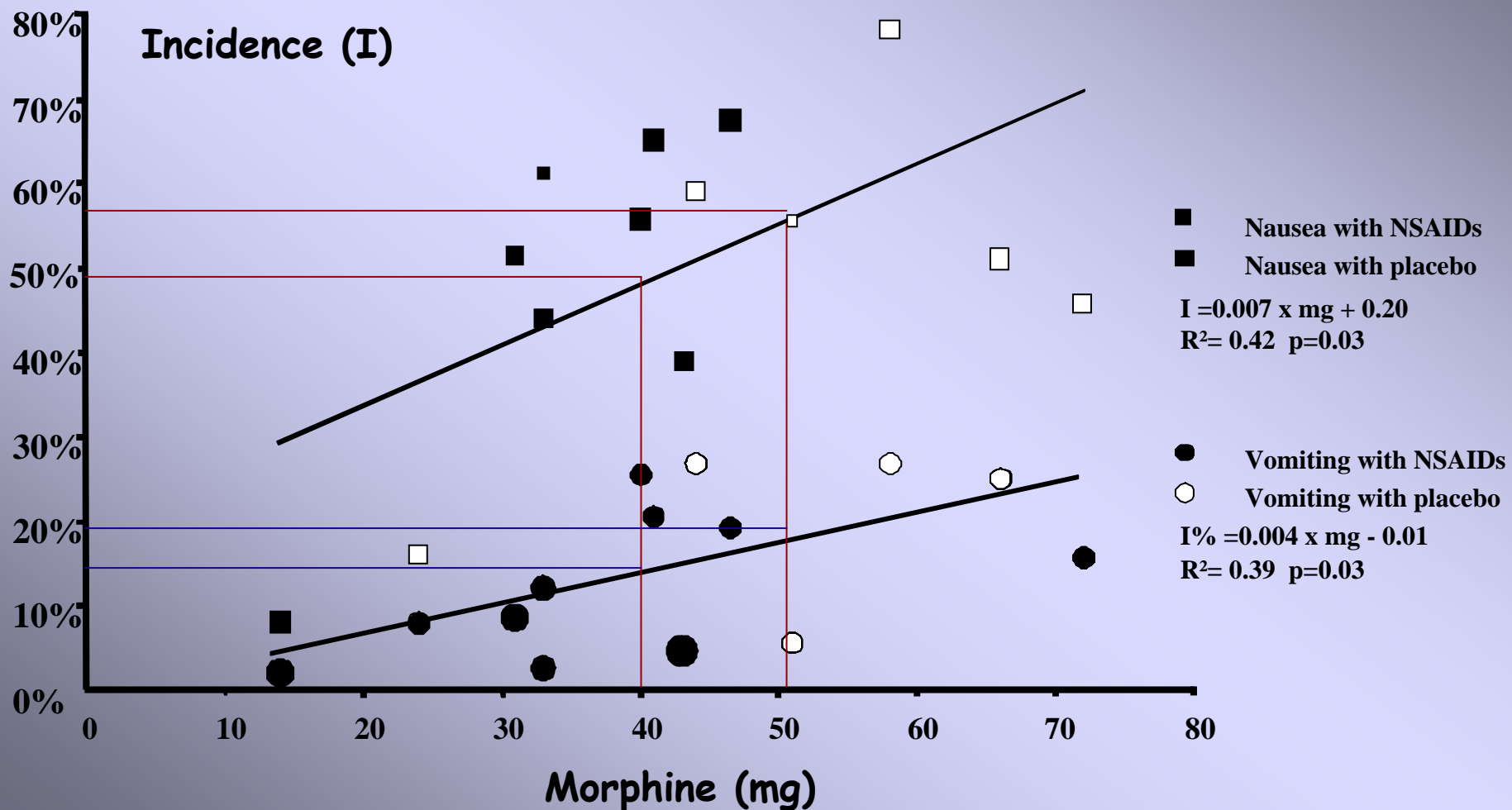
Fentanyl + Local anaesthetic

ED ropivacaine 2mg/ml for 72h	without fentanyl n = 79	+ fentanyl 2µg/ml n = 72
severe NVPO	0	11 *
prolonged Ileus	1	8 *
severe Pruritus	5	20 *
Respiratory complications (hypoxemia..)	0	12 *
Renal Complications (retention, RF..)	0	6 *
Cardiaques complications (hypotension..)	2	11 *
Ambulation (h)	23	22
Hospital discharge (D)	6,6 (3,1-17,7)	9,8 (2,2-74,9)*

Consommation de Morphine et NVPO



Consommation de Morphine et NVPO



Comment diminuer les NVPO ?

Données EBM

Use of regional anesthesia (IIIA) (16)

Use of propofol for induction and maintenance of anesthesia (IA) (29)

Use of intraoperative supplemental oxygen (IIIB) (30,31)

Use of hydration (IIIA) (32)

Avoidance of nitrous oxide (IIA) (19,33)

Avoidance of volatile anesthetics (IA) (18,20)

Minimization of intraoperative (IIA) and postoperative (IVA) opioids (7,18,21-23)

Minimization of neostigmine (IIA) (34)

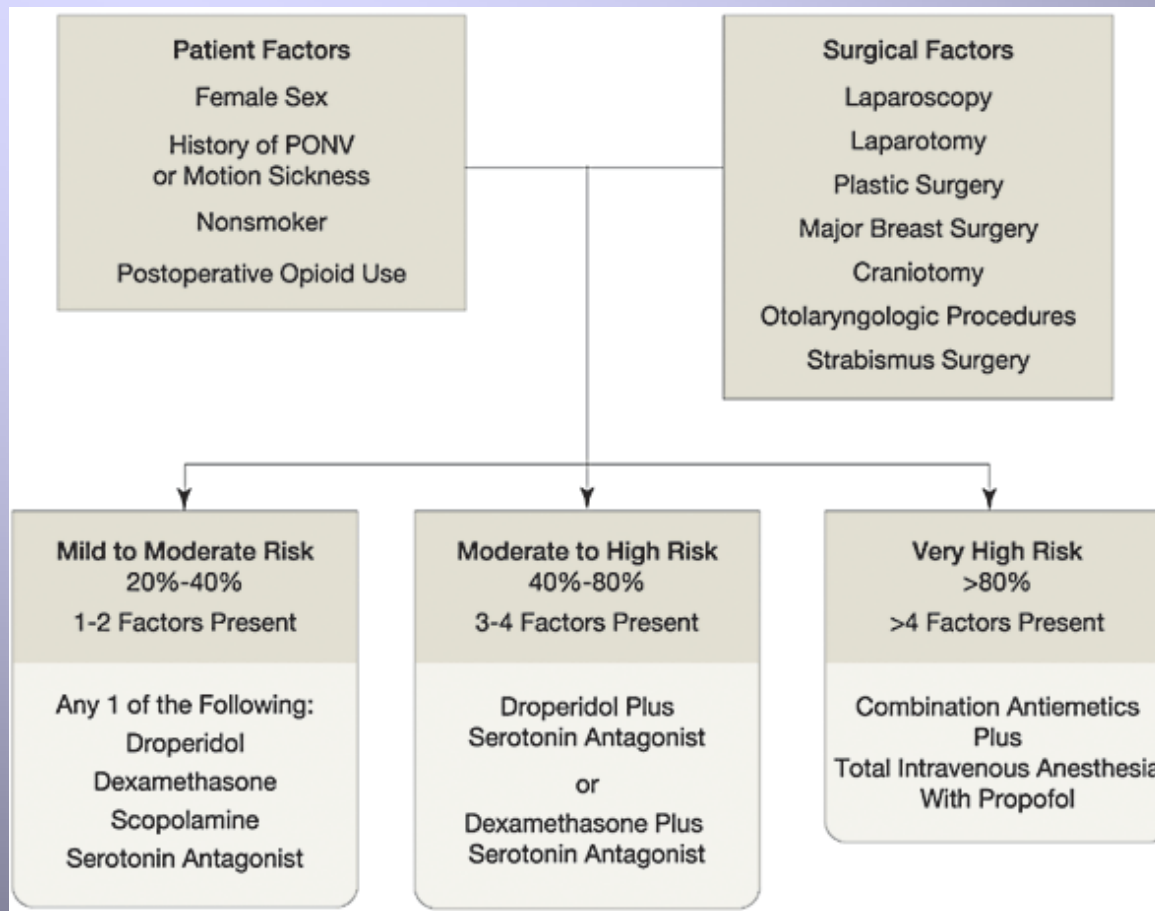
NVPO : dose et moment d'administration des antiémétiques

Table 5. Antiemetic Doses and Timing for Administration in Adults

Drug	Dose	Evidence	Timing	Evidence
Ondansetron	4–8 mg IV (37)	IA	At end of surgery (38)	IIIA
Dolasetron	12.5 mg IV (39)	IA	At end of surgery (39)	IIIA
Granisetron	0.35–1 mg IV (40–42)	IA	At end of surgery (40,42)	IIIA
Tropisetron	5 mg IV (43)	IA	At end of surgery	VA
Dexamethasone	5–10 mg IV (44–46)	IIA	Before induction (47)	IIIA
Droperidol	0.625–1.25 mg IV (48,49)	IA	At end of surgery (50)	IIA
Dimenhydrinate	1–2 mg/kg IV (51)	IIA		
Ephedrine	0.5 mg/kg IM (52)	IIIB		
Prochlorperazine	5–10 mg IV (53)	IIIA	At end of surgery (53)	IIIB
Promethazine	12.5–25 mg IV (54)	IIIB	At end of surgery (54)	IIIB
Scopolamine	Transdermal patch (55,56)	IIB	Applied prior evening or 4 h before end of surgery (56)	IIB

When a dose range is presented, the smallest dose is recommended.

Stratégie périopératoire de traitement des NVPO



Gan TJ et al. JAMA 2002;287:1233-6

ANALGESIE BALANCEE

DEFINITION

L'association de plusieurs agents ou techniques analgésiques entre eux dans le but d'augmenter leur efficacité et / ou de diminuer leurs effets secondaires

Henrik Kehlet 1996

ANALGESIQUES NON OPIACES

- EN ASSOCIATION AUX OPIACES
 - Augmentent l'efficacité analgésique
 - Diminuent l'incidence des effets secondaires

EFFET D'EPARGNE MORPHINIQUE DES AINS

STUDY	NSAID	SURGERY	MORPHINE SPARING
Tigerstedt 1991	Indomethacine	Abdominal	17%
Laitinen 1992	Diclofenac	Hip	40%
Burns 1992	Ketorolac	Abdominal	50%
Kinsella 1992	Ketorolac	Orthopaedic	66%
Perttunen 1992	Diclofenac	Thoracic	75%
Grass 1993	Ketorolac	Prostatectomy	34%
Ready 1994	Ketorolac	Miscellaneous	22.5%
Etches 1995	Ketorolac	Hip/Knee	42.5%
Perttunen 1999	Diclofenac	Toracic	71%
	Ketorolac		64%

Impact of NSAID's on Morphine side effects

318 references

Double publication (n=93),
Not available (n=5)
Review, Case reports, abstracts, not
relevant (n=51)

169 manuscripts

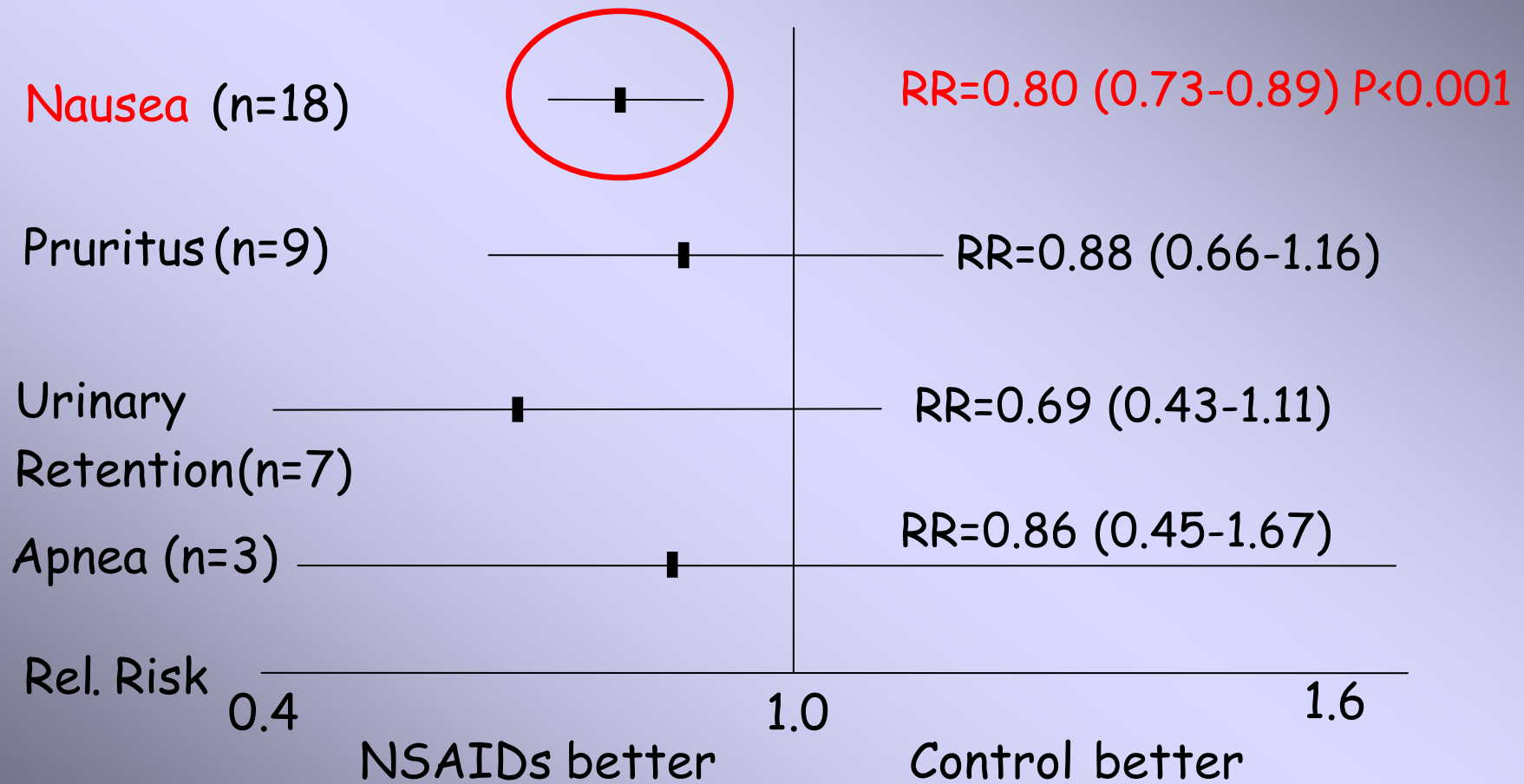
Paediatric studies (n=14),
+ regional anaesthesia (n=27),
without PCA, PCA with opiates different
from morphine or comparison of 2 NSAID's (n=93)

35 studies

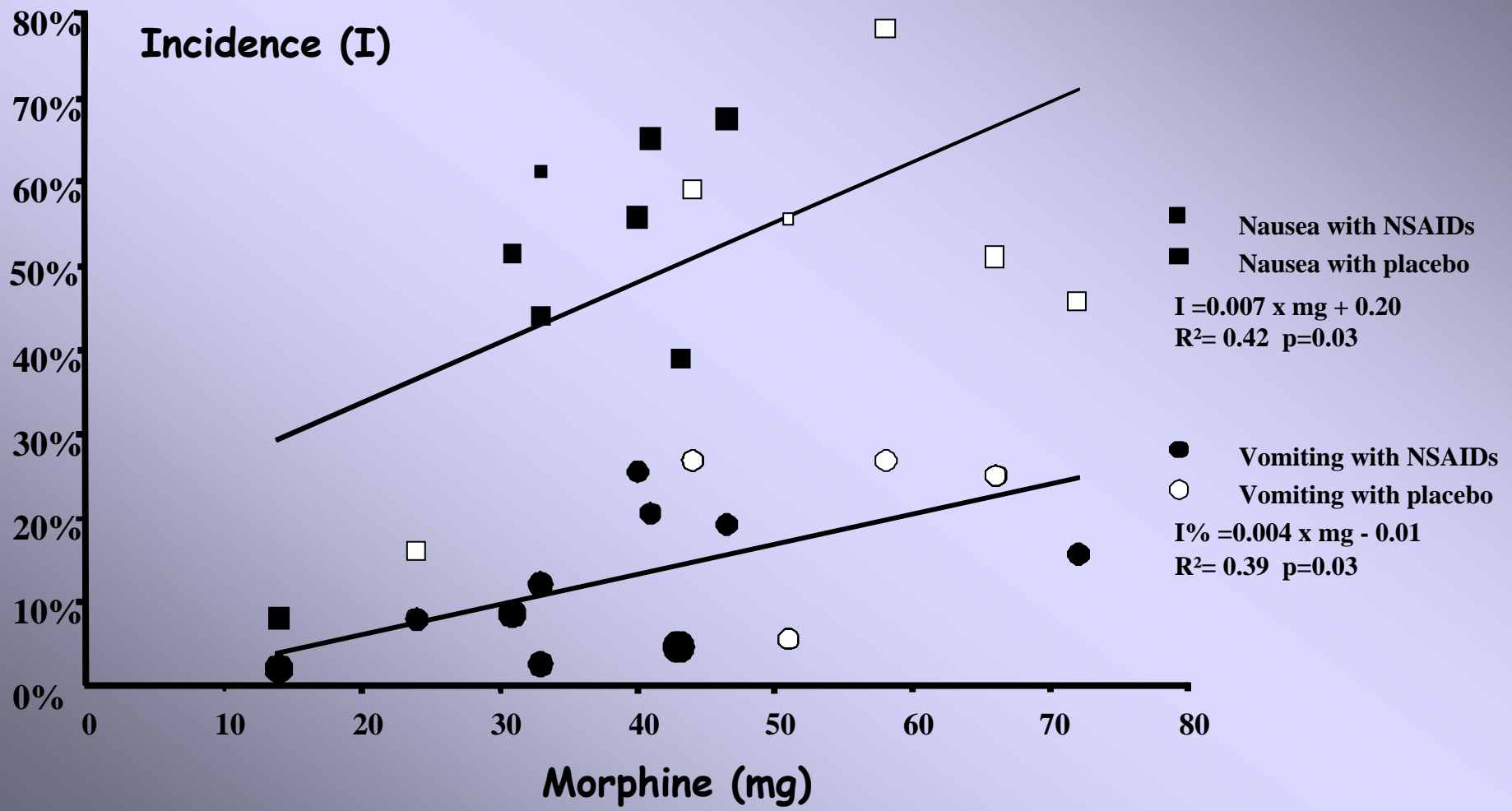
Jadad Score < 3 (n=9),
Duration < 24 H (n=4)
Intrarectal administration (n=3)

