

¿Están justificadas las técnicas
espinales en CMA desde el
punto de vista de una gestión
eficiente de las unidades?



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Eficiencia en CMA

- ❖ *Eficiencia*: empleo de los medios de tal forma que satisfagan un máximo cuantitativo o cualitativo de fines o necesidades humanas. Consiste en un buen uso de los recursos, en lograr lo mayor posible con aquello que contamos. Si un grupo humano dispone de un número de insumos que son utilizados para producir bienes o servicios entonces **se califica como eficiente a quien logra la mayor productividad con el menor número de recursos.**

Características de una unidad de CMA con óptimo funcionamiento

Box 2

Characteristics of a well-functioning ASC

- Less than 45 minutes mean total delay of start times for elective procedures per OR per day
- Less than 5% procedure cancellation rate
- Less than 10% days with at least 1 delay greater than 10 minutes because the recovery room is full
- Less than 25 minutes average turnover times
- Less than 5% excess staffing costs
- Prolonged turnovers lasting greater than 60 minutes occur less than 10% of the time

From Macario A. Are your hospital operating rooms “efficient”? A scoring system with eight performance indicators. *Anesthesiology* 2006;105(2):237–40; with permission.

Anestesia espinal vs. Anestesia ideal

- ❖ Inducción y educación rápidos
- ❖ Recuperación precoz de los parámetros postanestésicos
- ❖ Mínimos efectos:
 - ❖ ausencia de náuseas y / o vómitos postoperatorios
 - ❖ cefaleas
 - ❖ retención urinaria
 - ❖ adecuado control del dolor postoperatorio

Ventajas a. espinal

- ❖ Sencillez
- ❖ Fiabilidad
- ❖ Rapidez de instauración
- ❖ Evita retrasos en el intercambio de pacientes
- ❖ Condiciones anestésicas profundas
- ❖ Bloqueo motor intenso



FACILITA LA CIRUGÍA

Inconvenientes de la A. Espinal en CMA

- ❖ Bloqueo prolongado y retraso en el alta domiciliaria
- ❖ Retención urinaria
- ❖ Síndrome radicular transitorio
- ❖ Cefalea postpunción
- ❖ Lesiones neurológicas

Table 2
Effects of central neuraxial block versus general anesthesia on ambulatory surgical patients

Outcome	n	Number of Trials	Central Neuraxial Block^a (Mean)	General Anesthesia^a (Mean)	OR or WMD^b (95% Confidence Interval)	P Value
Anesthesia induction time (min)	384	7	17.8	7.8	8.1 (4.1–12.1)	.0001
PACU time (min)	476	10	56.1	51.9	0.42 (–7.1 to –7.9)	.91
VAS in PACU (mm)	563	7	12.7	24.4	–9 (–15.5 to –2.6)	.006
Nausea	637	12	5%	14.7%	0.40 (0.15–1.06)	.06
Phase 1 bypass	218	4	30.8%	13.5%	5.4 (0.6–53.6)	.15
Need for postoperative analgesics	716	11	31%	56%	0.32 (0.18–0.57)	.0001
Time until discharge from ASU (min)	839	14	190	153	34.6 (13–56.1)	.002
Excellent patient satisfaction	709	11	81%	78%	1.5 (0.8–23.1)	.45

Fifteen randomized controlled trials with 1003 patients were included for meta-analyses.

Liu SS et al . A comparison of regional versus general anesthesia for ambulatory anesthesia: a meta-analysis of randomised controlled trials. *Anesth Analg* 2005; 101:1634–1642.

Bloqueo prolongado y retraso en el alta domiciliaria. Soluciones:

- ❖ **Anestesia espinal selectiva:** mínimas dosis de AL (posición≈baricidad)*
- ❖ **Anestesia espinal unilateral:**
 - ❖ “Low dose, low volume, low flow” (15-30 min instauración)
 - ❖ Soluciones hiperbaras
 - ❖ Agujas de Whitacre para obtener bloqueos más selectivos
- ❖ *Lidocaína 10-20 mg: Caminar 30 min (algunos pacientes 83 min)

*Vaghadia H, et al. Selective spinal anesthesia for outpatient laparoscopy. I: Characteristics of three hypobaric solutions. Can J Anaesth 2001; 48:256±260.

Low-Dose 3 mg Levobupivacaine Plus 10 μ g Fentanyl Selective Spinal Anesthesia for Gynecological Outpatient Laparoscopy

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Jorge Giron, MD*

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Pilar Diaz, PhD§

BACKGROUND: Lidocaine selective spinal anesthesia has been effective for short-duration gynecological outpatient laparoscopy. We compared the intraoperative effectiveness, anesthetic recovery times, and patient satisfaction after levobupivacaine-fentanyl versus lidocaine-fentanyl spinal anesthesia during short-duration gynecological laparoscopy.

METHODS: In this double-blind study, 52 healthy women scheduled to undergo tubal sterilization were randomly assigned to receive either intrathecal 10 mg lidocaine 2% plus 10 μ g fentanyl (Group I) or intrathecal 3 mg levobupivacaine 0.5% plus 10 μ g fentanyl (Group II), each solution made to a total volume of 3 mL with sterile water. The following variables were monitored intraoperatively: anesthesia onset time, need for anesthesia-analgesia supplementation, depth of sedation, surgical conditions, and occurrence of hemodynamic events. After surgery, motor block, proprioception, vibration sense, light touch, and Romberg's test were performed to evaluate whether the patients could bypass the postanesthesia care unit and be allowed to walk by themselves. Sensory block level was determined at 5, 10, and 15 min after anesthetic injection, and then every 15 min until resolution was complete. A difference of 25 min in sensory block resolution time was considered clinically relevant.

RESULTS: Onset time and intraoperative conditions were comparable in both groups. No patient required general anesthesia to complete surgery. All patients from both groups bypassed the postanesthesia care unit. Ambulation took place after 27 (18–45) min in Group I and 30 (18–56) min in Group II ($P = 0.24$). Complete regression of spinal anesthesia occurred after 93 (65–120) min in Group I and 105 (78–150) min in Group II ($P = 0.019$); however, no differences were observed in time for home discharge 185 (150–300) min in Group I and 188 (125–300) min in Group II ($P = 0.62$). Global patient satisfaction was comparable between both groups.

