

Bupivacaína 0,15% Hipobárica Versus Lidocaína 0,6% Hipobárica para Raquianestesia Posterior em Cirurgia Anorretal Ambulatorial *

Hypobaric 0.15% Bupivacaine Versus Hypobaric 0.6% Lidocaine for Posterior Spinal Anesthesia in Outpatient Anorectal Surgery

Luiz Eduardo Imbelloni, TSA ¹, Marildo A. Gouveia, TSA ², José Antonio Cordeiro ³

RESUMO

Imbelloni LE, Gouveia MA, Cordeiro JA – Bupivacaína 0,15% Hipobárica Versus Lidocaína 0,6% Hipobárica para Raquianestesia Posterior em Cirurgia Anorretal Ambulatorial.

JUSTIFICATIVA E OBJETIVOS: Baixas doses de bupivacaína e lidocaína têm sido usadas para raquianestesia em cirurgia ambulatorial. O objetivo deste estudo foi comparar a bupivacaína com a lidocaína ambas em solução hipobárica em pacientes ambulatoriais de cirurgia anorretal.

MÉTODO: Dois grupos de 75 pacientes, estado físico ASA I-II, candidatos a cirurgia anorretal em posição de canivete, receberam 3 mL (4,5 mg) de bupivacaína 0,15% hipobárica ou 3 mL (18 mg) de lidocaína 0,6% hipobárica. Foram comparados a seletividade do bloqueio, a qualidade da analgesia cirúrgica, a intensidade do bloqueio motor e o tempo de recuperação no paciente de cirurgia ambulatorial. Após a alta foi mantida comunicação diária por telefone até o 3º dia e depois no 30º de pós-operatório.

RESULTADOS: O bloqueio foi adequado para cirurgia em todos os pacientes. O nível médio da dispersão cefálica foi L₁ com variação de T₁₀-L₃ com a bupivacaína e L₁ com variação T₁₁-L₂ com a lidocaína. Não foi observado bloqueio motor em 135 pacientes (65 da bupivacaína x 70 da lidocaína). Hipotensão e bradicardia não foram observadas em nenhum paciente. A média de duração do bloqueio sensitivo foi de 99,1 (11,0) minutos com a bupivacaína e 64,1 (7,6) minutos com a lidocaína, com diferença significativa (p < 0,0005). Cefaleia pós-punção lombar não ocorreu em nenhum paciente.

CONCLUSÕES: Bupivacaína ou lidocaína em solução hipobárica promove predominantemente bloqueio sensitivo após injeção subaracnóidea na posição de canivete. A solução de lidocaína hipobárica

proporciona analgesia com a mesma dispersão da bupivacaína, porém com menor duração. As maiores vantagens incluem estabilidade hemodinâmica e ausência de bloqueio motor.

Unitermos: ANESTESIA: ambulatorial; ANESTÉSICO, Local: bupivacaína hipobárica, lidocaína; CIRURGIA, Proctológica; TÉCNICAS ANESTÉSICAS, Regional: raquianestesia

SUMMARY

Imbelloni LE, Gouveia MA, Cordeiro JA – Hypobaric 0.15% Bupivacaine versus Hypobaric 0.6% Lidocaine for Posterior Spinal Anesthesia in Outpatient Anorectal Surgery.

BACKGROUND AND OBJECTIVES: Low doses of bupivacaine and lidocaine have been used for spinal anesthesia in outpatient surgery. The objective of this study was to compare hypobaric solutions of bupivacaine and lidocaine in outpatient anorectal surgery.

METHODS: One hundred and fifty patients, divided in two groups, physical status ASA I-II, scheduled for anorectal surgery in the jackknife position received 3 mL (4.5 mg) of hypobaric 0.15% bupivacaine or 3 mL (18 mg) of hypobaric 0.6% lidocaine. The selectivity of the blockade, quality of surgical anesthesia, intensity of the motor blockade, and time for patient recovery were compared. After patients were discharged, daily phone contact was maintained for three days and on the 30th postoperative day.

RESULTS: Adequate surgical blockade was achieved in all patients. The mean level of cephalad dispersion was L₁, ranging from T₁₀-L₃, with bupivacaine, and L₁, ranging from T₁₁-L₂, with lidocaine. Motor blockade was not observed in 135 patients (65 in the bupivacaine group x 70 in the lidocaine group). None of the patients developed hypotension and bradycardia. The sensorial blockade had a mean duration of 99.1 (11.0) minutes, with bupivacaine, and 64.1 (7.6) minutes, with lidocaine (p < 0.0005). Post-lumbar puncture headache was not observed in any patient.