19 studies
1939 patients (1069 NSAID's)

NSAID's and Morphine side effects

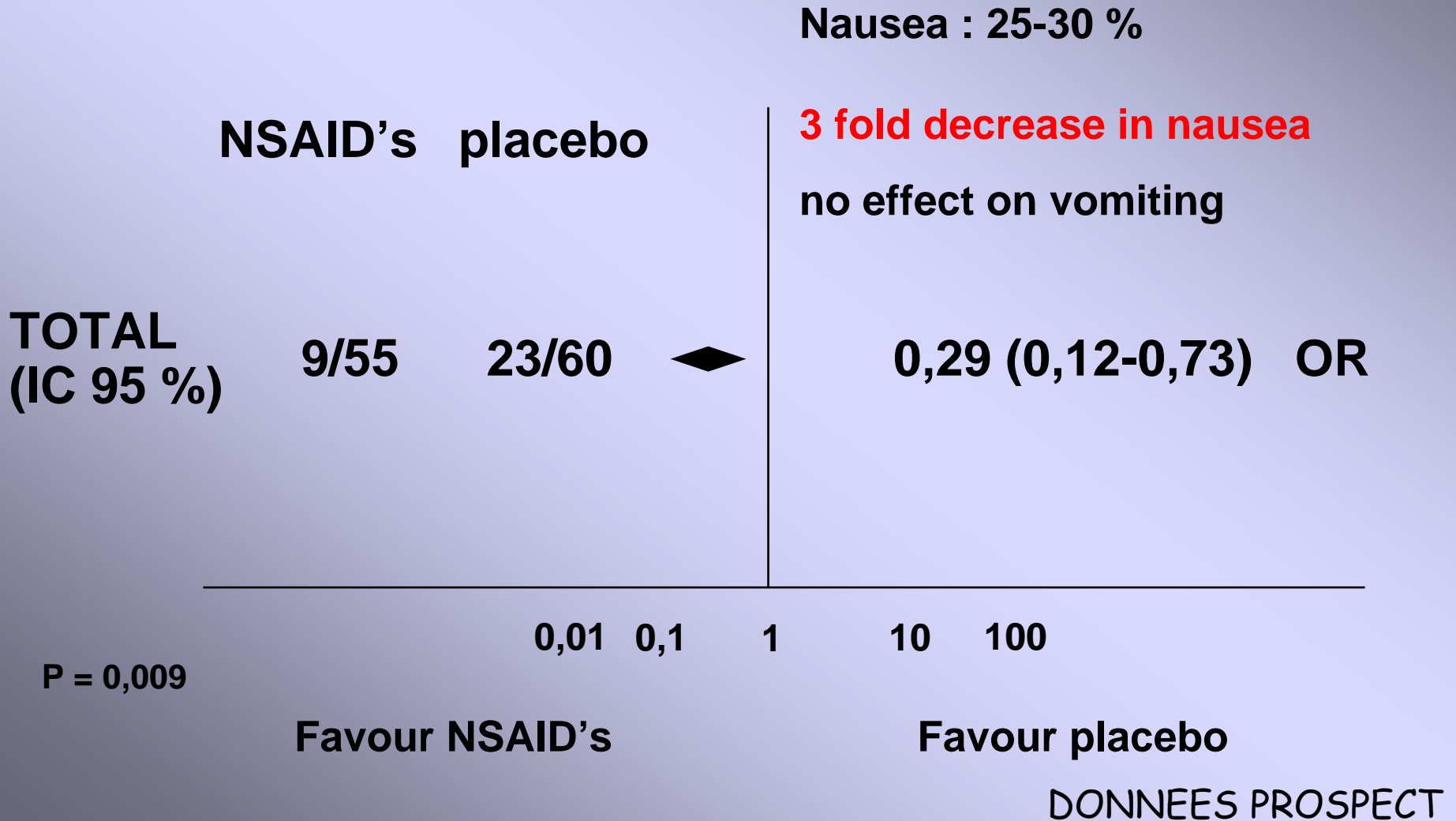


EFFET DES AINS SUR LES NVPO INDUITS PAR LA MORPHINE



PREVENTION DES NVPO PAR LES AINS

EFFICACITE SPECIFIQUE : LE MODELE DE LA CHOLECYSTECTOMIE LAPAROSCOPIQUE



Adding COX-2 inhibitors to opioids (in ambulatory surgery)

Zhao *et al.* J Pain Symptom Manage 2004; 28(1):35-46

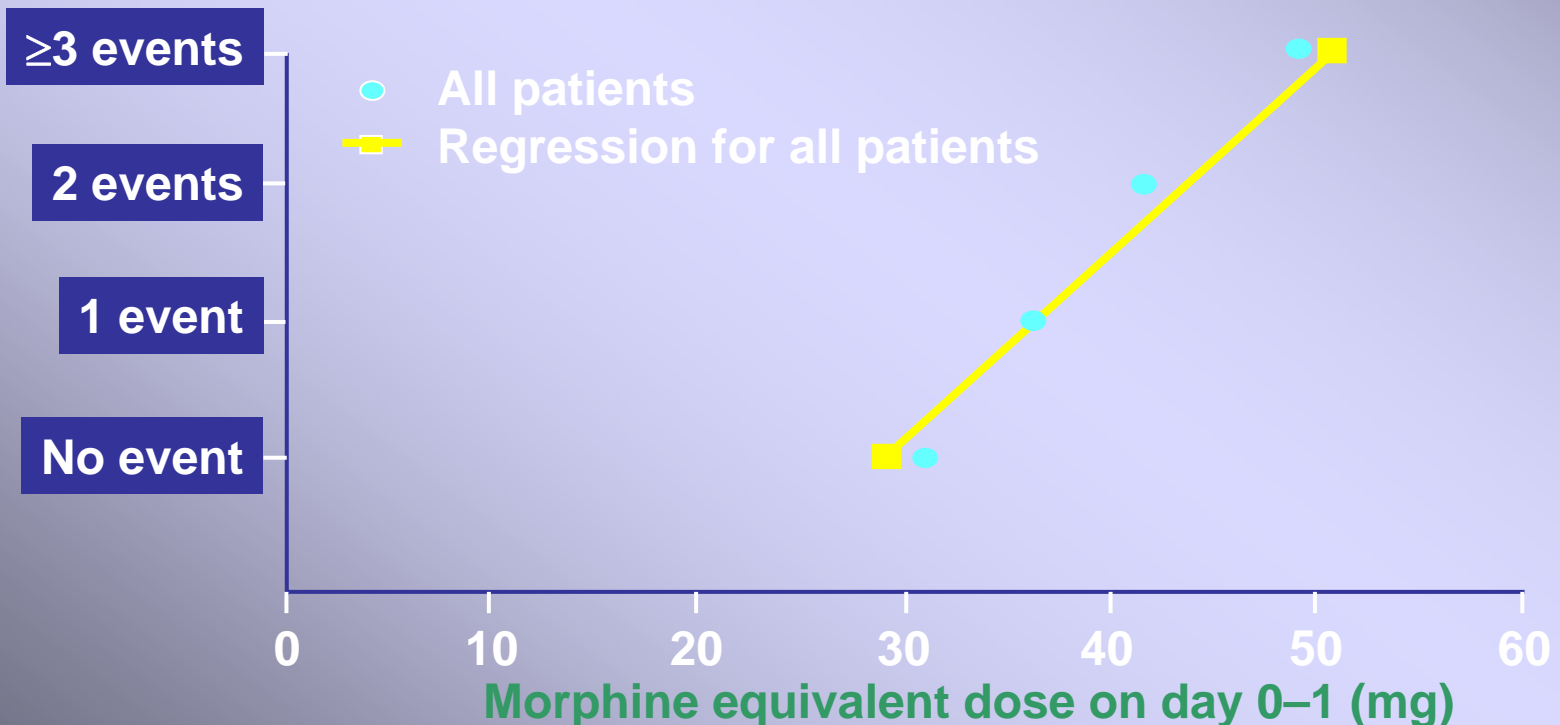
Opioid-related symptoms

- Nausea
- Vomiting
- Constipation
- Difficulty passing urine
- Difficulty concentrating
- Drowsiness
- Light-headedness
- Confusion
- Fatigue/weakness
- Itchiness
- Dry mouth
- Headache

Adding COX-2 inhibitors to opioids: Reduced opioid adverse events with reduced opioid use

'Once threshold reached, every further 3-4 mg increase will be associated with 1 clinically meaningful opioid-related symptom'

Clinically meaningful events on day 1 following lap chole



Zhao *et al.* J Pain Symptom Manage 2004; 28(1):35-46

RELATIONSHIP BETWEEN OPIOID USE
AND ADVERSE EFFECTS WITH
PARECOXIB VS PLACEBO AFTER MAJOR
GENERAL SURGERY

*T. J. Gan, MD;¹ F. Bonnet, MD;² G. Joshi, MD;³ M. E.
Boye, PhD;⁴ M. T. Brown, MD⁴*

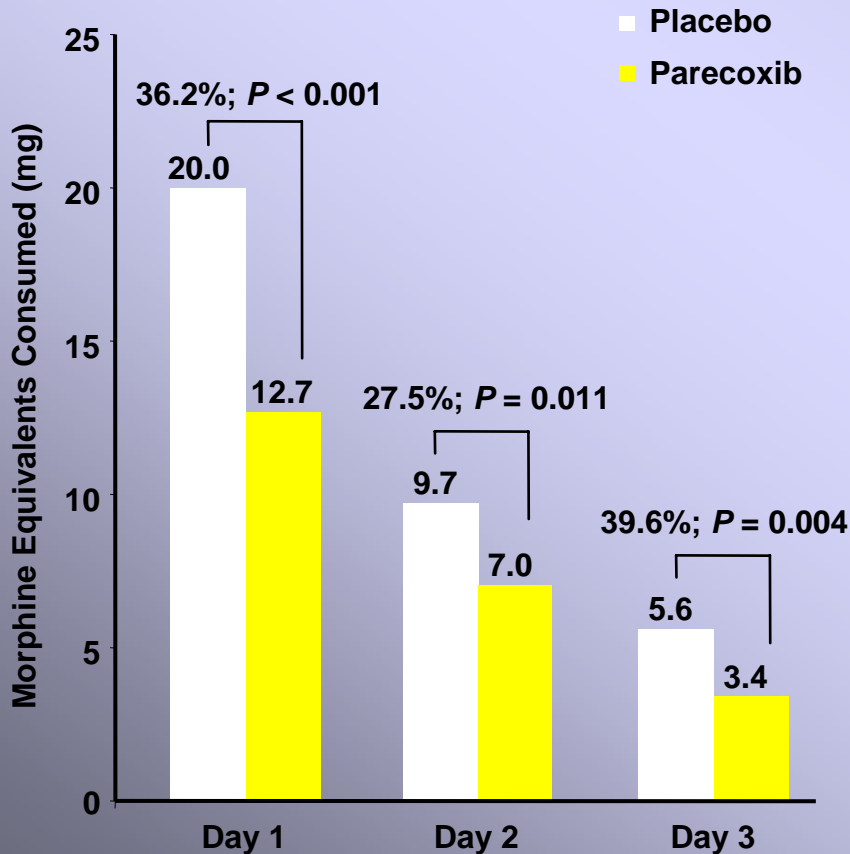
ESA Madrid 2006

METHODS

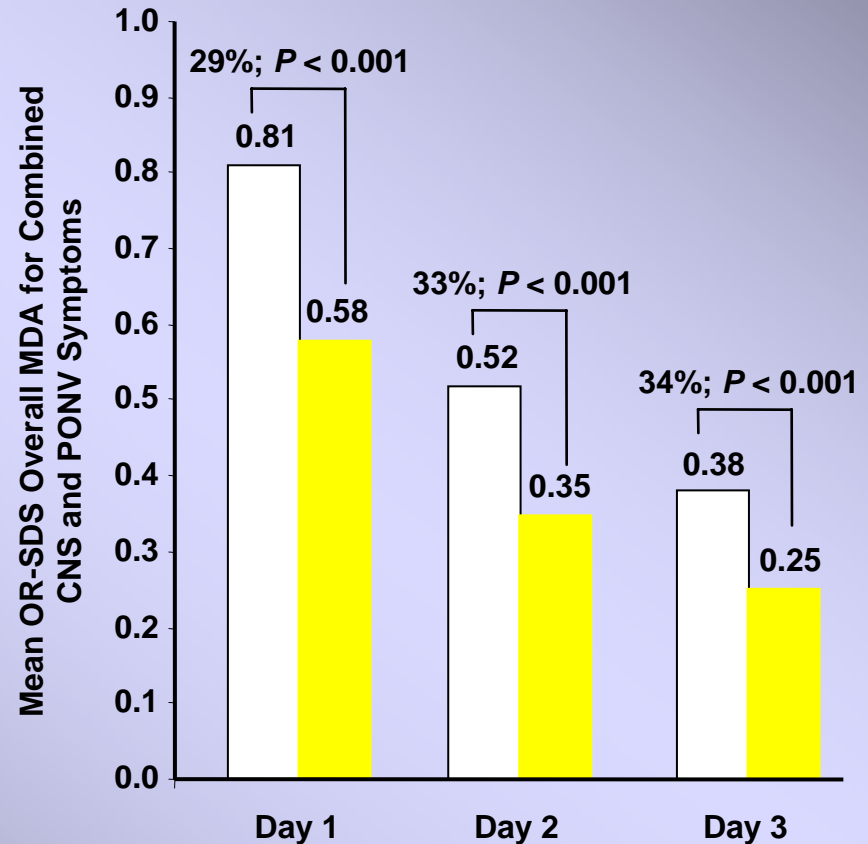
- **1000 Patients** scheduled for major noncardiac surgery (abdominal, gynecologic, orthopedic, cancer resection, or noncardiac thoracic)
 - Day 1 (day of surgery): parecoxib 40 mg loading dose or placebo + 20 mg parecoxib
 - Days 2-10 : parecoxib 20 mg bid for a total of at least 6 IM/IV doses ® valdecoxib 20 mg bid or placebo when able to take oral medication
 - Opioid analgesia (as needed) was morphine as PCA or bolus during IM/IV dosing and oral codeine/acetaminophen or hydrocodone/acetaminophen during oral dosing
- End points (limited to PO days 1 to 3)
 - Opioid consumption
 - OR-SDS:
 - CNS symptoms (fatigue, drowsiness, inability to concentrate, confusion, and dizziness)
 - PONV symptoms (nausea and retching/vomiting)

RESULTS

Opioid consumption (morphine equivalents)



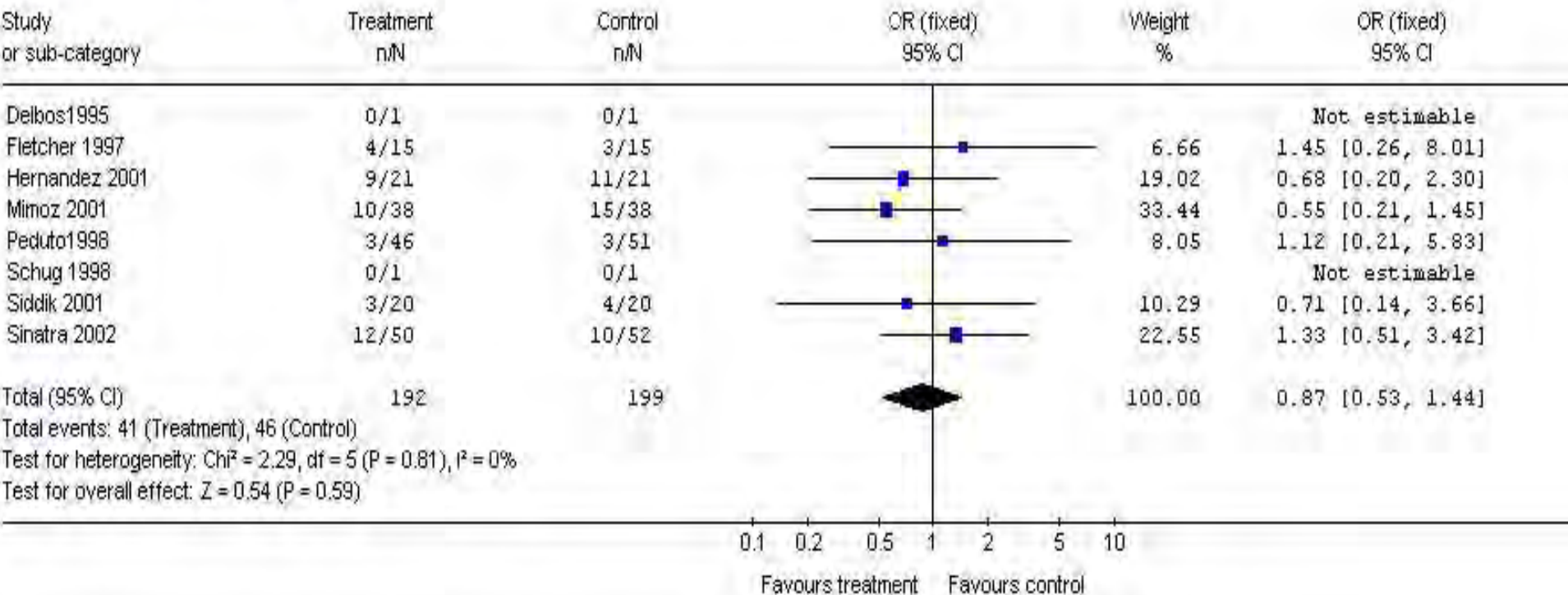
Opioid-associated symptom burden—MDA scores for combined CNS and PONV symptoms