CONCLUSIONS: Levobupivacaine 3 mg plus 10 μ g fentanyl may be used as a suitable alternative to 10 mg lidocaine plus 10 μ g fentanyl for spinal anesthesia of short duration. It achieved a clinically equivalent time for resolution of sensory block, similar intraoperative conditions, and comparable patient satisfaction.

(Anesth Analg 2009;109:1456–61)

Anestesia espinal selectiva:

- ❖ Cada mg de bupivacaína prolonga el alta al domicilio en 21 min*
- ❖ Fallos: 0-6% expertos (estudios generales hasta 24%)
- ❖ La adicción de fentanilo 10 µg mejora el éxito técnica
- ❖ Criterios de alta: micción????

*Liu SS et al. Dose-response characteristics of spinal bupivacaine in volunteers. Clinical implications for ambulatory anesthesia. Anesthesiology 1996; 85:729-736.

Short-acting spinal anesthesia in the ambulatory setting

Curr Opin Anesthesiol 2014, 27:000–000

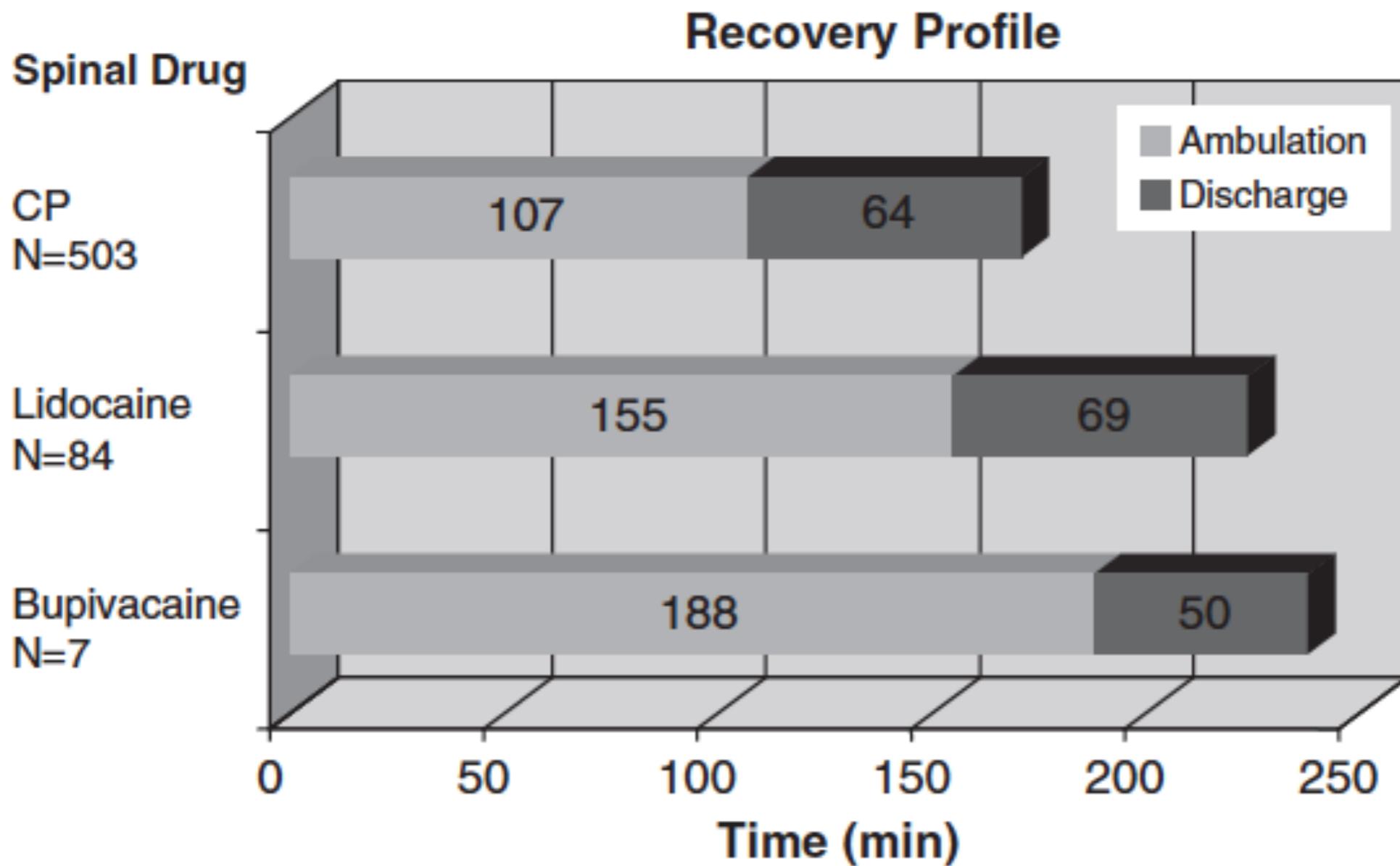
- ❖ 2-Cloroprocaína: duración ultracorta
- ❖ Prilocaína: duración intermedia
- ❖ Articaína: duración intermedia

Chloroprocaine (mg)	Expected duration of effective surgical block (min)
30	40–60
40–45	45–75
60	60–90