CONCLUSIONS: Hypobaric solution of bupivacaine or lidocaine promotes, predominantly, sensorial blockade after subarachnoid injection in patients in the jackknife position. Hypobaric lidocaine provides analgesia with the same dispersion of that of bupivacaine, but with shorter duration. Hemodynamic stability and the absence of motor blockade represent the major advantages.

Keywords: ANESTHESIA: outpatient; ANESTHETIC, Local: hypobaric bupivacaine, lidocaine; ANESTHETIC TECHNIQUE, Regional: spinal block; SURGERY, Anorectal.

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Hypobaric 0.15% Bupivacaine Versus Hypobaric 0.6% Lidocaine for Posterior Spinal Anesthesia in Outpatient Anorectal Surgery

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INTRODUCTION

In the past, patients undergoing surgeries were hospitalized for an extended time. Economic and social pressures forced surgeons and anesthesiologists to change this practice. Currently, outpatient surgeries account for 60% to 70% of all elective surgeries in the United States and in some European countries¹.

Nowadays, the proportion between spinal blocks and new inhalational and intravenous agents, which allow the discharge of patients after a short recovery time, in outpatient surgeries is equally balanced²⁻⁵. It has also been recognized that conventional doses of local anesthetics in spinal blocks can be undesirable in procedures of with short duration due to prolonged motor blockade and consequent risk of long hospitalization⁵.

Hypobaric spinal block is commonly used in anorectal surgeries in patients on the jackknife position. Hypobaric 0.6% (18-30 mg)⁶ or 0.5% (40 mg)⁷ lidocaine and hypobaric 0.15% (6 mg)⁸ or 0.1% (5 mg)⁹ bupivacaine produce effective spinal block for anorectal surgery in the jackknife position. However, spinal blocks with low doses might not produce enough analgesia in some patients¹⁰. The objective of the present study was to compare low doses of hypobaric 0.15% bupivacaine and low doses of hypobaric 0.6% lidocaine in spinal block for surgeries with patients in the jackknife position to determine the selectivity of the sensorial blockade, quality of the surgical analgesia, intensity of the motor blockade, and time of recovery in outpatient surgeries.

METHODS

After approval by the Ethics Committee (0869/2009) and signing of the informed consent, 150 patients ASA I and II, ages between 20 and 60 years, weight between 50 and 80 kg, and height between 150 and 180 cm scheduled for outpatient anorectal surgery in the jackknife position were recruited for this

prospective, randomized, double-blind study. Exclusion criteria included neurologic or neuromuscular disorders, infection at the site of the lumbar puncture, hypersensitivity to local anesthetics of the amide group, and refusal to accept the method proposed. The size of each group was estimated after a pilot study, with five patients in each group, to detect a mean duration of the motor blockade five minutes lower when using hypobaric 0.6% lidocaine, based on a standard deviation of nine minutes, probability of type II error= 10% and type I= 5%, which demonstrated the need of at least 70 patients in each group. An excess of five patients were enrolled in each group as a safety measure. Patients did not receive pre-anesthetic medication. Electrocardiogram and pulse oximetry were monitored continuously, and the heart rate and blood pressure were recorded every five minutes. Hydration with Ringer's lactate was instituted when patients arrived at the operating room, but pre-hydration before the spinal block was not used. Each patient received 1 $\mu\text{g}\cdot\text{kg}^{-1}$ of fentanyl, IV, approximately 10 minutes before being placed on the jackknife position for the blockade.

The randomized sequence was generated by a computer, which was followed by the preparation of coded envelopes. Hypobaric 0.15% bupivacaine (specific gravity of 0.99510 $\text{g}\cdot\text{mL}^{-1}$ at 37° C) was prepared by adding 3.5 mL of sterile distilled water to 7.5 mg (1.5 mL) of isobaric 0.5% bupivacaine (specific gravity at of 0.99940 $\text{g}\cdot\text{mL}^{-1}$ 37° C). Hypobaric 0.6% lidocaine (specific gravity of 0.99510 $\text{g}\cdot\text{mL}^{-1}$ 37° C) was prepared by adding 3.5 mL of sterile distilled water to 30 mg (1.5 mL) of isobaric 2% lidocaine (specific gravity of 0.99890 $\text{g}\cdot\text{mL}^{-1}$ 37° C). Both solutions were prepared by an anesthesiologist who did not participate in the study. Patients were scheduled, randomly, to receive 4.5 mg (3 mL) of hypobaric bupivacaine or 18 mg (3 mL) of hypobaric lidocaine. Isobaric solutions were prepared specially for this study by Cristália Produtos Químicos e Farmacêuticos Ltda (Brazil).