MDA, multidimensional average: mean of frequency, severity, and bother for each symptom combined for fatigue, inability to concentrate, confusion, dizziness, and drowsiness, and retching/vomiting and nausea

NVPO et PARACETAMOL

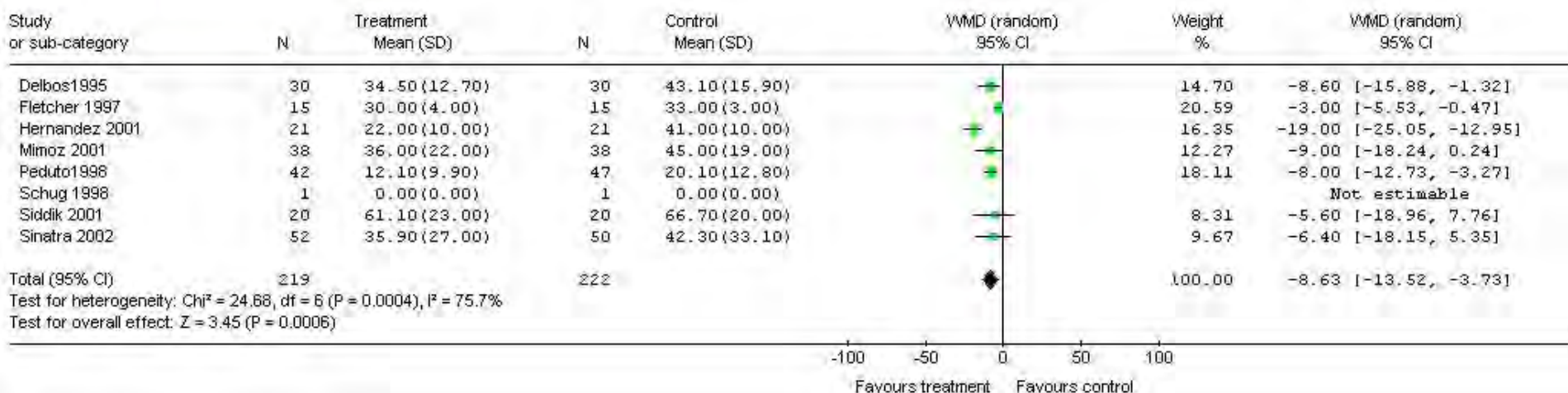
Review: Propacetamol and Morphine PCA
 Comparison: 03 Morphine Side Effects
 Outcome: 01 Nausea and Vomiting



Consommation morphinique des 24 premières heures : réduction par le PARACETAMOL

- Effet d'épargne : 8 mg morphine / 24 h

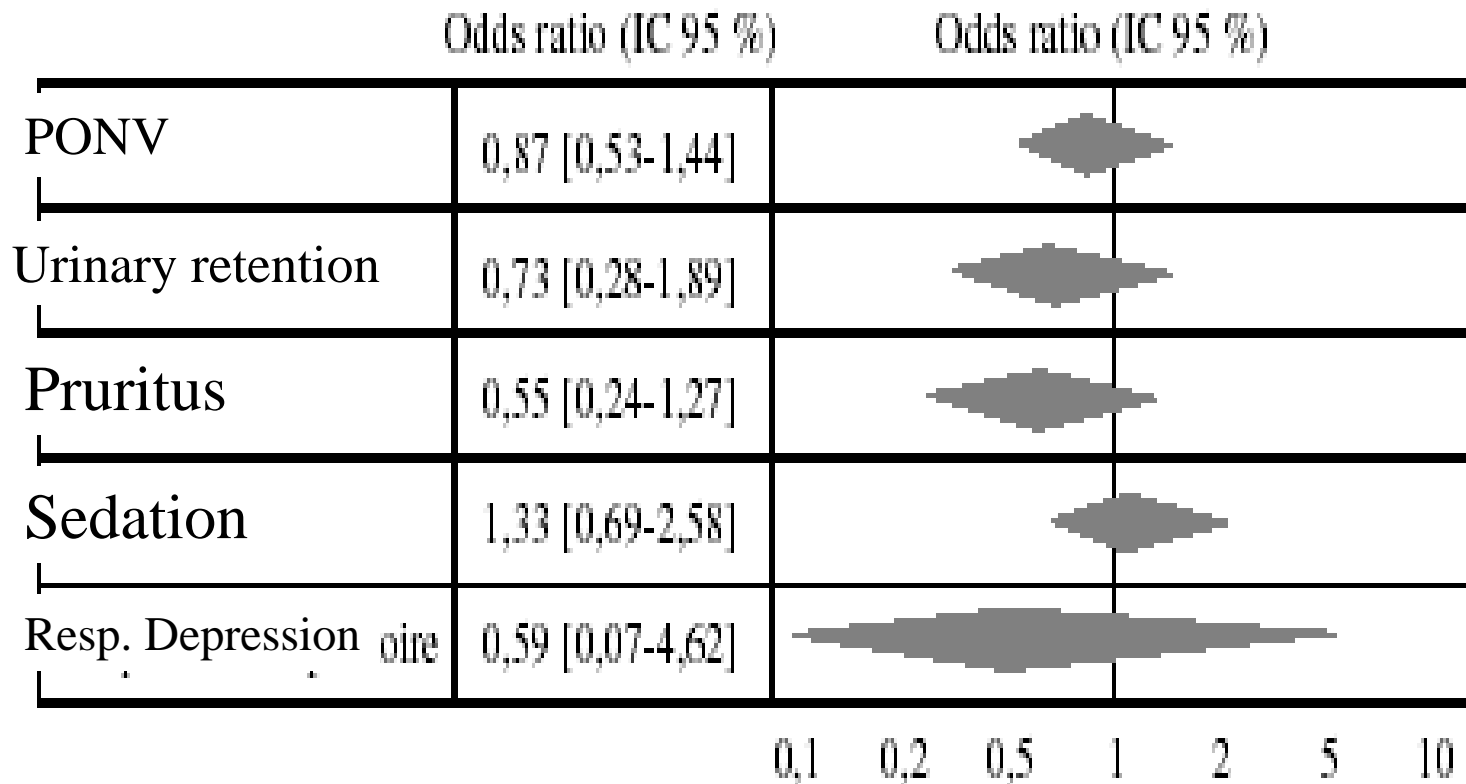
Review: Propacetamol and Morphine PCA
 Comparison: 01 Morphine Consumption
 Outcome: 01 Morphine 24 hours



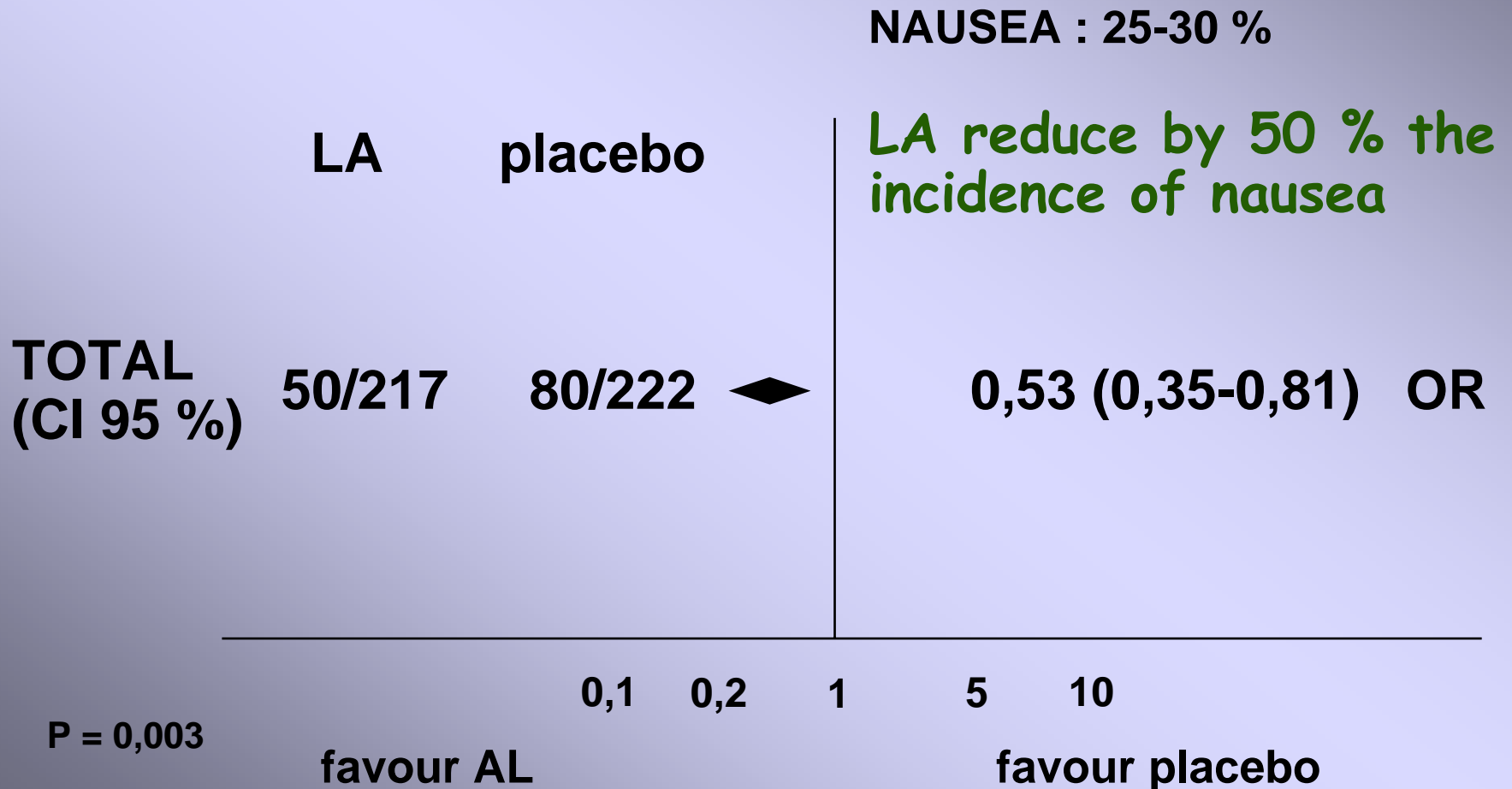
Meta-analysis of the morphine sparing effect of paracetamol 8 studies (Jaddad > 3) :

256 patients [morphine PCA + placebo], 244 patients [morphine PCA +
paracetamol]

morphine sparing effect: - 8 mg [-13 mg, -3 mg]



INFILTRATIONS PAR LES ANESTHESIQUES LOCAUX : L'AUTRE APPROCHE POUR REDUIRE LA CONSOMMATION DE MORPHINIQUES ET LES EFFETS SECONDAIRES



Local, regional, or general anaesthesia in groin hernia repair: multicentre randomised trial

Pär Nordin *et al.*

Lancet 2003; 362: 853

	Infiltration n=205	APD / RA n=198	General n=199
Intravenous sedation	110 (55%)	108 (56%)	-
General anaesthesia	4 (2%) *	19 (10%)	-
haemorrhage	13 (6%)	6 (3%)	13 (6%)
Urinary retention	0 *	57 (29%)	15 (8%)
Opiates in RR *	17 (8%) *	43 (22%)	67 (34%)
Pain bf discharge (VAS)	1.8 [1.6-2.0] *	3.0 [2.7-3.2]	3.3 [3.0-3.5]
PONV bf discharge (VAS)	1.1 [1.0-1.1] *	1.3 [1.1-1.4]	1.7 [1.5-1.9]
Hospital stay (h)	3.1 [2.8-3.4] *	6.2 [5.6-6.8]	6.2 [5.5-6.8]
Unscheduled admission	7 (3%) *	27 (14%)	44 (22%)
Parietal infection at D8	14 (7%)	6 (3%)	12 (6%)

One-thousand consecutive inguinal hernia repairs under unmonitored local anesthesia

Callesen T, Bech K, Kehlet H *Anesth Analg* 2001

- Technique : 741 protheses (Lichtenstein)
176 réparations classiques
40 cures de hernie crurale
43 autres techniques
- 921 ASA I-II 70% ASA I-IV
- age médian 65 [18-95]
- Infiltration du canal/plan avec bupivacaine 0.25 % (50 mL)
- (5% d'opérations en AG)
- durée chirurgie 50 min [40-65]
- 961 procédures ambulatoires
- sortie d'hôpital 95 min (75-150)

A qualitative systematic review of incisional anaesthesia for postoperative pain relief after abdominal operations

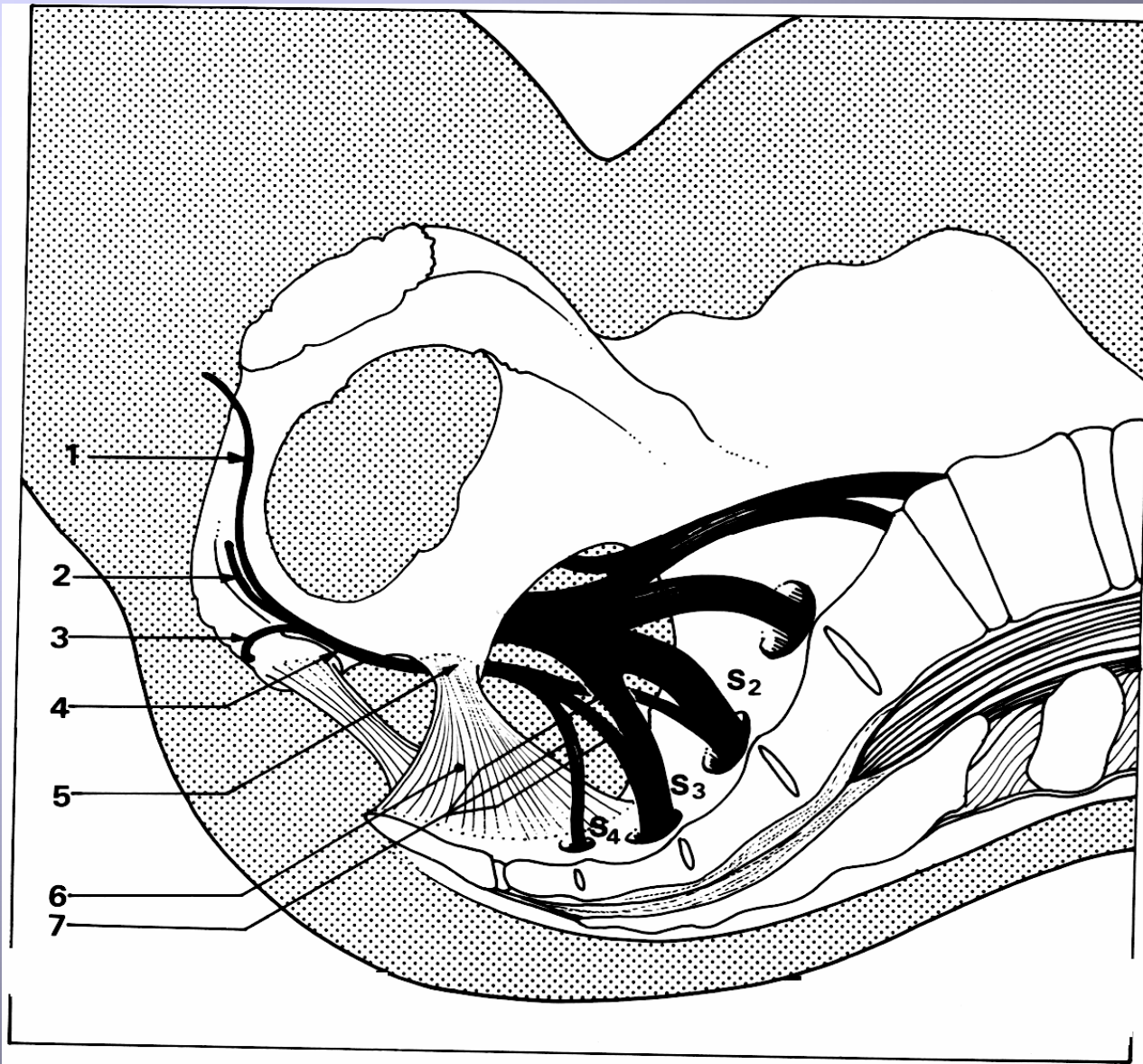
(Moiniche S Br J Anaesth 198;81:377)

- L'infiltration d'AL est supérieure au placebo dans la chirurgie de la hernie inguinale
- Le gain en EVA moyen est de 50 mm
- Le gain en durée moyenne est de 7 heures avec un maximum pouvant aller jusqu'à 24 heures.
- Diminution des besoins en antalgiques de 50%

CHIRURGIE HÉMORROIDAIRE

Les suites postopératoires sont très douloureuses

- Les plaies sont situées dans une région très innervée
- Les ponts cutanéomuqueux intermédiaires sont inflammatoires
- Il existe un spasme sphinctérien anal ± col vésical