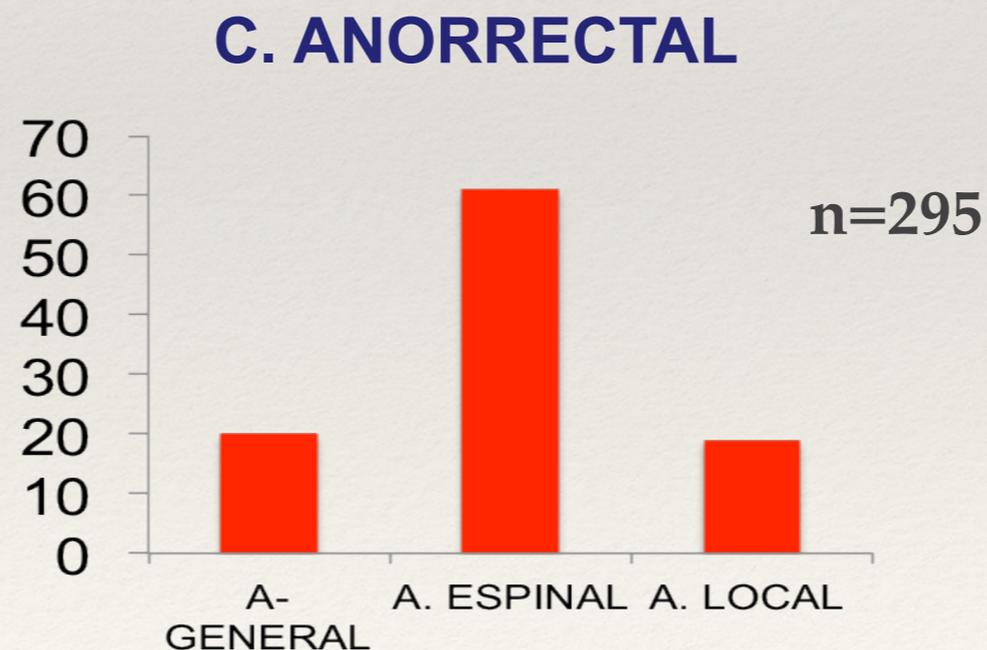
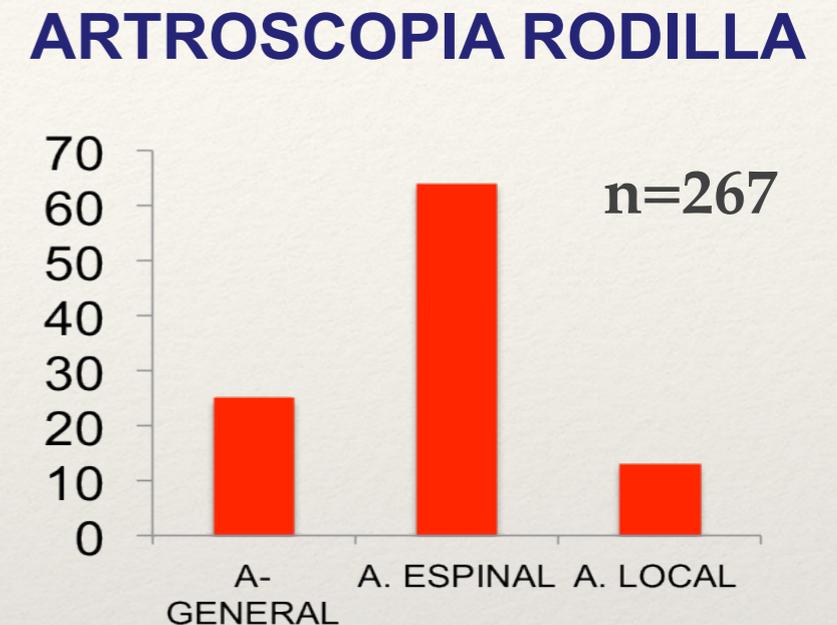
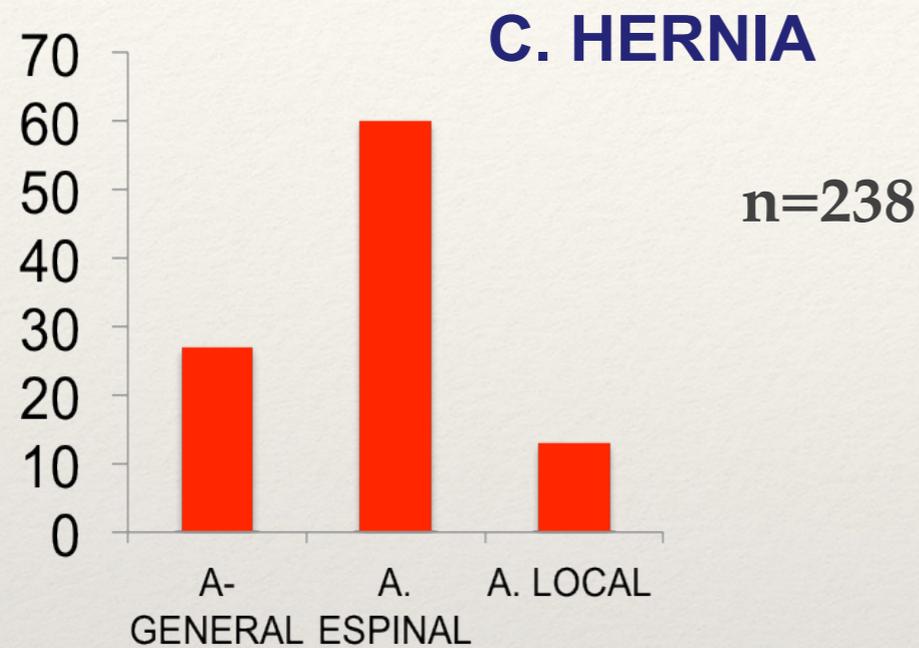
Chloroprocaine for spinal anesthesia: a retrospective analysis