After cleaning the skin with chlorhexidine-alcohol and removing the excess solution, subarachnoid puncture was performed with the patient in the jackknife position with a pillow with 25 cm in diameter under the abdomen. After infiltrating the skin and deep tissues with 1% lidocaine, the median approach between the spinous processes of L₃-L₄ with a 27G Quincke needle (B. Braun, Melsungen) without the introducer, was used. After observing backflow of CSF, confirming the subarachnoid position of the tip of the needle, 3 mL of bupivacaine or lidocaine were injected at a rate of 1 mL per 15 seconds.

The time until installation of the blockade was evaluated by the loss of sensitivity to the touch of the needle stylet on the buttocks, immediately after the injection of bupivacaine or lidocaine. Light touch was evaluated with a cotton ball embedded with alcohol along the midaxillary line, lateral aspect of the thigh, leg, and foot. Proprioception was assessed by asking the patient to identify the movements of the big toe without looking. Proprioception and sensorial blockade were evaluated by another anesthesiologist, who was not aware of the groups, 15 and 60 minutes after the spinal block, using the modified Bromage table (0 to 3)⁶: 0 = moves feet and lower limbs freely; 1 = unable to raise the stretched limb (flexion of the thigh while maintaining the leg stretched); 2 = unable to bend

the knees; and 3 = unable to move the ankle. The duration of the blockade was defined as the time between the puncture and injection of the anesthetic solution and recovery of perineal sensitivity to the touch of the stylet, evaluated every 15 minutes, during the first hour and every 30 minutes from the second hour on by another anesthesiologist who did not have any knowledge of the groups. The duration of surgery was defined as the time between the subarachnoid puncture and the end of the surgery. Hemodynamic parameters were evaluated every five minutes, in the first 15 minutes, and every then 10 minutes until the end of the surgery.

Hypotension was defined as a reduction in systolic pressure greater than 30% of baseline levels. Bradycardia was defined as a reduction in heart rate below 50 bpm. All patients received oxygen (2 L.min⁻¹) with a Hudson mask. After the evaluations, during the surgery patients received midazolam (0.5 to 1 mg). Fentanyl (50 µg) would be administered if the patient complained of pain. After the surgery, patients were transferred to the post-anesthetic recovery room (PARR) for continuous monitoring of the vital signs until complete regression of the blockade. Before discharge from the hospital, an anesthesiology resident evaluated patient satisfaction with the technique and asked him/her to classify it as good, satisfactory, or bad. Patients had to be awake and able to walk without assistance and with stable vital signs for at least one hour before being discharged from the hospital. Patients continued to be followed-up by telephone, applying a questionnaire, asking questions on post-puncture headache or transitory neurologic symptoms, until the 30th postoperative day to detect more severe and late neurologic lesions.

Results are presented as mean (standard deviation) or median (iqa: interquartile amplitude) as recommended, for quantitative parameters, and percentage (%) for categorical parameters. Means were compared by the Student *t* test, median by the Mood test for medians, and percentages by Fisher's exact test. Differences were considered significant when $p \leq 0.05$.

RESULTS

Demographic parameters were similar in both groups (Table 1). All surgeries were successful. None of the patients complained of discomfort. Rescue fentanyl was not required by any patient. Hydration during the surgery remained below 500 mL.

Table 2 shows the latency time, duration of the surgery, and duration of the blockade. Latency with hypobaric lidocaine was significantly shorter than that of hypobaric bupivacaine. The mean duration of the surgery was 33.4 (6.2) minutes, in the bupivacaine group, and 31.5 (5.6) minutes, in the lidocaine group. The duration of the surgery did not differ significantly between both groups. The duration of the blockade was significantly longer with hypobaric bupivacaine.