1 nerf dorsal du clitoris

2 nerf périnéal

3 nerf rectal inférieur

4 nerf pudendal

5 tubérosité ischiatique

6 ligament sacro-ischiatique

7 racines S2-3-4 plexus sacré

INFILTRATIONS POUR CHIRURGIE HEMORROIDAIRE

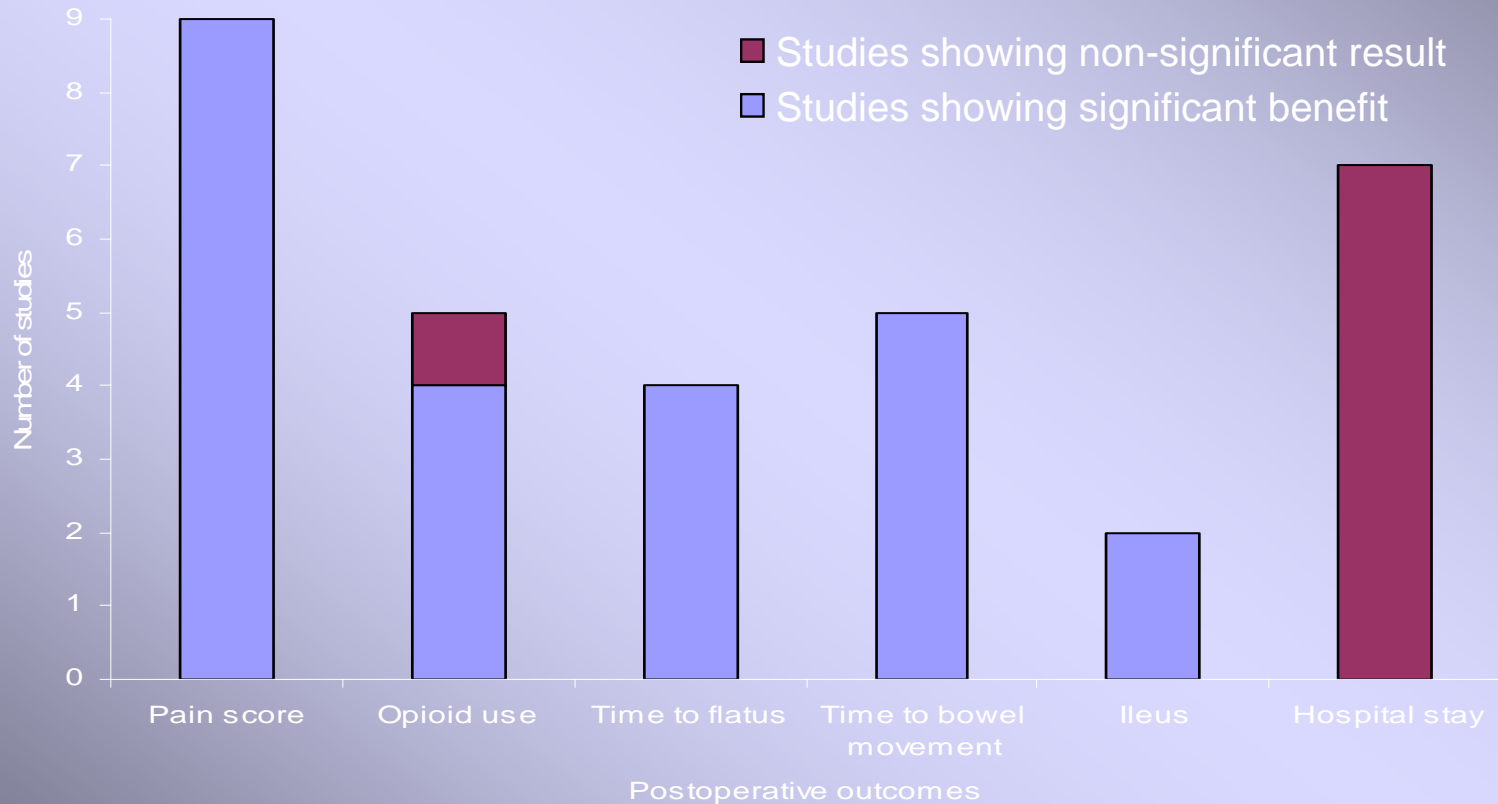
Etude	Nbre	Protocole	Bloc	Efficacité analgésique
Masuda Can J Anaesth 1996	168	Randomisée vs Placebo- double aveugle	Lidocaine 1% périanal Rachianesth.	EVA J1-2-3 Repos et toux < ds groupe infiltration
Chester Dis Colon Rectum 1990	40	Randomisée Aveugle vs AD	Bupi 0.5 % perianal	EVA J1-2-3 Délai 1ere demande analg X4
Luck Dis Colon Rectum 2000	20	Randomisée Aveugle vs Placebo	Bupi 0.5% ischioirectal	EVA 0.5-2-4-24H < ds groupe infiltration pdt 24H
Vinson-Bonnet Dis Colon Rectum 2001	30	Randomisée double aveugle vs placebo	Ropi 0.75 % périanal	H1-3-6-12-24 EVA < 6H Morphine < 12H
Brunat Reg Anesth Pain Med 2003	52	Randomisée double aveugle vs placebo	Ropi 0.75% Bloc pudendal	EVA 1-2-4-8-12-24H EVA < 8H Morphine < 24H

CHIRURGIE HÉMORROIDAIRE

Proposition de Protocole Analgésique

- 1 COXIB ex : celecoxib ou parecoxib :
débuter avec la chirurgie (délai d'action 30 min), répéter en postopératoire
- 2 Paracetamol 2g puis 1gX 4 (débuter avec la chirurgie)
- 3 Infiltration périanale et pudendale
- 4 morphine parentérale en secours

Epidural *versus* systemic analgesia: Qualitative outcomes for colonic resection



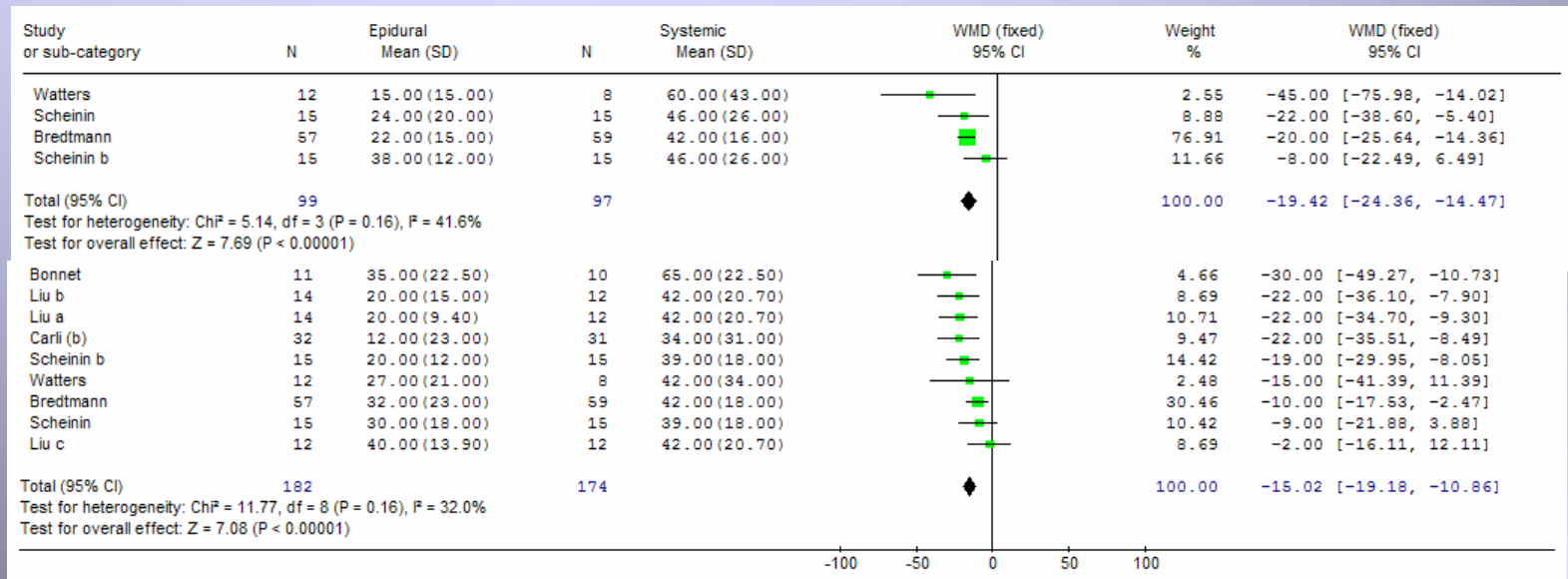
Strong evidence of benefit for epi over systemic opioids for a range of outcomes

Epidural *versus* systemic analgesia: Quantitative outcomes for colonic resection

Effect of epidural analgesia on VAS pain scores

3–8 h

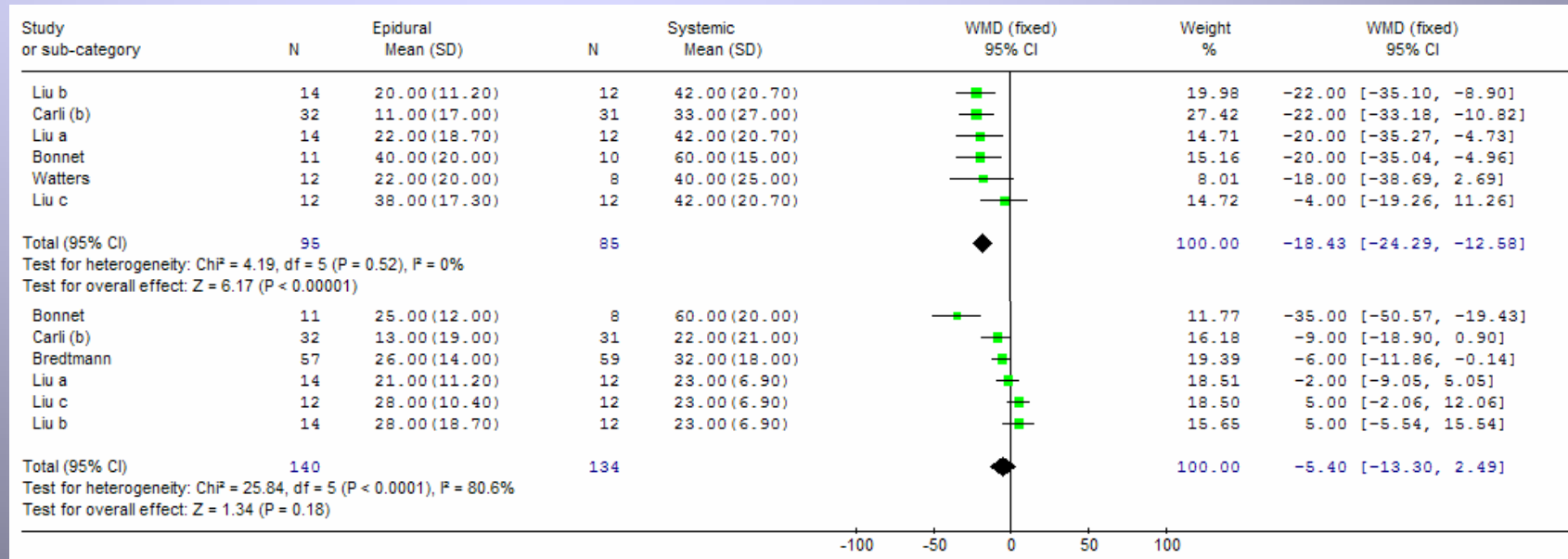
24 h



Significant benefit in the early postoperative period and at 24h

Epidural *versus* systemic analgesia: Quantitative outcomes for colonic resection

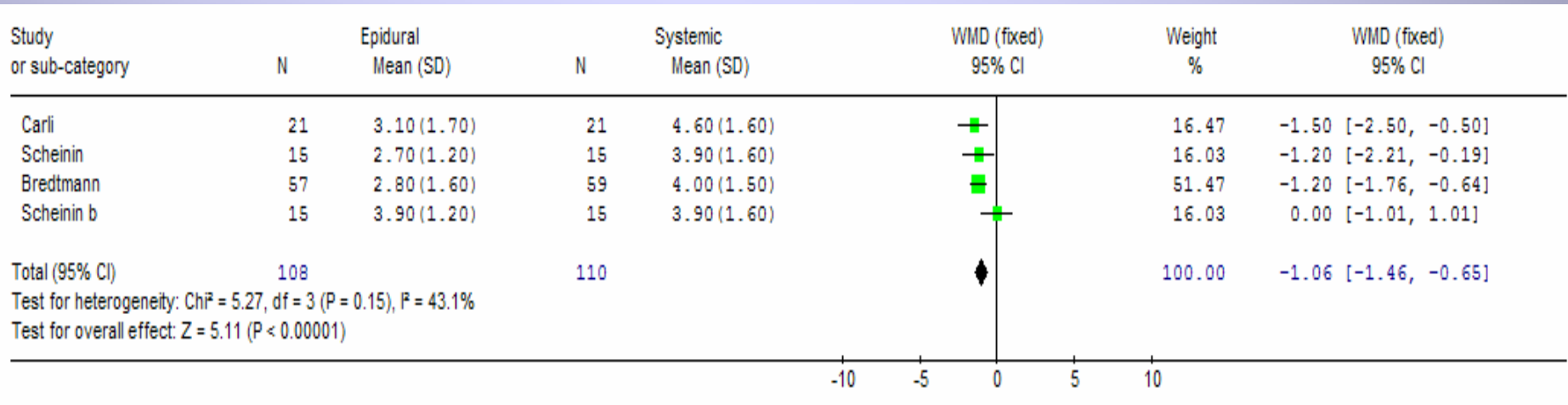
Effect of epidural analgesia on VAS pain scores



Significant benefit maintained at 48h

Epidural *versus* systemic analgesia: Quantitative outcomes for colonic resection

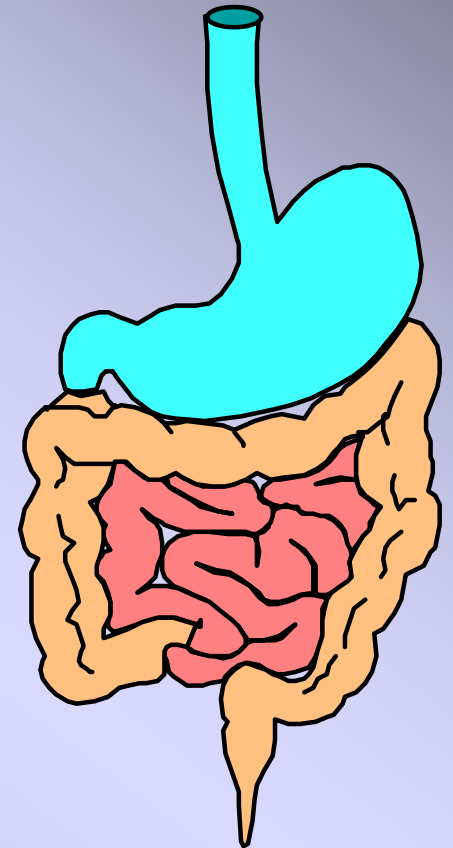
Effect of epidural analgesia on time to first bowel movement



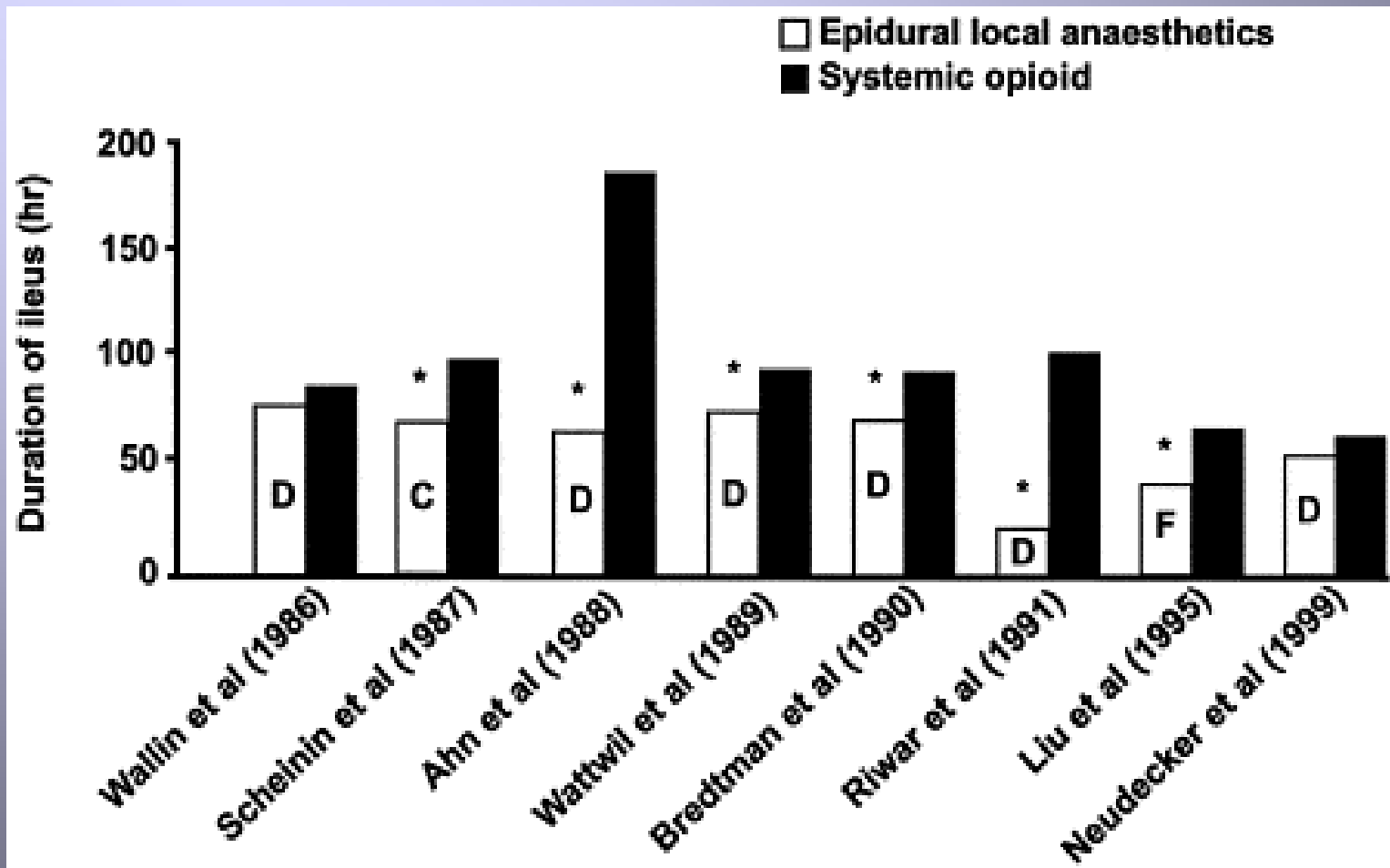
Mean reduction in time to bowel movement of 1 day