M. R. HEJTMANEK and J. E. POLLOCK

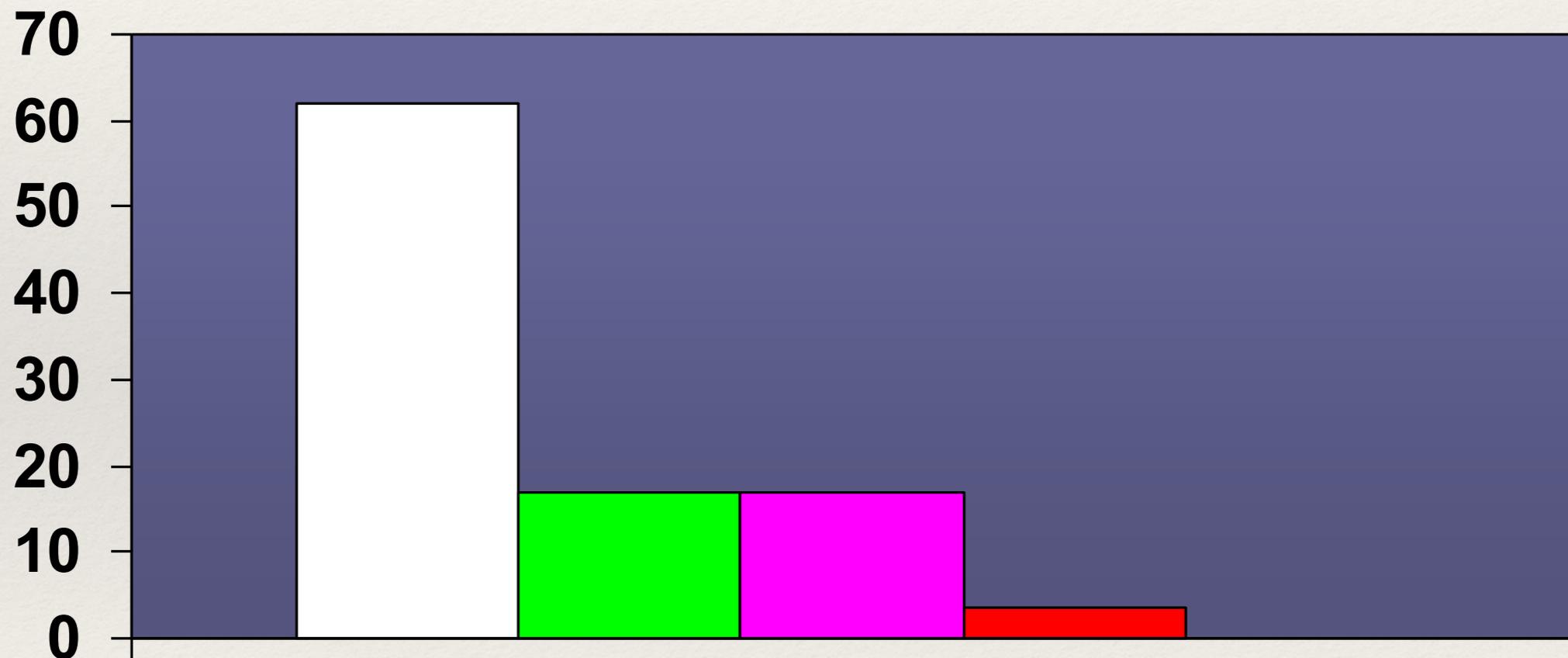
Acta Anaesthesiol Scand 2011; 55: 267–272
Printed in Singapore. All rights reserved



Técnicas anestésicas en la cirugía de la hernia inguinal, artroscopia de rodilla y cirugía anorrectal en España. Estudios multicéntricos: TACHI, TACRI y TACPI. N=800