Table 3 shows the assessment of the sensorial blockade. The median of the upper limit of the sensorial blockade, evaluated by using the stylet of the needle, was L₁/L₁ (bupivacaine/lidocaine; range T₁₀-L₃/T₁₁-L₂) ($p < 0.0005$), without differences. Differences between both groups were not observed 15 mi-

minutes after the puncture, but after 60 minutes, the level of the sensorial blockade was significantly higher in patients in the bupivacaine group.

Motor blockade was not observed 15 minutes after the puncture in 135 patients. Grade 3 motor blockade was not observed in any patient. Grade 2 motor blockade was observed in one patient in the bupivacaine group. Grade 1 motor blockade was observed in nine patients in the bupivacaine group and in five patients in the lidocaine group. After 60 minutes, motor blockade was not observed in any patient. Significant differences between both groups were not observed at 15 ($p = 0.1$) and 60 ($p = 0.1$) minutes (Table 4).

Table 1 – Demographic Parameters of Each Group

Parameter	Bupivacaine (n = 75)	Lidocaine (n = 75)	p
Age (years) *	41.5 ± 11.1	40.9 ± 11.6	0.76
Weight (kg) *	67.7 ± 12.9	70.0 ± 8.1	0.20
Height (cm) *	165.7 ± 8.1	169.5 ± 6,	0.002
Gender (F/M) (%)	38/37 (51/49)	35/40 (49/51)	0.62

* Results expressed as Mean ± Standard Deviation

Table 2 – Latency, Duration of the Surgery, and Duration of the Blockade in each Group

Parameters	Bupivacaine (n = 75)	Lidocaine (n = 75)	p
Latency (min)	1.9 ± 0.4	0.9 ± 0.2	< 0.0005
Duration of the surgery (min)	33.4 ± 6.2	31.5 ± 5.6	0.061
Duration of the blockade (min)	99.1 ± 11.0	64.1 ± 7.6	< 0.0005

Results expressed as Mean ± Standard Deviation

Table 3 – Evolution of the Sensorial Blockade in Each Group (Frequency)

Parameter	Bupivacaine (n = 75)			Lidocaine (n = 75)			p
	median	q ₁ ¹	q ₂	median	q ₁	q ₂	
Sensorial blockade							
15 minutes	L ₁	L ₁	T ₁₂	L ₁	L ₁	T ₁₂	0,72
60 minutes	L ₃	L ₁	T ₁₂	L ₅	L ₁	T ₁₂	< 0.0005

¹q₁ – first quartile, q₃ – third quartile

Table 4 – Motor Blockade, Proprioception, Transference from the Surgical Bed to the Stretcher, and Patient Satisfaction

Parameter	Bupivacaine (n = 75)	Lidocaine (n = 75)	p
Motor Blockade 15 min ²	0 (0)	0 (0)	0.17
Motor Blockade 60 min ²	0 (0)	0 (0)	1.0
Proprioception 15 min (yes)	70 (93%)	71 (95%)	1.0
Proprioception 60 min (yes)	75 (100%)	75 (100%)	1.0
From table to stretcher (yes)	75 (100%)	75 (100%)	1.0
Satisfaction (good)	75 (100%)	75 (100%)	1.0

Proprioception was negative in five patients in the bupivacaine group and in four patients in the lidocaine group, but this difference was not statistically significant (Table 4). All patients in this study transferred from the surgical bed to the stretcher without assistance (Table 4).

According to the criteria of the study, none of the patients developed hypotension or bradycardia. Patients also did not develop post-puncture headache, or urinary retention at the outpatient surgery unit. Postoperative interview did not reveal cases of transitory neurologic symptoms after discharge. Patient satisfaction did not differ between both groups.

DISCUSSION

This study demonstrated that low doses of hypobaric bupivacaine or hypobaric lidocaine can be safely used anorectal surgery in patients operated in the jackknife position (ventral decubitus). The quality of the subarachnoid block produced by 3 mL of hypobaric 0.15% bupivacaine or 3 mL of hypobaric 0.6% lidocaine is similar, except for more prolonged blockade with bupivacaine. The distribution of hypobaric solutions depends on patient positioning and anatomy of the spine. Therefore, selective sensorial blockade is produced when hypobaric bupivacaine^{8,9} or hypobaric lidocaine^{6,7} is used in patients in the jackknife position, since they cause little or no motor blockade in anorectal surgeries, because of the short latency, and the duration of the blockade depends on the anesthetic and dose used. In the present study, subarachnoid puncture in the above mentioned position and the hypobaricity of bupivacaine and lidocaine resulted in excellent sensorial blockade (100% of the patients) and minimal incidence of motor blockade (it was not observed in 90% of the patients).