EPARGNER LES MORPHINIQUES C'EST AUSSI AGIR SUR L'ILEUS POSTOPERATOIRE

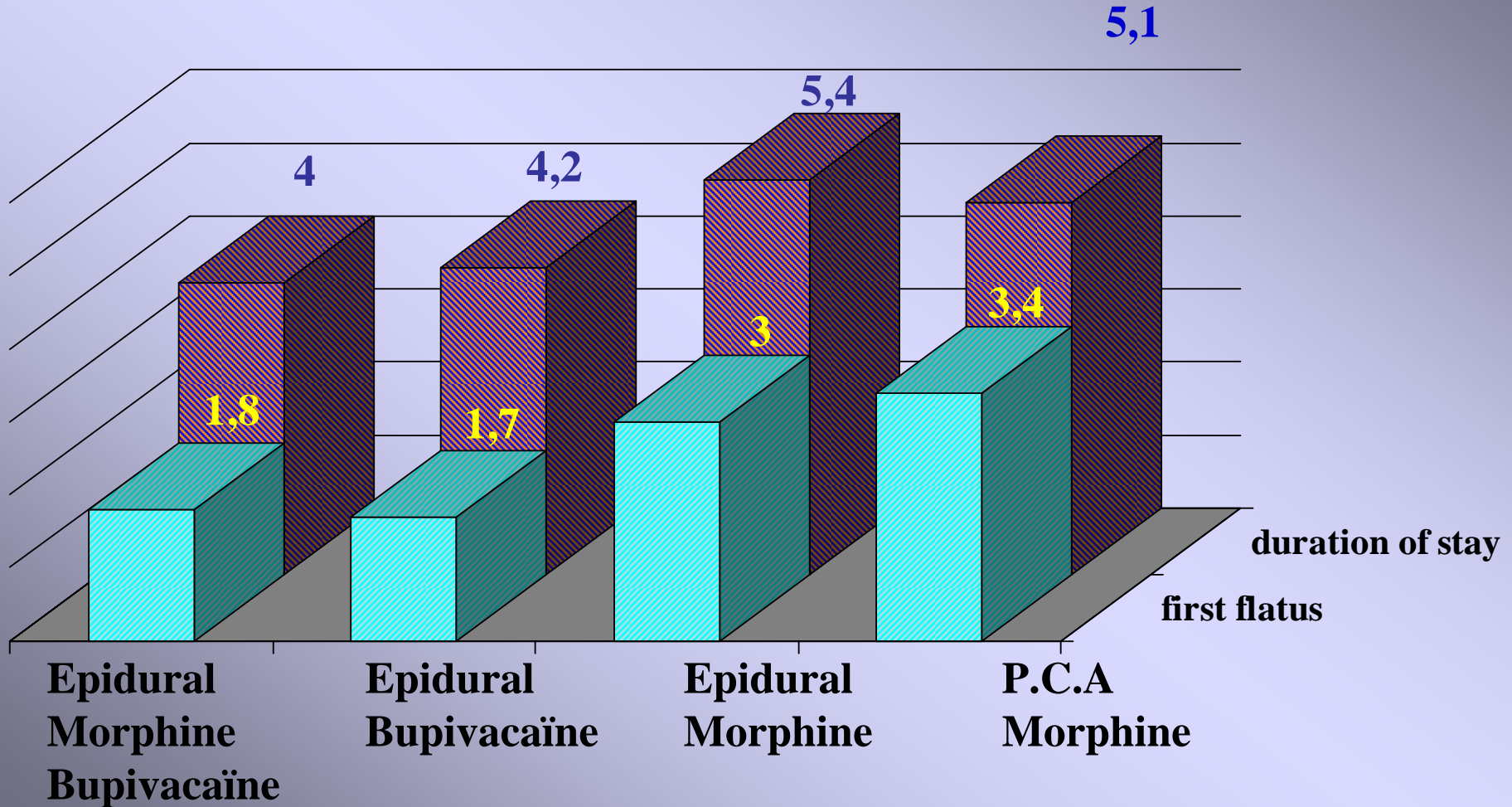
- Analgésie péridurale et anesthésiques locaux
- Analgésiques non opiacés
- (Inhibiteurs des récepteurs digestifs aux opiacés)



Duration of postoperative ileus: intravenous morphine versus epidural local anaesthetics



Impact of morphine on the duration of postoperative ileus and hospital stay in colon surgery

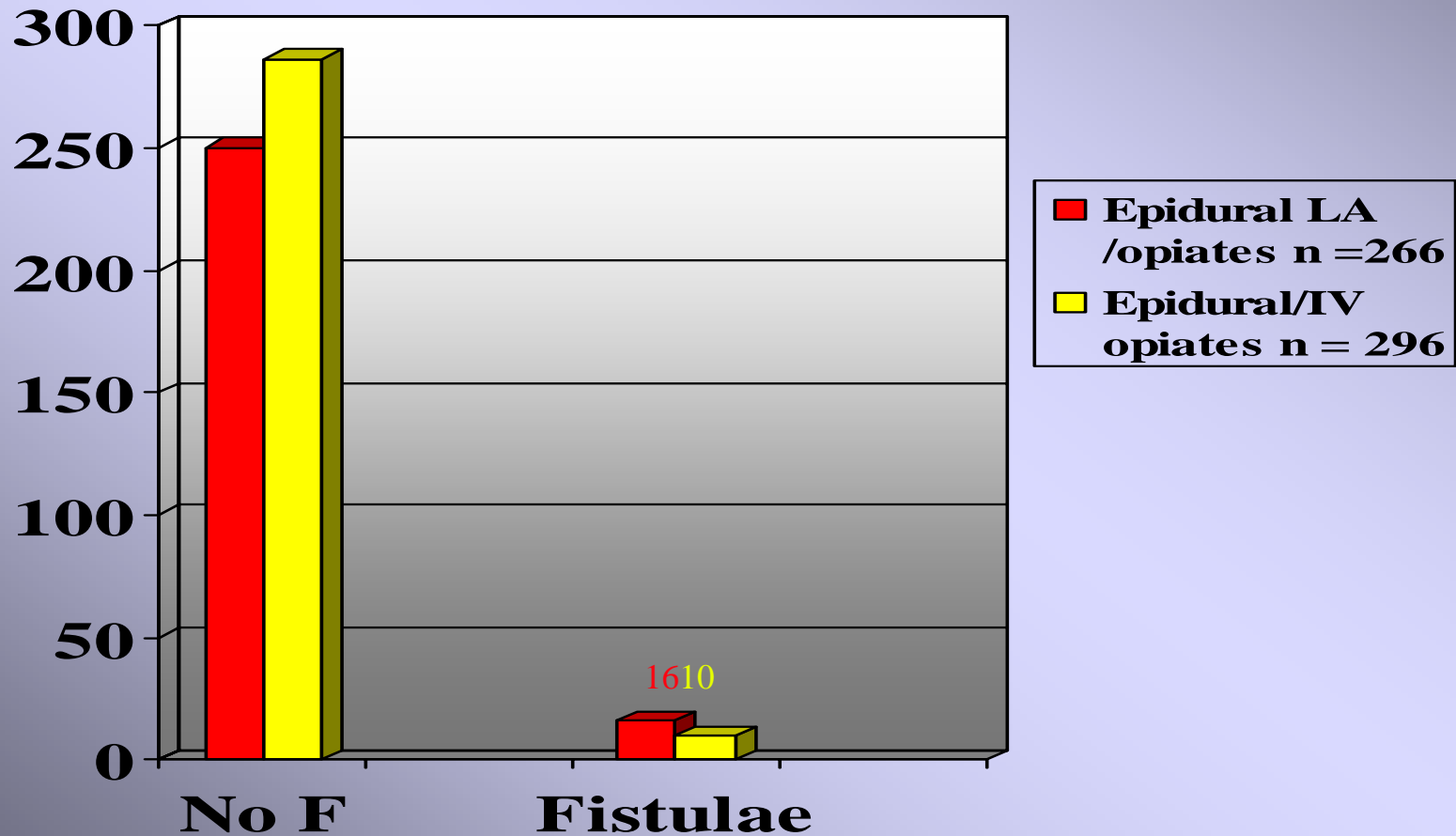


Recovery of gastrointestinal function and time until hospital discharge

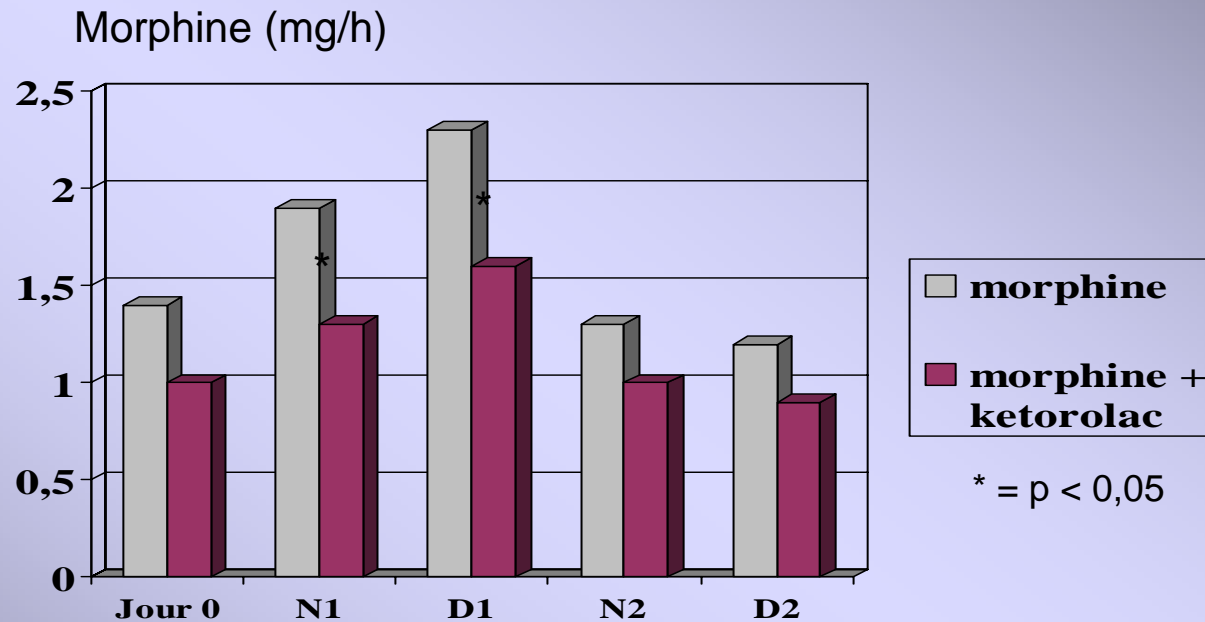
	Péridurale morphine + bupivacaine	Péridurale morphine	Péridurale bupivacaine	PCA IV
Délai av 1er gaz (h)	43 ± 4	71 ± 4	40 ± 2	81 ± 3
Apport calorique le jour de la sortie (kcal/kg)	19 ± 1	18 ± 1	20 ± 1	21 ± 2
Apports par voie orale le jour de sortie (ml/kg)	32 ± 2	35 ± 3	36 ± 2	35 ± 2
Délai av l'obtention des critères de sortie	67 ± 8	102 ± 13	62 ± 5	96 ± 7
Délai av la sortie effective	96 ± 12	130 ± 14	101 ± 11	122 ± 9

Epidural analgesia with local anaesthetics and the risk of anastomotic fistulae in colon surgery

Metaanalysis of 16 randomized studies in colorectal surgery



ketorolac and morphine: effect on analgesia and the duration of postoperative ileus after abdominal surgery



Morphine

Morphine + ketorolac

Duration of postoperative ileus (h)

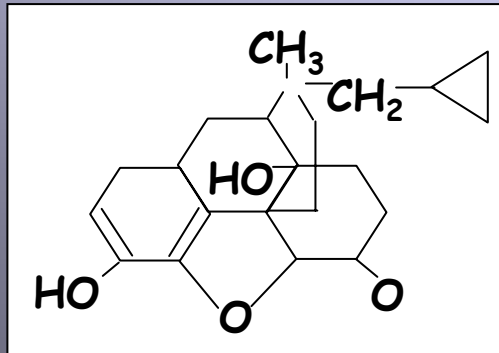
61 ± 25

50 ± 24 *

Antagonistes des opiaces

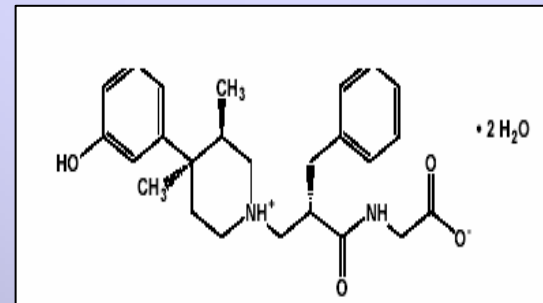
- Naloxone

- Composé tertiaire
- Métabolisme hépatique (effet de premier passage)
- Franchissement de la BHE (liposolubilité)



- Alvimopan

- Composé quaternaire
- Absorption intestinale faible
- Pas de franchissement de la BHE



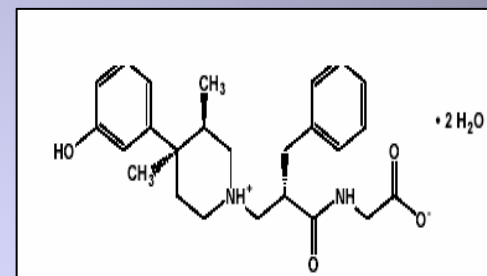
Antagonistes des opiacés : effets sur le transit digestif et l'analgésie postopératoires

TABLE 2. POSTOPERATIVE CONSUMPTION OF MORPHINE, ADVERSE EFFECTS, AND MEDIAN TIMES TO OUTCOMES.*

VARIABLE	PLACEBO (N=26)	1 mg OF ADL 8-2698 (N=26)	6 mg OF ADL 8-2698 (N=26)	P VALUE
		mean ±SD		
Cumulative morphine sulfate (mg)	71±58	70±61	71±52	0.91
Maximal pain (mm)†	54±25	62±24	53±21	0.30
Maximal nausea (mm)†	38±28	38±33	18±26	0.02
Maximal itching (mm)†	16±28	25±29	28±36	0.48
Maximal abdominal cramping (mm)†	30±29	38±31	21±24	0.13
	median (interquartile range)			
Time to first passage of flatus (hr)	70 (48-88)	61 (46-72)	49 (43-63)	0.03
Time to first bowel movement (hr)	111 (70-171)	80 (67-111)	70 (50-83)	0.01
Time to first liquids (hr)	38 (26-60)	30 (21-41)	26 (18-40)	0.14
Time to first solids (hr)	92 (69-112)	69 (64-93)	59 (52-68)	<0.001
Time until ready for discharge (hr)	91 (70-112)	74 (67-94)	68 (65-68)	0.03
Time until actual discharge (hr)	100 (79-121)	93 (75-118)	71 (56-89)	<0.001

*P values refer to differences among the three groups. The morphine doses include the morphine-equivalent doses of meperidine hydrochloride (7.5 mg of meperidine equals 1.0 mg of morphine).

†Values were measured on a visual-analogue scale.



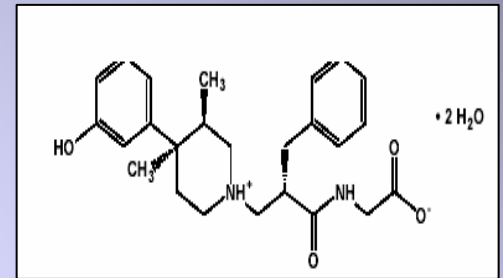
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Maximal nausea (mm)†	38 \pm 28	38 \pm 33	18 \pm 26	0.02
Maximal itching (mm)†	16 \pm 28	25 \pm 29	28 \pm 36	0.48
Maximal abdominal cramping (mm)†	30 \pm 29	38 \pm 31	21 \pm 24	0.13
	median (interquartile range)			
Time to first passage of flatus (hr)	70 (48-88)	61 (46-72)	49 (43-63)	0.03
Time to first bowel movement (hr)	111 (70-171)	80 (67-111)	70 (50-83)	0.01
Time to first liquids (hr)	38 (26-60)	30 (21-41)	26 (18-40)	0.14
Time to first solids (hr)	92 (69-112)	69 (64-93)	59 (52-68)	<0.001
Time until ready for discharge (hr)	91 (70-112)	74 (67-94)	68 (65-68)	0.03
Time until actual discharge (hr)	100 (79-121)	93 (75-118)	71 (56-89)	<0.001

*P values refer to differences among the three groups. The morphine doses include the morphine-equivalent doses of meperidine hydrochloride (7.5 mg of meperidine equals 1.0 mg of morphine).

†Values were measured on a visual-analogue scale.