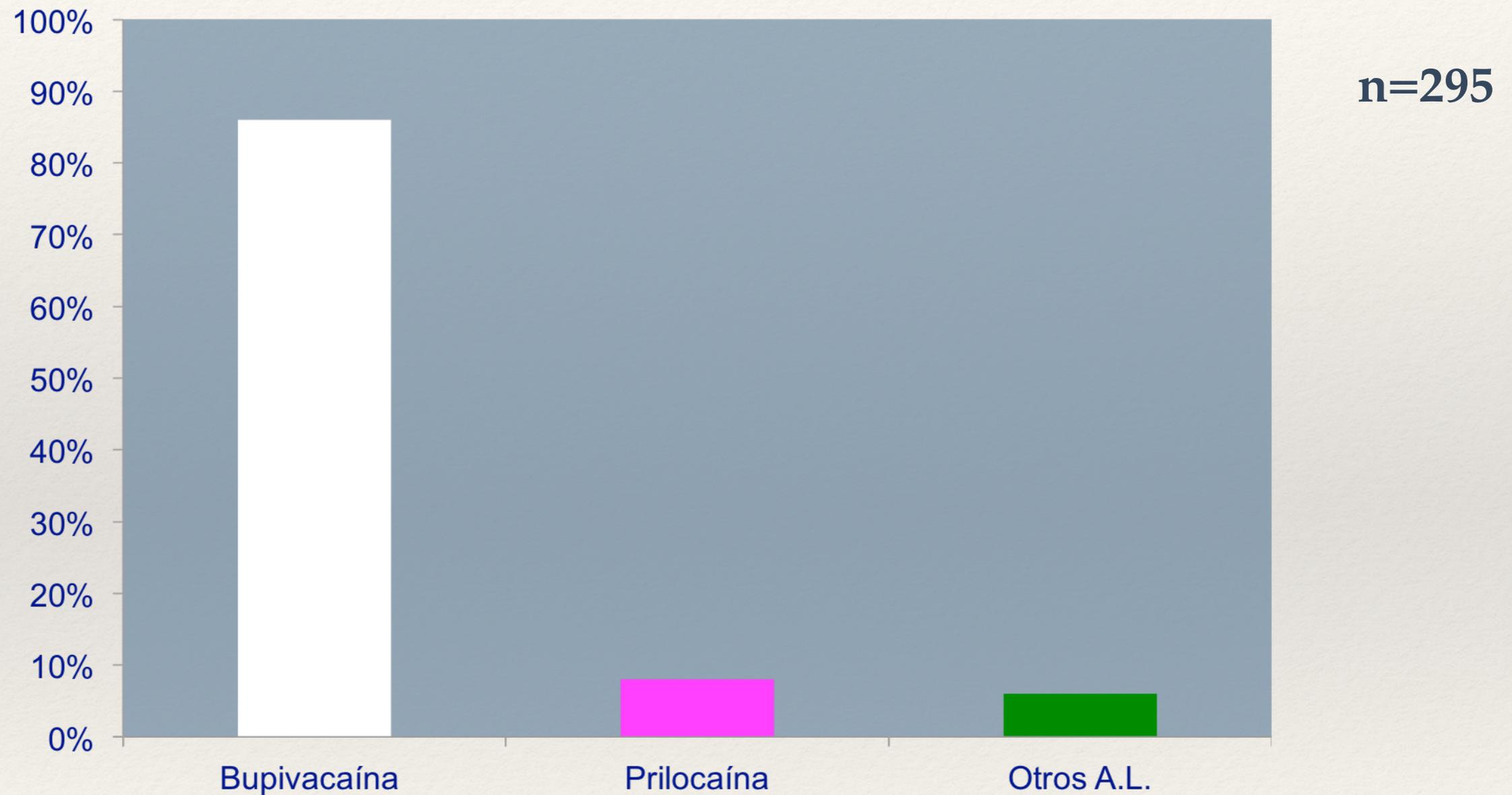


Estudio TACHI (Hernia). Anestésico local empleado

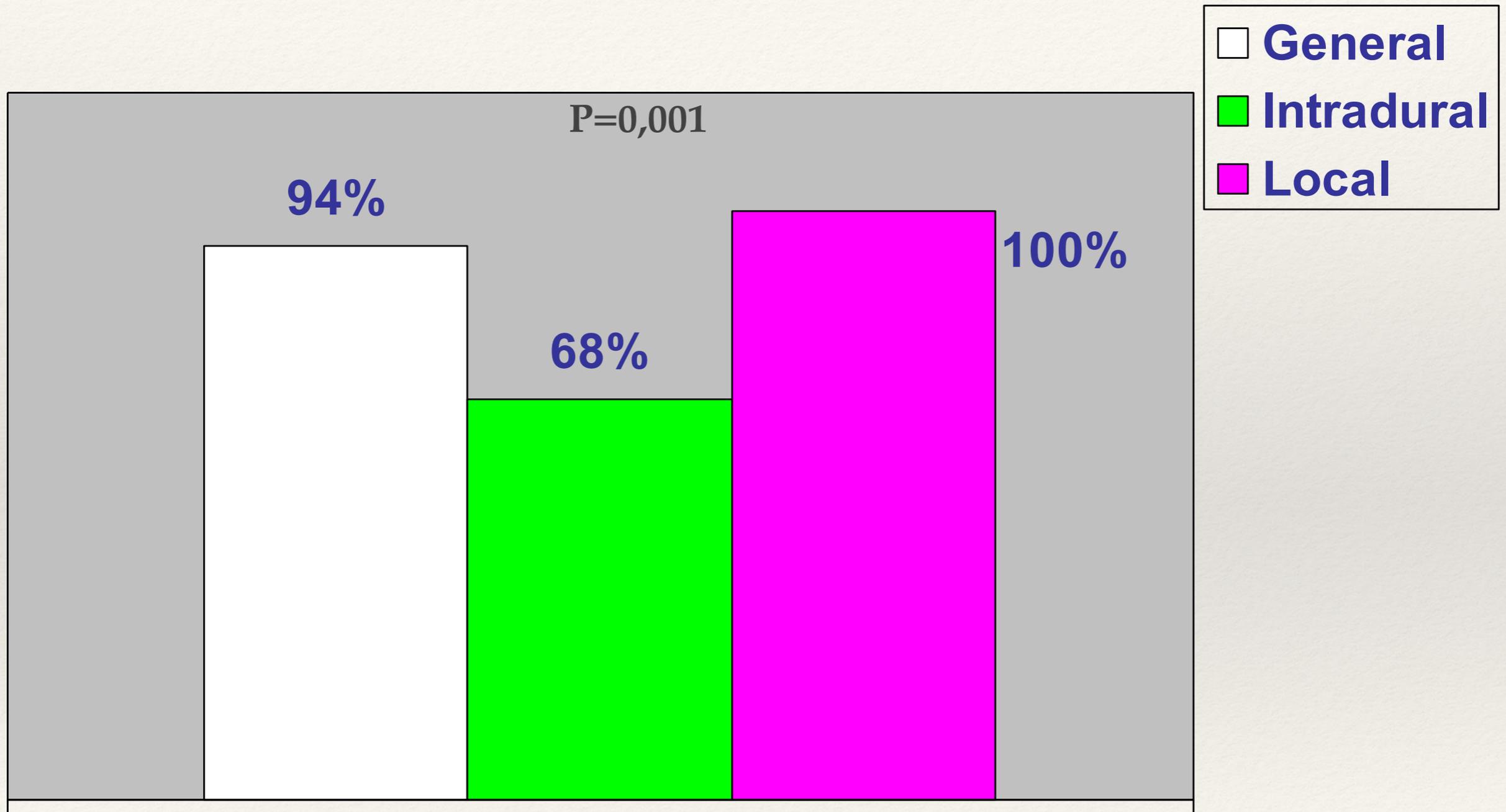


Soluciones hiperbaras : 77%

Estudio TACPI (C. Anorrectal)



Estudio TACHI (Hernia). Estancia en la unidad de 1-6 horas



Estudio epidemiológico multicéntrico de las técnicas anestésicas en la cirugía de la artroscopia de rodilla en España

Multicentric epidemiological study of anesthetic techniques for knee surgery arthroscopy in Spain

CIR MAY AMB 2012;17 (1): 25-32

P. Diéguez García, S. López Álvarez¹, R. Blanco Dávila¹, J. Rebollo-Laserna², F. Zaballos Bustingorri³, E. Monzó Abad⁴, J. C. de la Pinta García⁵, M. Zaballos García⁶

TIEMPOS DE ESTANCIA EN LA URPA SEGÚN LA TÉCNICA ANESTÉSICA EMPLEADA

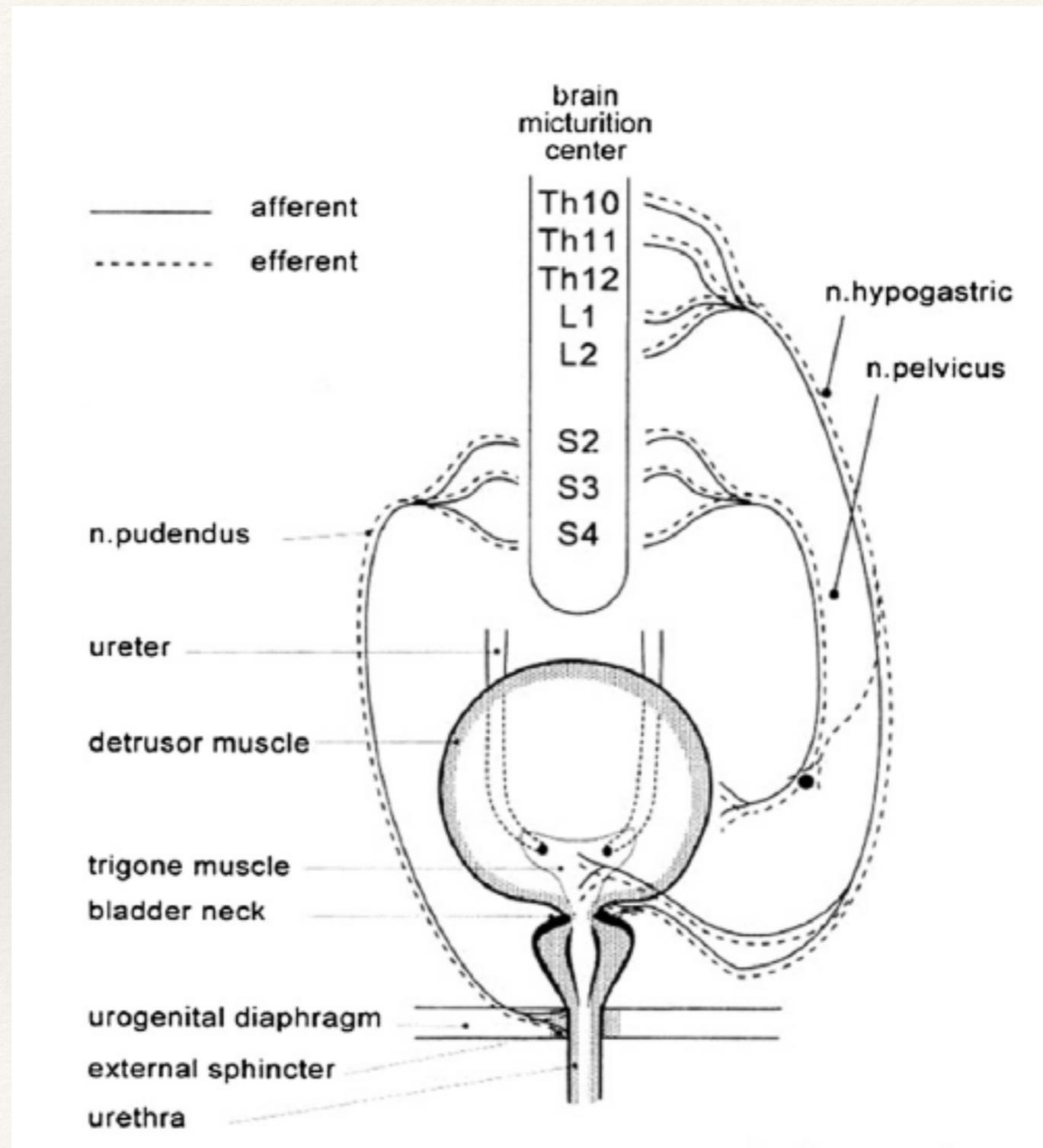
Tiempo	Anestesia intradural N = 154	Anestesia general con ML N = 53	Anestesia general con otro DEG N = 10	Técnicas combinadas N = 8
< 1 h	54 (35%)	30 (57%)	10 (100%)	4 (50%)
1-2 h	86 (56%)	21 (40%)	0	4 (50%)
2-3 h	14 (9%)	2 (4%)	0	0

DEG: Dispositivo extraglotico. Los datos se expresan como número de casos y porcentaje. Sólo aparecen estos datos recogidos en 225 procedimientos

Alta de la unidad:

- AG: 77% en 4 h
- AR: 40% en 4 h
- ($p < 0.0001$)

Retención urinaria



Retención urinaria

- ❖ Alteración función del m. detrusor:
 - ❖ Relacionado con potencia y dosis de A.L.
- ❖ Aumenta si se añaden opiáceos ?
- ❖ A.L. de corta duración disminuyen riesgo de RU
 - ❖ 2-cloroprocaina
 - ❖ prilocaína 23%
- ❖ Es necesario unificar criterios de RU (comparar estudios)
- ❖ Faltan estudios comparativos (AR vs. AG)
- ❖ Limitar volumen líquidos (750-1000 ml)
- ❖ Factores de riesgo: edad, varones, c. pélvica, c prolongada y ant de disfunción urológica

Neuraxial Anesthesia for Outpatients

Anesthesiology Clin 32 (2014) 357–369

Elizabeth A. Alley, MD*, Michael F. Mulory, MD

Table 1. Algorithm

High-risk patient

If not voided in 60 minutes (or uncomfortable trying)

Evaluate with ultrasound

If volume >600 mL, perform decompressive catheterization

Either discharge (with voiding instructions) or observe again until voided

If volume <600, allow additional 60 minutes

Reassess, catheterize if volume >600 mL

Observe until voided or catheterized

Low-risk patient

Consider discharge if very low risk, or assess bladder with bladder ultrasound

If volume <400 mL, discharge

If voiding considered necessary, follow above high-risk protocol

If volume <600 mL, allow more time to void

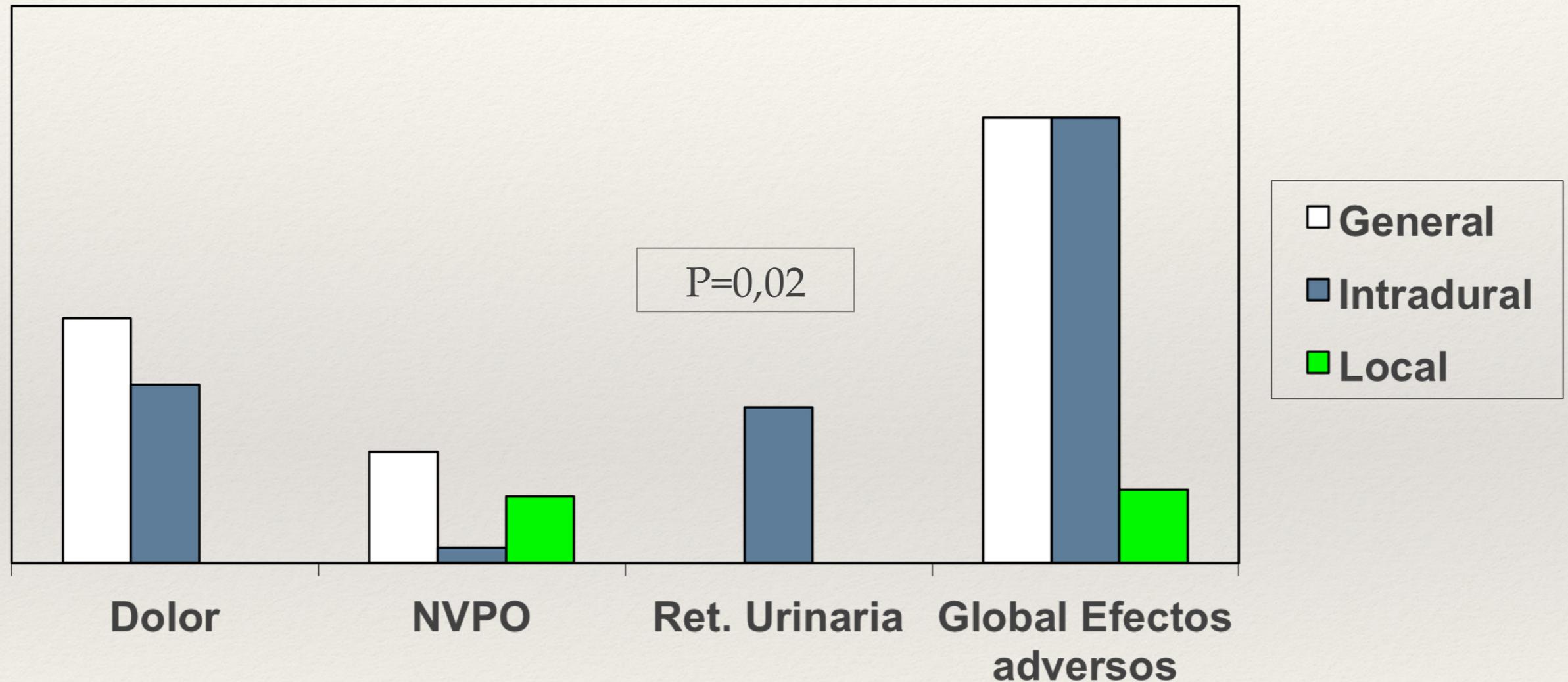
If volume >600 mL, catheterize and discharge