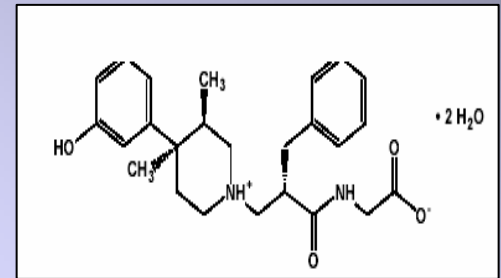
Antagonistes des opiacés : effets sur le transit digestif et l'analgésie postopératoires

TABLE 2. POSTOPERATIVE CONSUMPTION OF MORPHINE, ADVERSE EFFECTS, AND MEDIAN TIMES TO OUTCOMES.*

VARIABLE	PLACEBO (N=26)	1 mg OF ADL 8-2698 (N=26)	6 mg OF ADL 8-2698 (N=26)	P VALUE
		mean ±SD		
Cumulative morphine sulfate (mg)	71±58	70±61	71±52	0.91
Maximal pain (mm)†	54±25	62±24	53±21	0.30
Maximal nausea (mm)†	38±28	38±33	18±26	0.02
Maximal itching (mm)†	16±28	25±29	28±36	0.48
Maximal abdominal cramping (mm)†	30±29	38±31	21±24	0.13
	median (interquartile range)			
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A Clinical Pathway to Accelerate Recovery after Colonic Resection

Linda Basse, MD, Dorthe Hjort Jakobsen, RN, Per Billesbolle, MD, Mads Werner, MD, PhD, and Henrik Kehlet, MD, PhD

60 patients - médiane âge = 74 ans - 18 ASA 3 ou 4

APD thoracique T6-T10 (bolus bupi 0,5% + bolus morphine)
(relais perf continue bupi 0,25% + morphine 0,05mg/ml à 4 ml/

Induction : propofol + remifentanil + cisatracurium

Entretien : propofol + remifentanil

Prévention hypothermie

Pas d'aspiration gastrique

A la fin de l'intervention : kétorolac + paracétamol
odansétron

Nursing Care Program and goals

Basse et al. Annals Surg 2000

Pré-op : information - nutrition hyperprotidique sur 3j

Postop : J0 : mobilisation de 2h à partir de la 6ème heure
1l de boisson hyperprotidique

alimentation normale

cisapride + magnesium

: J1 : retrait SU

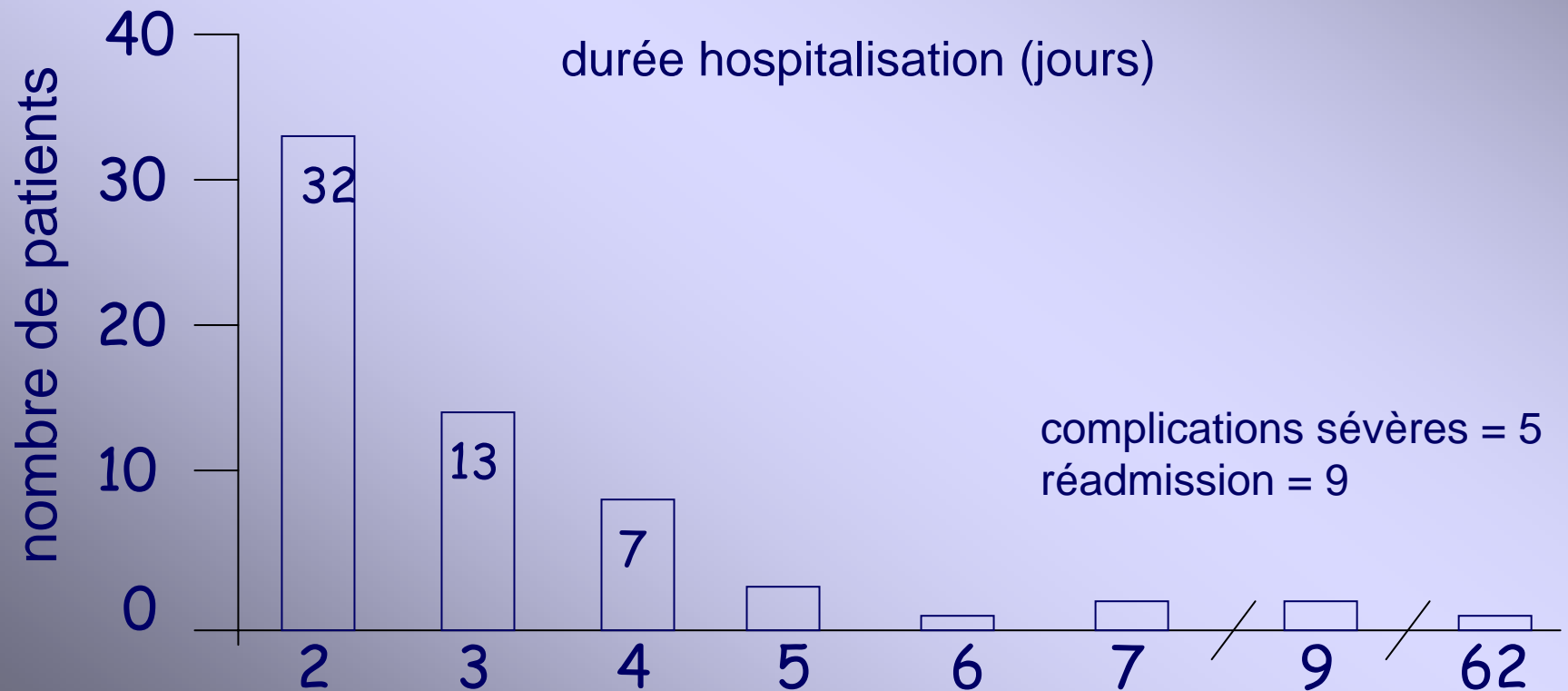
mobilisation > 8h

boisson > 2l - alimentation normale

: J2 : retrait du KT péridural

A Clinical Pathway to Accelerate Recovery after Colonic Resection

Linda Basse, MD, Dorthe Hjort Jakobsen, RN, Per Billesbølle, MD, Mads Werner, MD, PhD, and Henrik Kehlet, MD, PhD



Peut on épargner l'usage de morphine et ses effets secondaires

- La morphine n'est plus l'analgésique de référence pour le traitement de la douleur postopératoire mais un traitement de recours
- La prise en charge de la DPO a évolué de la réduction de l'intensité douloureuse vers l'amélioration du confort des patients dans l'optique d'une convalescence accélérée

TOLERANCE AUX OPIACES

EXISTE-T-ELLE EN
POSTOPERATOIRE ?

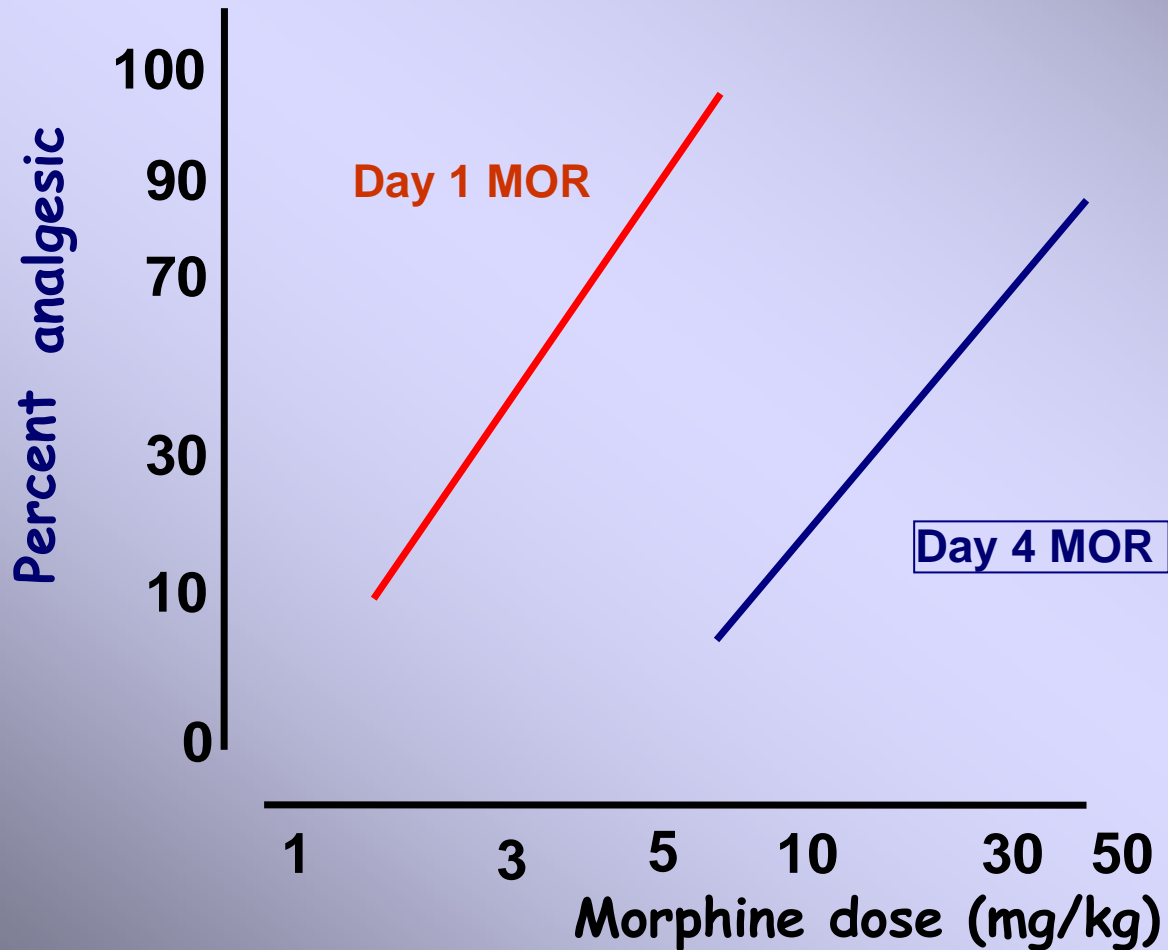
TOLERANCE AIGUE ET
HYPERALGESIE

INDUITES PAR LES OPIACES

ETUDES CHEZ L'ANIMAL

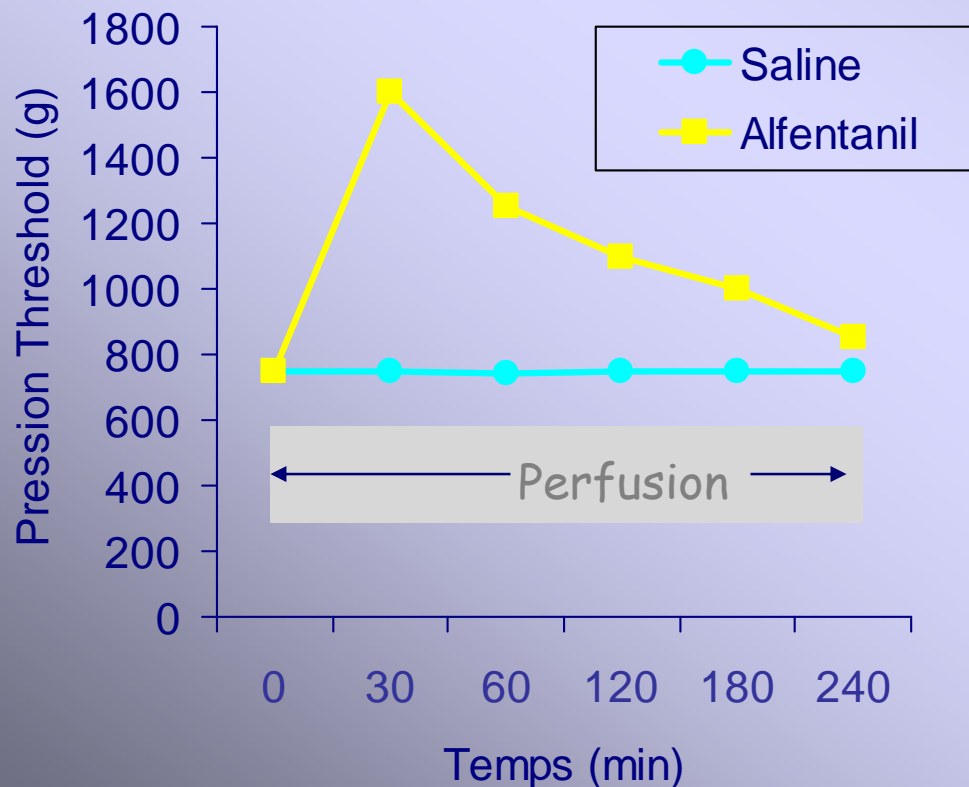
TOLERANCE A LA MORPHINE

Administration répétée de morphine chez le rat : tail flick test

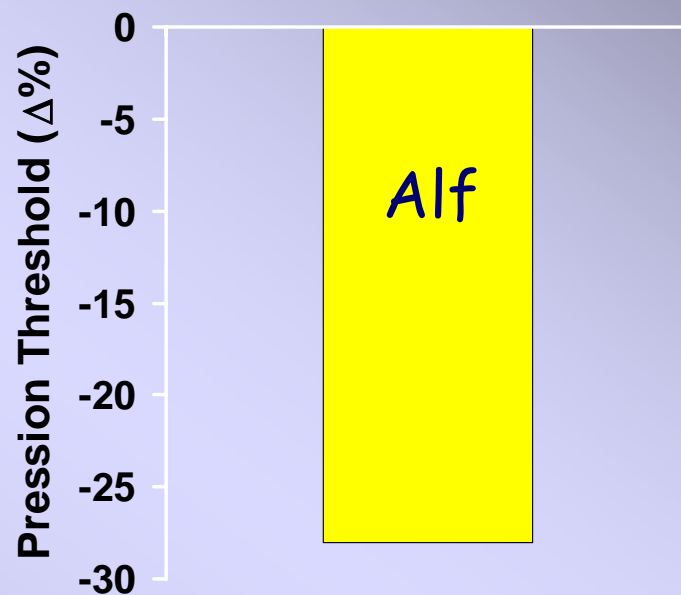


TOLERANCE AIGUE ET HYPERALGESIE INDUITE PAR LES OPIACES

Durant la perfusion

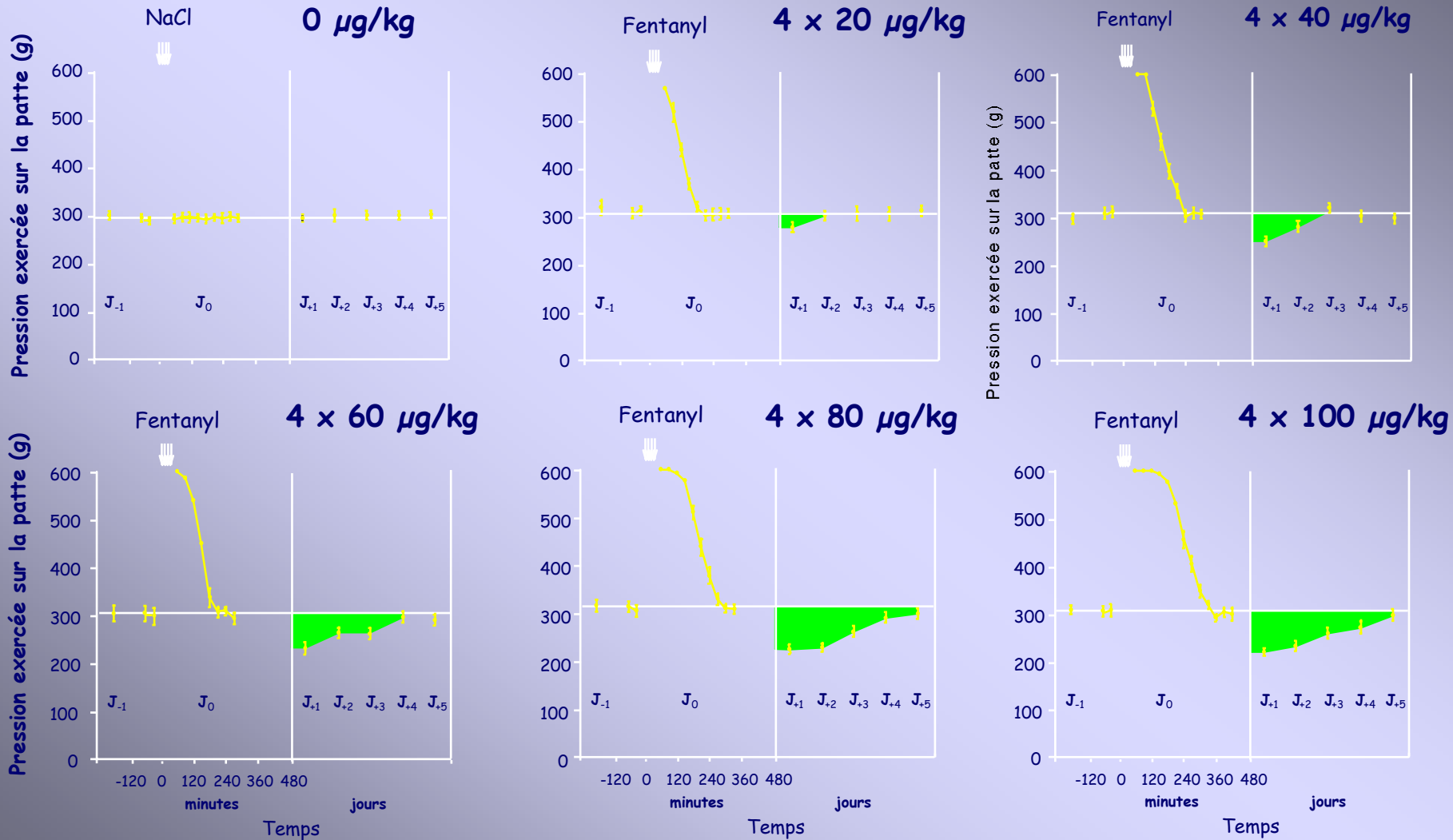


23 heures après



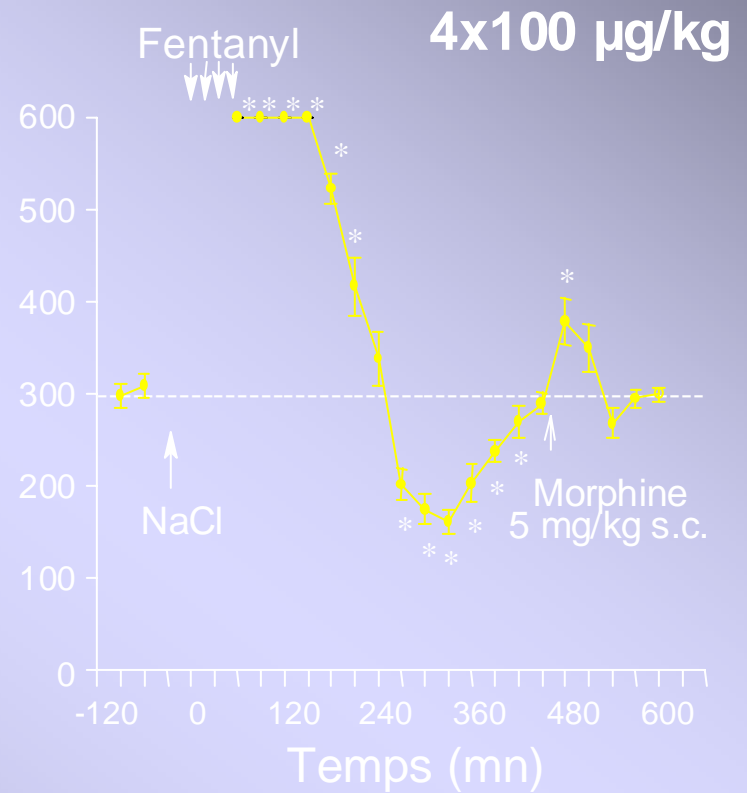
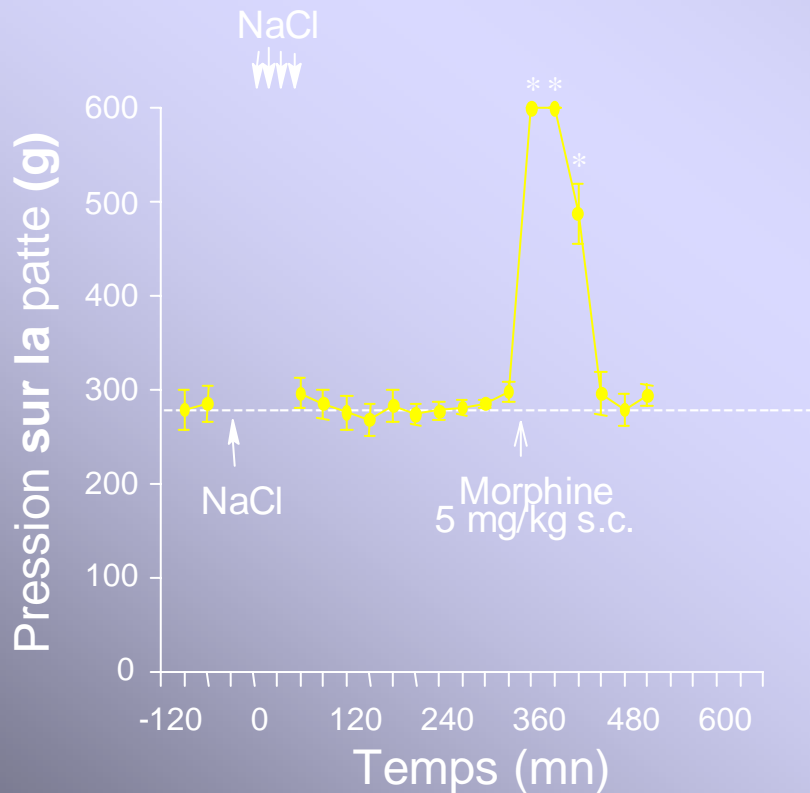
Diminution de 30% du seuil de la douleur