Estudio epidemiológico multicéntrico de las técnicas anestésicas en la cirugía de la hernia inguinal en España

M. Zaballo^{a,*}, S. López-Álvarez^b, J. Zaballo-Bustingorri^c, F. Rebollo-Laserna^d,
J. C. de la Pinta-García^e y E. Monzó-Abad^f

GREETA: Grupo de trabajo de estudios epidemiológicos de las técnicas anestésicas en España

Efectos adversos



Síndrome neurológico transitorio

- ❖ Lidocaína (55-80%)
- ❖ Mepivacaína (30%)
- ❖ Bupivacaína (13%)
- ❖ Poco frecuente con prilocaína, 2-cloroprocaína y articaína

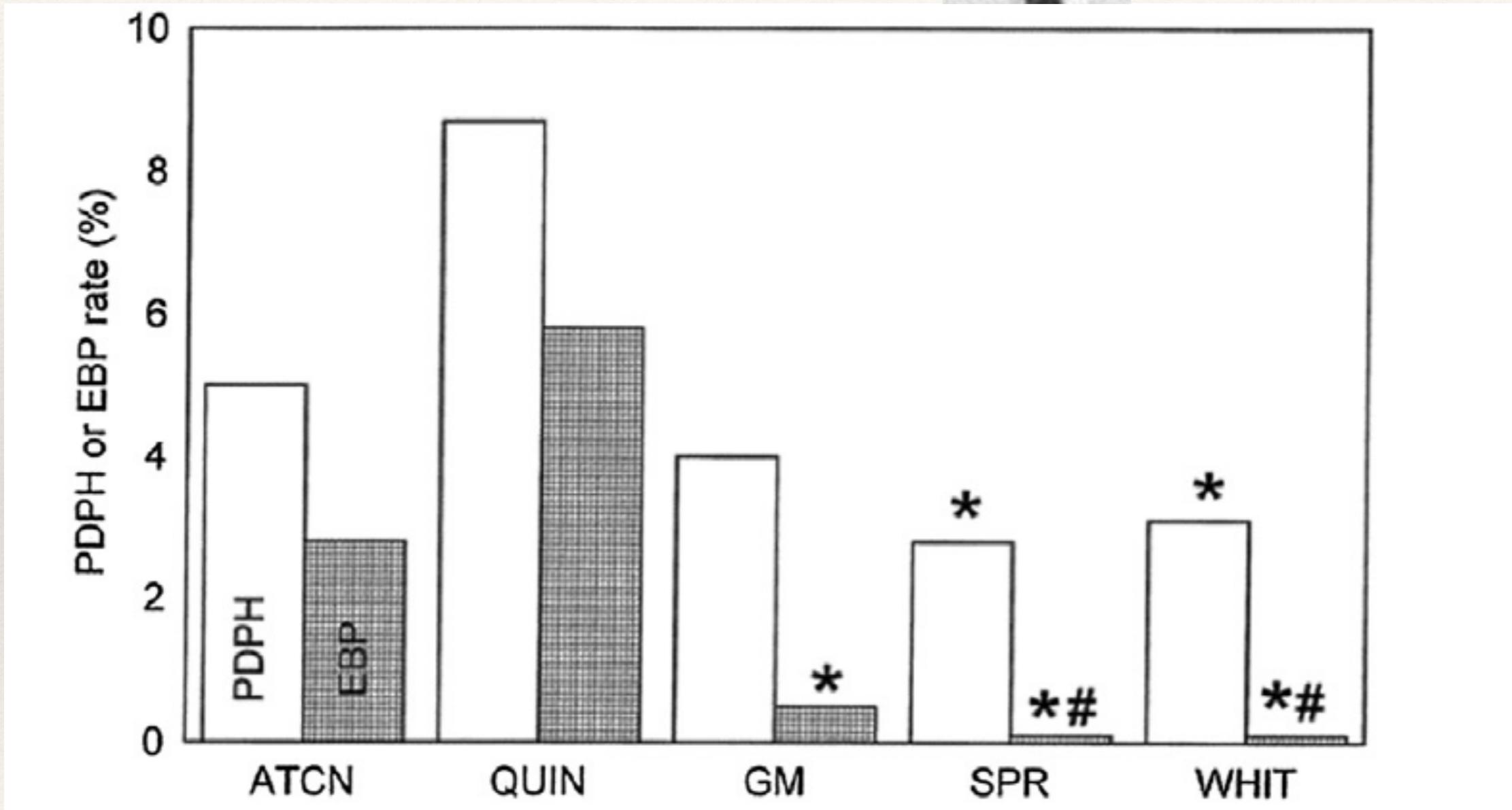
**Transient neurologic symptoms (TNS) following spinal anaesthesia with lidocaine versus other local anaesthetics
(Review)**

Cochrane Database of Systematic Reviews 2009,



Cefalea postpunción

- ❖ Incidencia de 0,8%-1,9%
- ❖ Disminuye incidencia evitando AS a pacientes < de 18 a.



Vallejo M et al. Postdural puncture headache: a randomized comparison of five spinal needles in obstetric patients. *Anesth Analg* 2000;91(4):919

Complicaciones graves

- ❖ Afortunadamente en descenso:
 - ❖ Francia: Año 1998-99: 3.3 / 10.000*
 - ❖ UK: Año 2006-7: 0,92 / 100.000**
 - ❖ Finlandia: 2000-09: 1,9 / 100.000‡

*Auroy Y, Benhamou D, Bargues L, et al. Major complications of regional anesthesia in France: The SOS Regional Anesthesia Hotline Service. *Anesthesiology* 2002; 97: 1274–80.

**Royal College of Anaesthetists. Report and findings of the 3rd National Audit Project of the Royal College of Anaesthetists. 2008

‡Acta Anaesthesiol Scand 2013; 57: 553–564

Consideraciones económicas

- ❖ Fármacos
- ❖ Material de punción
- ❖ Costes de efectos adversos (NVPO)
- ❖ Tiempos de alta de la unidad
- ❖ Incorporación a sus actividades previas

Anestesia subaracnoidea y anestesia general en el tratamiento quirúrgico de la hernia inguinal en pacientes ambulatorios. Análisis comparativo de coste-efectividad[☆]

Rev Esp Anesthesiol Reanim. 2014;61(5):254-261

M. Fernández-Ordóñez^{a,*}, J.M. Tenías^a y J. Picazo-Yeste^b

Tabla 3 Diferencias de tiempos y coste según el tipo de anestesia

	Anestesia subaracnoidea (n = 139)	Anestesia general (n = 79)	Diferencia (IC 95%)	p
Tiempo de inducción	16,1 ± 5,7	12,9 ± 6,4	-3,15 (-4,8 a -1,5)	< 0,0001
Tiempo total de quirófano	65,4 ± 17,4	63,4 ± 17,5	-2,0 (-6,9 a 2,8)	0,41
Tiempo de permanencia en URPA	337,6 ± 160,2	210,0 ± 97,5	-127,5 (-162,1 a -93,0)	< 0,0001
Coste de fármacos y fungibles intraoperatorios	16,2 ± 7,1	83,1 ± 8,2	66,9 (64,0 a 69,1)	< 0,0001
Coste de fármacos y fungibles postoperatorios (URPA)	2,5 ± 1,0	3,1 ± 1,2	0,6 (0,27 a 0,88)	< 0,0001
Coste total de fármacos y fungibles	18,7 ± 7,2	86,2 ± 8,3	67,5 (65,3 a 69,7)	< 0,0001
Coste de permanencia en URPA	490,5 ± 232,8	305,2 ± 141,7	-185,3 (-235,6 a -135,1)	< 0,0001
Coste total	510,3 ± 235,1	391,5 ± 144,0	-118,9 (-170,0 a -67,7)	< 0,0001

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Rev Esp Anesthesiol Reanim. 2014 Aug 18. pii: S0034-9356(14)00241-2. doi: 10.1016/j.redar.2014.07.007. [Epub ahead of print]

[Preoperative tests recommendations in adult patients for ambulatory surgery.]

[Article in Spanish]

[Zaballos M](#)¹, [López-Álvarez S](#)², [Argente P](#)³, [López A](#)⁴.

+ Author information

Abstract

Anesthetic assessment traditionally included a series of laboratory tests intended to detect undiagnosed diseases, and to ensure that the patient undergoes surgery following safety criteria. These tests, without a specific clinical indication, are expensive, of questionable diagnostic value and often useless. In the context of outpatient surgery, recent evidence suggests that patients of any age without significant comorbidity, ASA physical status grade i and grade ii, do not need additional preoperative tests routinely. The aim of the present recommendations is to determine the general indications in which these tests should be performed in ASA grade i and grade ii patients undergoing ambulatory surgery.

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KEYWORDS: ASA grade i and ii patient; Cirugía ambulatoria; Day surgery; Pacientes ASA I y ASA II; Preoperative test; Pruebas preoperatorias

Recomendación de la SEDAR y de ASECOMA para la realización de estudio de coagulación

1. En pacientes ASA I y ASA II no se recomienda la realización de estudio de coagulación, independientemente de la edad del paciente.

2. En caso de pacientes en los que se prevea la realización de una técnica regional, la recomendación se deja a criterio del clínico y según consenso de la unidad.

CONCLUSIONES

- ❖ La anestesia espinal en CMA en nuestro medio no es coste / efectiva
- ❖ Propuesta de mejora: Anestésicos de corta duración imprescindibles: 2-cloroprocaina mejor perfil hasta la fecha
- ❖ Se necesitan estudios amplios en pacientes de riesgo de retención urinaria para establecer su amplia difusión en CMA

National Incidence of Use of Monitored Anesthesia Care

Emine O. Bayman, PhD,*† Franklin Dexter, MD, PhD,* John J. Laur, MD, MSc,* and Ruth E. Wachtel, PhD, MBA*

Table 1. Type of Anesthesia During Ambulatory Anesthetics in the United States

	1. "Topical/local," "IV sedation," or "monitored anesthesia care"	2. "Regional" "block," "peribulbar block," or "retrobulbar block" (with or without type 1)	3. "Epidural" or "spinal" (with or without types 1 or 2)	4. "General" (with or without types 1-3	Other or none specified
All procedures	29% ± 2%	4% ± 0%	2% ± 0%	63% ± 2%	2% ± 0%
CCS 76 "colonoscopy": 12% of anesthetics and 6% of anesthesia providers' OR time	89% ± 3%	0% ± 0%	0% ± 0%	8% ± 3%	3% ± 1%
All major therapeutic procedures: 61% of anesthetics and 74% of anesthesia providers' OR time	23% ± 1%	5% ± 1%	2% ± 0%	67% ± 2%	3% ± 1%
CCS 15 "cataract surgery": 11% of anesthetics and 6% of anesthesia providers' OR time	75% ± 3%	16% ± 3%	0% ± 0%	5% ± 1%	3% ± 1%
CCS 160 "therapeutic procedures muscle": 4% of anesthetics and 7% of anesthesia providers' OR time	18% ± 2%	10% ± 2%	1% ± 0%	69% ± 3%	2% ± 1%
CCS 175 "operating room rx skin": 3% of anesthetics and 7% of anesthesia providers' OR time	16% ± 3%	1% ± 0%	1% ± 1%	81% ± 3%	1% ± 1%

Año 2006