Hyperalgésie induite par le fentanyl



Hyperalgésie et tolérance

La pré-administration de fentanyl réduit de façon dose-dépendante l'action analgésique de la morphine



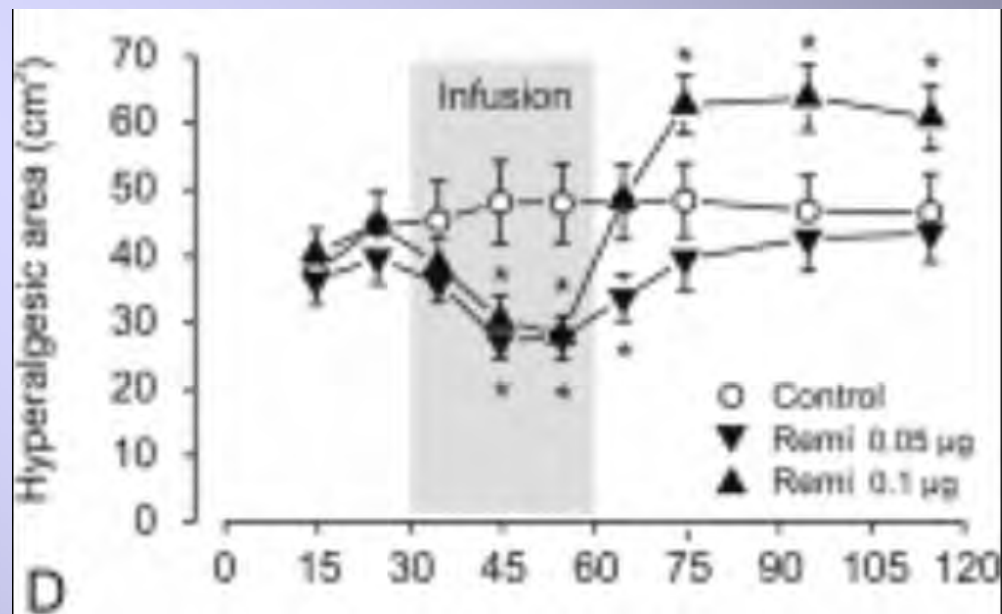
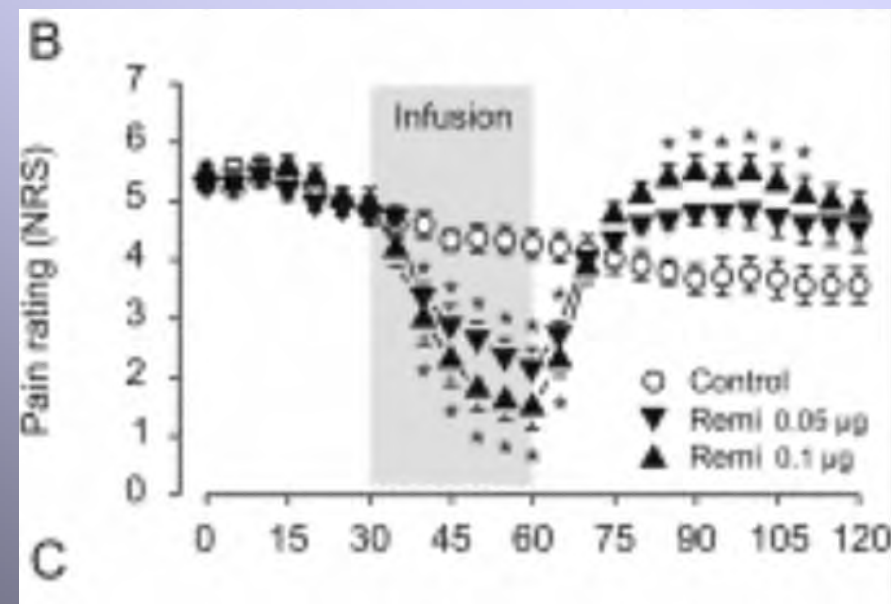
TOLERANCE AIGUE ET
HYPERALGESIE

INDUITES PAR LES OPIACES

LE PHENOMENE EXISTE-T-IL CHEZ
L'HOMME ?

Remifentanil-induced hyperalgesia Human pain model

High current density (2 Hz, 66 ± 13 mA)



Remifentanil: 0.05 and 0.1 $\mu\text{g} \cdot \text{kg}^{-1} \cdot \text{min}^{-1}$

TOLERANCE AIGUE APRES ANESTHESIE

Chirurgie colorectale

Anesthésie : thiopental, atracurium, 50 % O₂

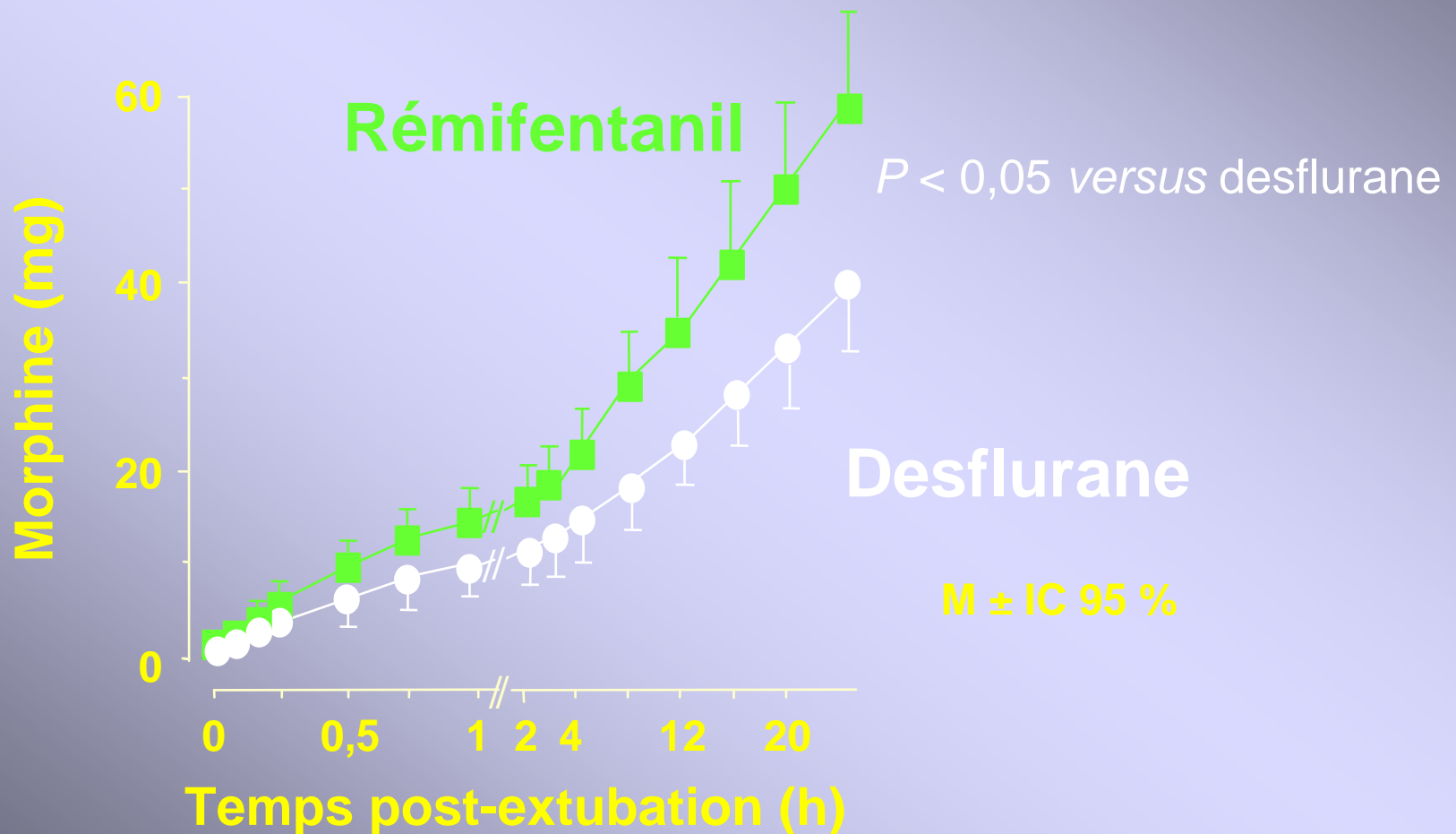
• Groupe Rémifentanil

- Desflurane 0,5 MAC
- Perfusion de rémifentanil adaptée à la stimulation chirurgicale

• Groupe Desflurane

- Rémifentanil
0,1 $\mu\text{g.kg}^{-1}.\text{min}^{-1}$
- Concentration de desflurane adaptée à la stimulation chirurgicale

Anesthésie par rémifentanyl *versus* desflurane



TOLERANCE AIGUE ET HYPERALGESIE

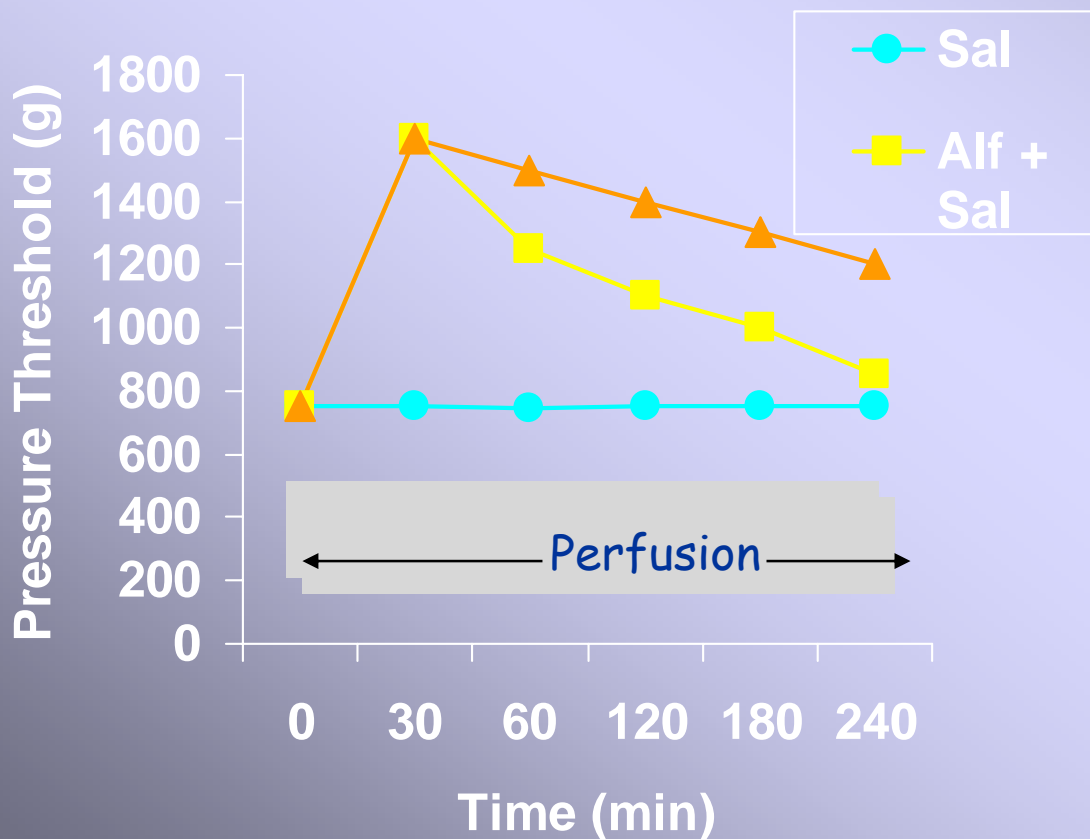
INDUITES PAR LES OPIACES

BLOCAGE DES RECEPTEURS

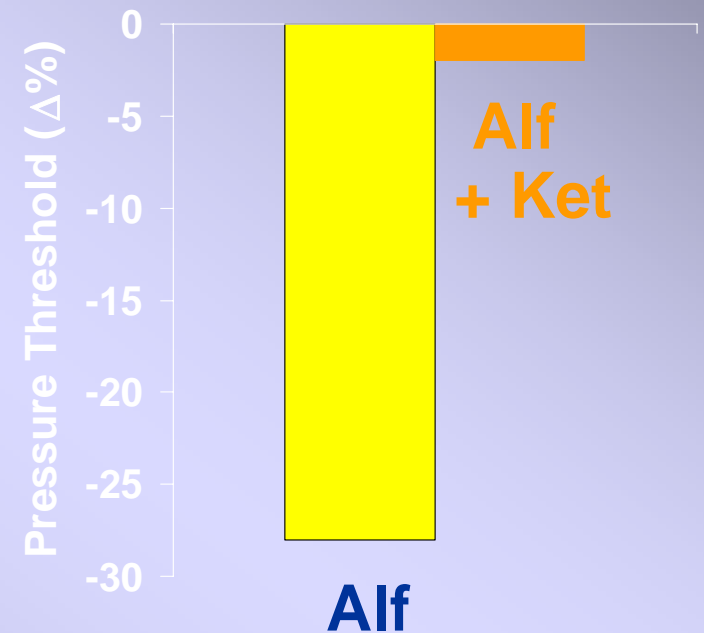
N-méthyl-D-aspartate

Tolérance aiguë et hyperalgésie induites par les opiacés

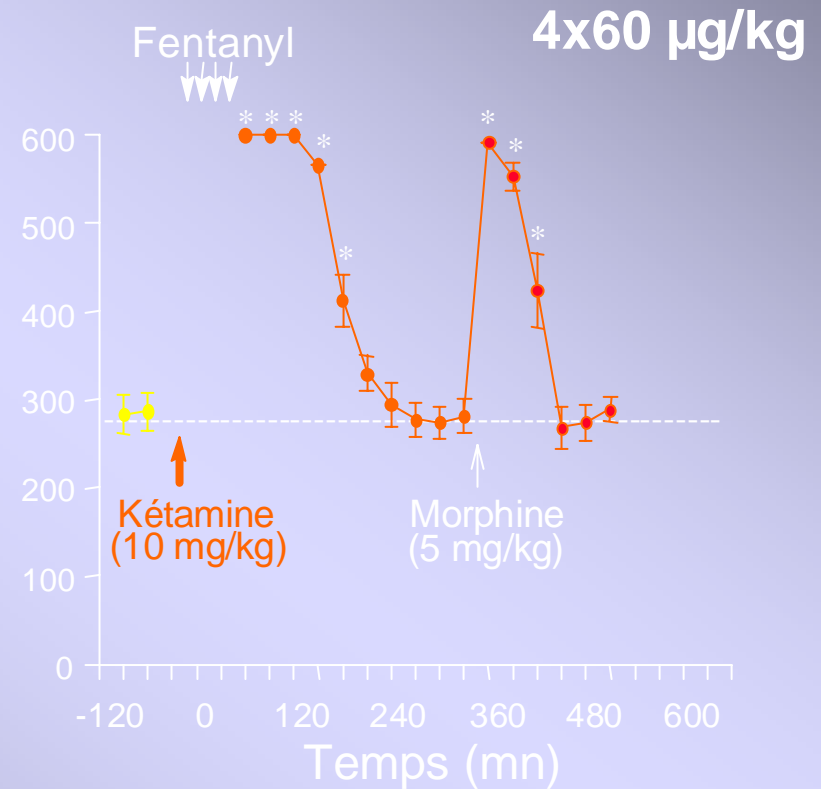
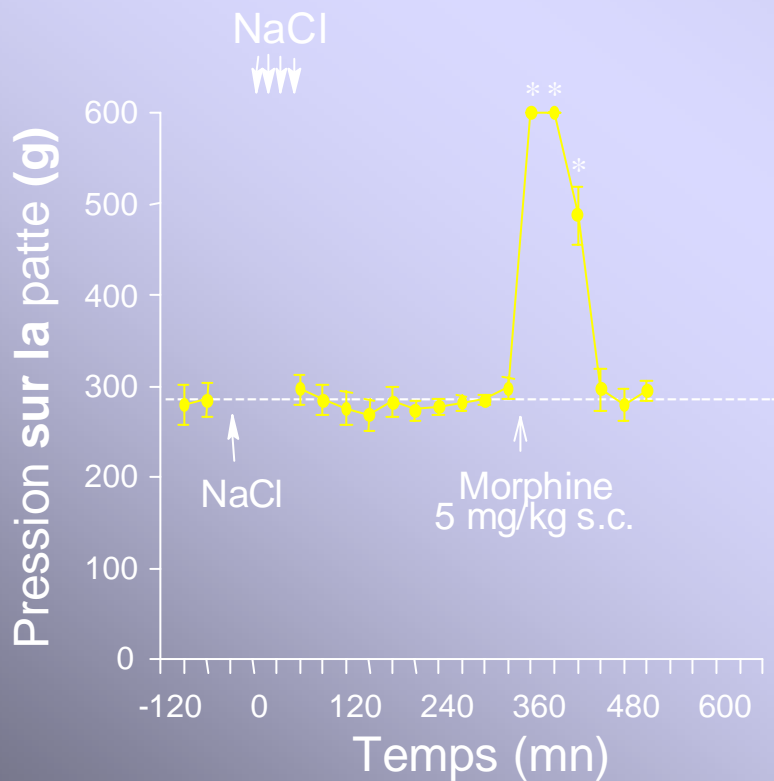
During infusion



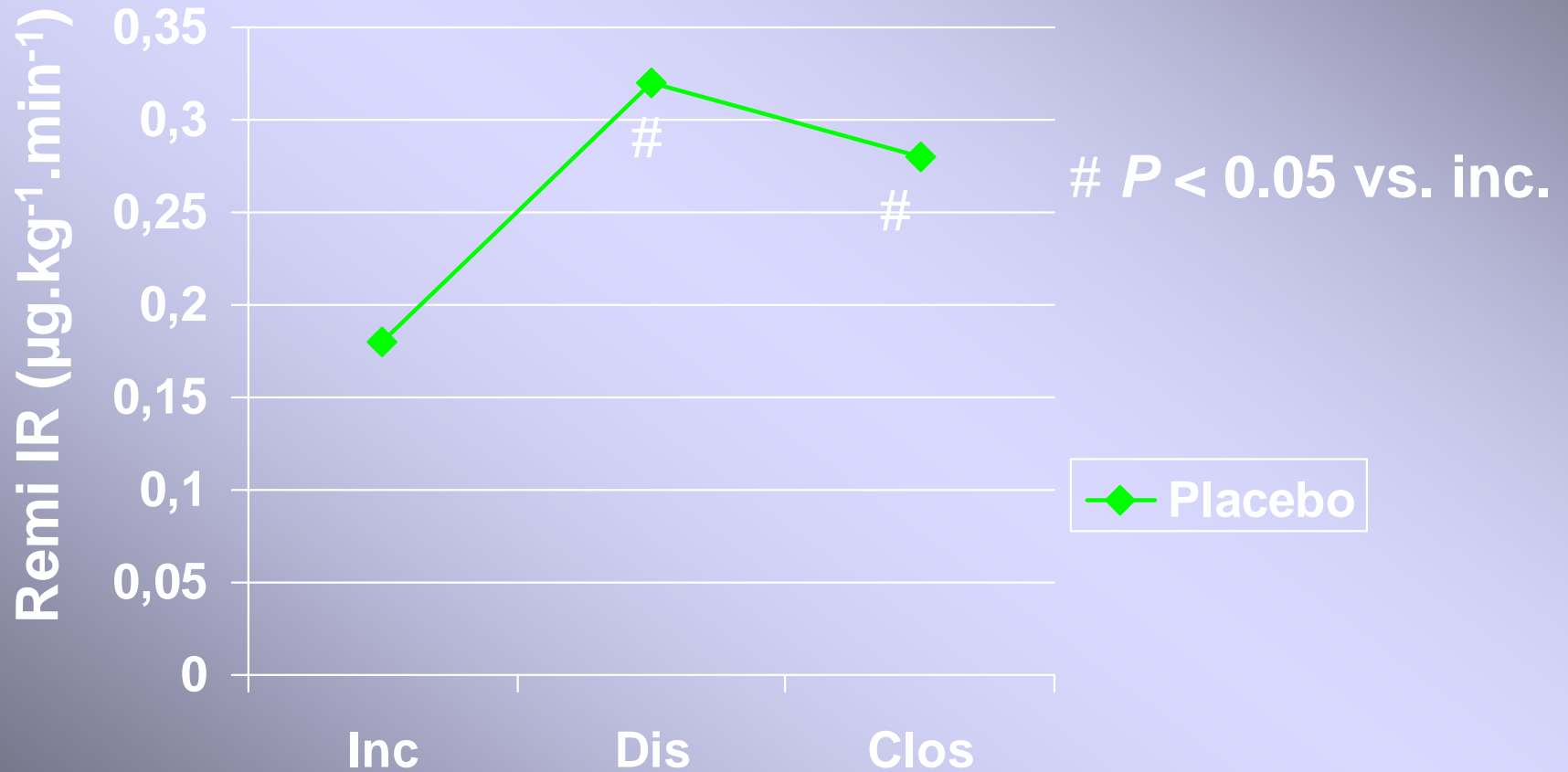
23 h after



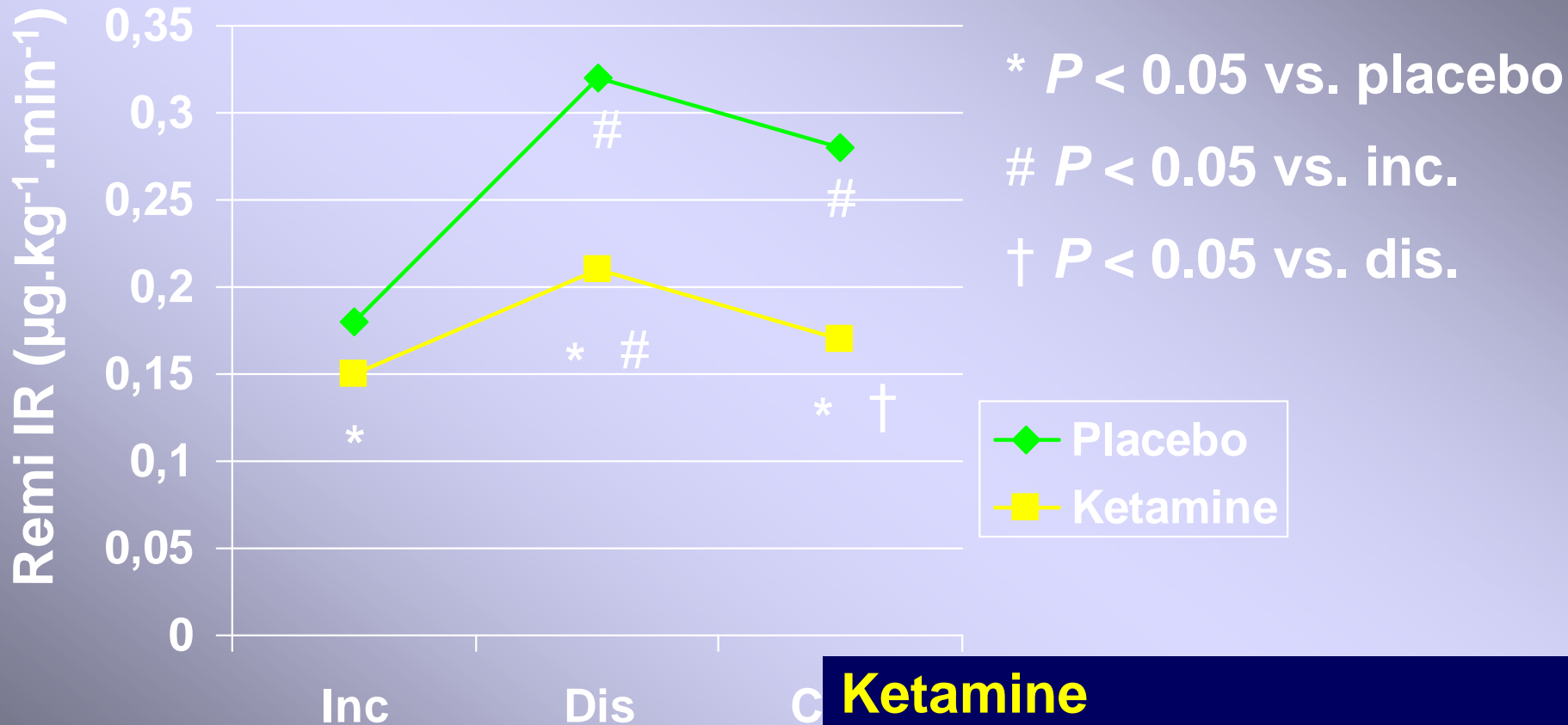
Hyperalgésie et tolérance



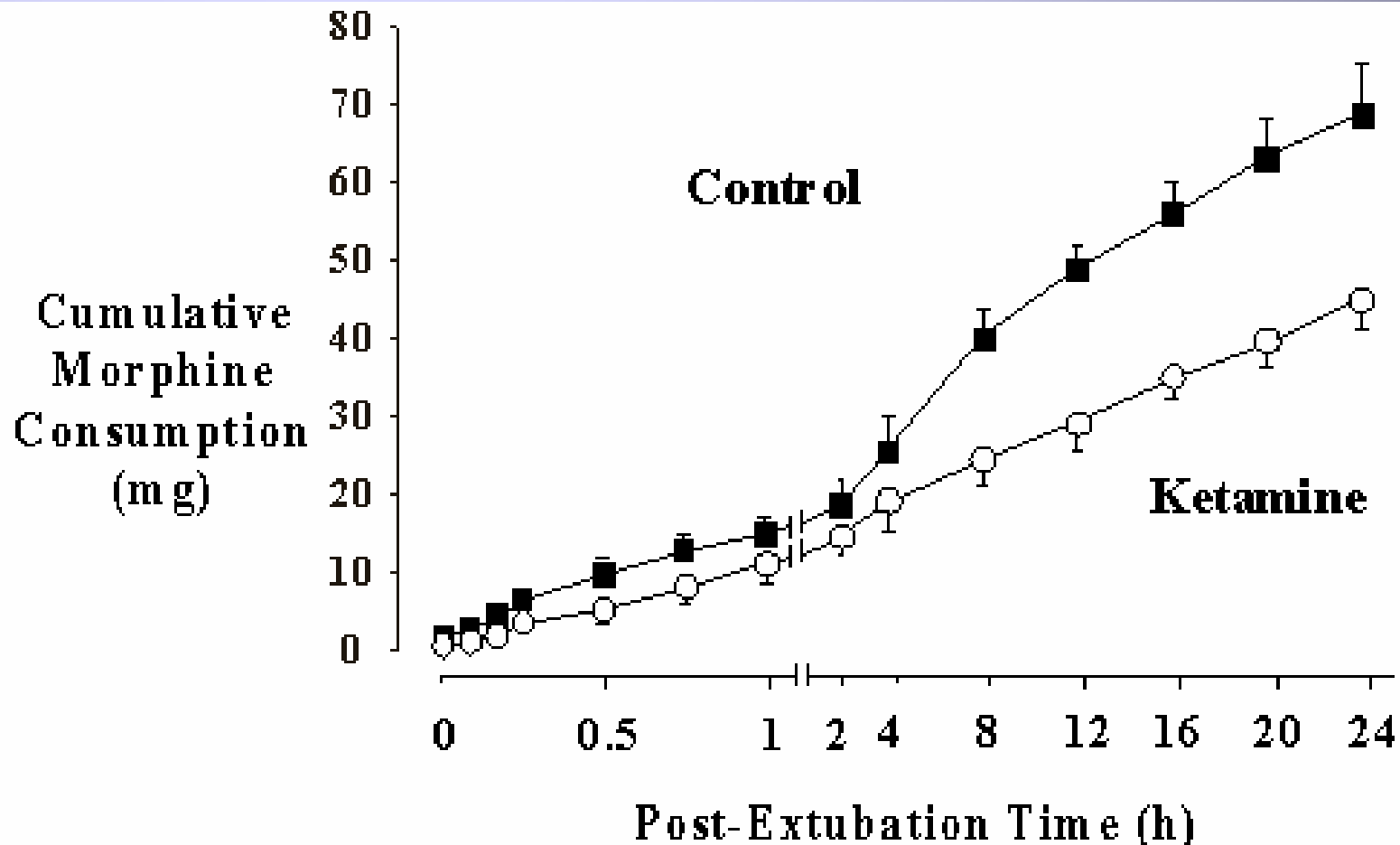
Intraoperative ketamine - Remifentanyl

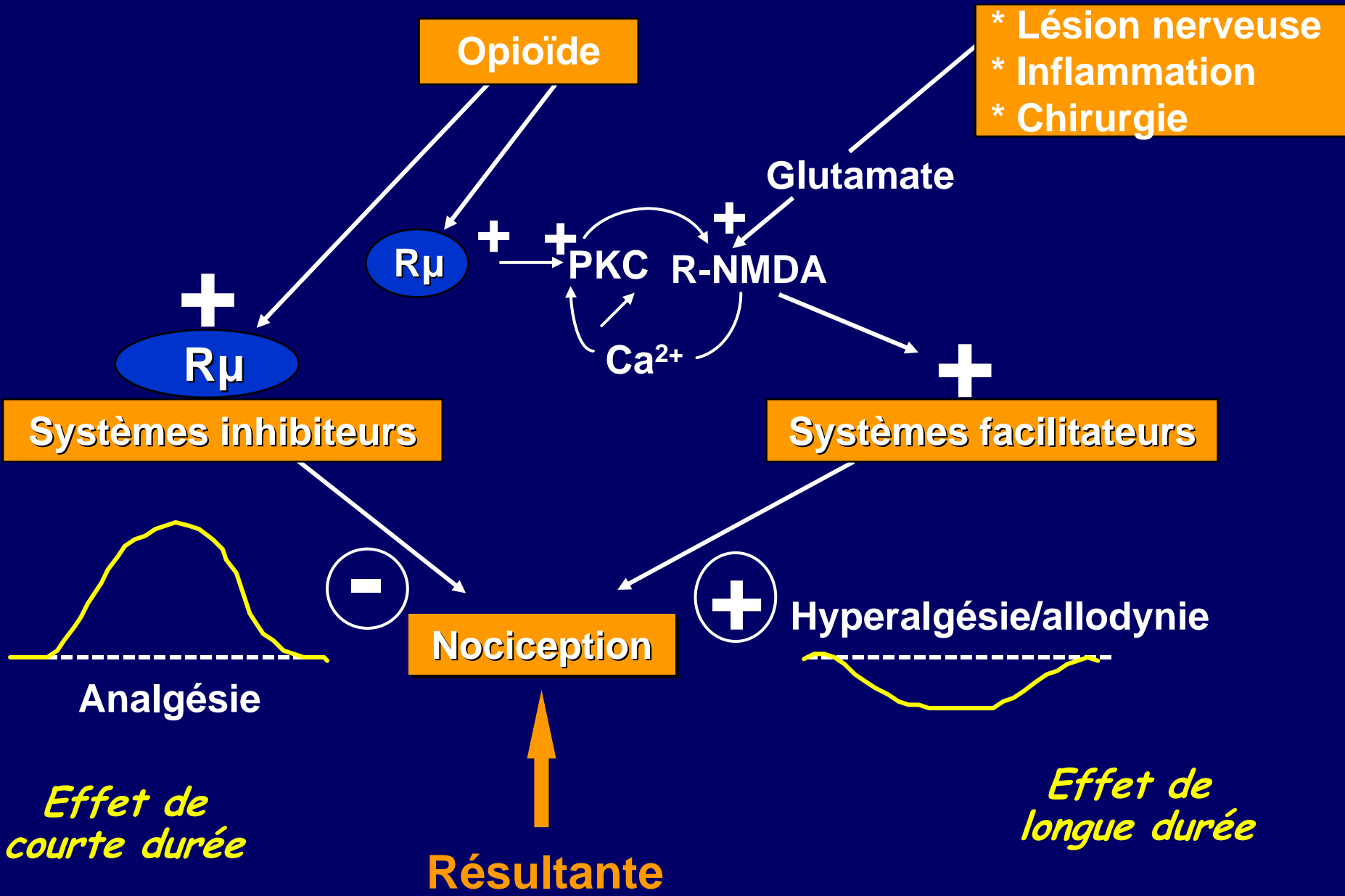


Intraoperative Ketamine - Remifentanyl



Intraoperative Ketamine - Remifentanyl





Un effet secondaire sous estimé : la rétention d'urines

Risk factors of urinary retention
(177 patients)

Evaluation using ultrasound scanning
incidence : 22 % (bladder vol > 500 ml, inability to void)

	Urinary retention	Able to void	p
Age (years)	59±17	48±16	0.0002
Duration of surgery (min)	129±80	88±57	0.001
General /Spinal anaesthesia (with opioids)	21% / 58%	79% / 42%	0.001

Incidence des rétentions d'urines après morphine intrathécale

		<u>mode d'administration</u>		% rétention
		épidurale	intrathécale	
Abboud (BJA 1988)	Obstet		+	43
Writer (Can Anaesth Soc J)	Obstet	+		34
Reiz (Lancet 1982)	Obstet	+		15
Stenseth (Acta Anaesth Scand 1985)	Obstet	+		42

Influence of morphine on detrusor contraction and maximal bladder capacity

Morphine dose	Mean maximal detrusor contraction in cmH ₂ O			Mean maximal bladder capacity in ml			Mean time taken for spontaneous recovery of bladder function ± SEM
	Before morphine	After morphine	% decrease ± SEM	Before morphine	After morphine	% increase ± SEM	
2mg, epidural	55	22	64% ± 7.8	516	572	11.5% ± 2.75	15.1h ± 0.64
4mg, epidural	85	25	73% ± 4.0	385	540	41.5% ± 4.38	15.6h ± 0.33
10mg, epidural	85	17	82% ± 4.7	434	520	21.2% ± 9.31	14.0h ± 2.0
10mg, intravenous	90	78	11% ± 6.4	440	453	11.2% ± 9.07	-
10 mg, intramuscular	46	43	-	473	473	-	-

Prévention et Traitement des Rétentions d'Urines Induites par les Opiacés

- Naloxone efficace (Rawal, Anesthesiology 1984)

mais antagonisme parallèle de
l'effet analgésique

Conduite à tenir devant un globe vésical sous opiacés

Globe vésical sous opiacés



Tentative de miction spontanée



Miction après percussion vésicale



Naloxone IV/SC



Sondage vésical

Facteurs favorisant les rétentions d'urines postopératoires

- Chirurgie de proximité (cure de hernie inguinale)
- Sexe masculin
- Importance des perfusions IV
- **Administration d'opiacés**
- Complication chirurgicale intra-abdominale
- Hypertrophie prostatique ou dysfonction vésicale préexistante
- Administration d'anti-cholinergiques