Spinal block with the patient in the jackknife position provided for surgical analgesia with relaxation of the anal sphincter and adequate duration for surgery in all patients. They also allowed patients to tolerate this position, which offers excellent exposure for surgeons. Patients did not complain of perineal discomfort during surgery, and supplementary anesthesia was not required. The dramatic effect of patient positioning on limiting the distribution of the sensorial blockade confirms that the solution is really hypobaric. When the head of the patients was lower than the hips, the distribution of the analgesic remained confined to the lower dermatomes (T₁₀ or below).

In this study, patient positioning and doses of anesthetic agents were designed to obtain, mainly, sensorial blockade, as well as to avoid motor blockade of the lower limbs. Motor blockade was absent in 135 (90%) patients and, according to other authors⁶⁻⁹, lower doses of hypobaric bupivacaine or lidocaine were used in ventral decubitus with excellent sensorial blockade and minimal motor blockade.

When the patient is in the jackknife position, a pillow should be placed under his/her abdomen to reduce the physiological lordosis and increase the interspinous space¹¹. The small posterior roots form sensorial roots, while the anterior form motor roots. Besides early ambulation, another advantage of minimal or absent motor blockade seen with this technique

was to allow patients to transfer from the surgical table to the stretcher without help, besides early ambulation. In this study, none of the patients needed help to transfer to the stretcher.

Urine retention is a common complication of anorectal surgeries, especially hemorrhoidectomies¹². The mean rate reported of this complication is 15%, ranging from 1% to 52% of the patients¹². It is believed that anal pain and manipulation cause an inhibitory reflex of the detrusor muscle via pudendal nerve¹³. Urinary retention is more common when long-acting anesthetics (bupivacaine 10 mg = 460 minutes) are used in spinal blocks when compared to those with shorter duration (lidocaine 40 mg = 235 minutes)¹⁴. In the present study, none of the patients required a vesical catheter. The recovery period of 6 mg of hypobaric 0.15% bupivacaine is 105 minutes⁸. A reduction of the dose of hypobaric 0.15% bupivacaine to 4.5 mg, decreased the recovery period to 99 minutes. As for lidocaine, 40 mg of the 1% solution has a recovery time of 142 minutes¹⁵. The same dose of hypobaric 0.5% lidocaine had a recovery period of 151 minutes¹⁶. The recovery time of 18 mg of hypobaric 0.6% lidocaine was 63 minutes⁶, the same of the present study (64 minutes). In this study, lidocaine was associated with shorter recovery period, which was statistically significant when compared with bupivacaine.

One of the objectives of posterior spinal block was to reduce the incidence of hypotension⁶, which can be present in this technique, and this was confirmed when conventional spinal block was compared with asymmetrical spinal block¹⁷. Hemodynamic stability was, probably, related to the hypobaric solution, which remained localized to the area of the injection, due to the jackknife position, and restricted sympathetic blockade. Transitory neurological symptoms have been reported in spinal blocks for all anesthetic agents. In the present study, none of the patients developed transitory neurologic symptoms, demonstrating differences when compared with higher doses¹⁸, confirming the importance of low doses in this study.

Perineal anesthesia is commonly achieved with saddle block, in which a hyperbaric solution is administered with the patient in the sitting position. The solution gravitates towards the lower region, the dural sac, being confined to sacral dermatomes. The use of hypobaric solution might not change the final concentration of bupivacaine or lidocaine in the CSF, but it can affect the distribution of lidocaine within the subarachnoid space when the patient is placed in the jackknife position, and, in this case, changes the distribution of the spinal block. Hemodynamic stability, patient satisfaction with the lack of motor blockade in the lower limbs, fast recovery, and absence of urinary retention represent the advantages of this type of spinal block.

Anesthesiologists should be familiarized with techniques with faster recovery profiles. Spinal block is associated with lower rate of side effects and better cost/benefit ratio than general anesthesia, and it is well accepted by patients³. Unlike 5 mg of isobaric solution (bupivacaine/levobupivacaine) that produces complete motor blockade in 15% of the patients¹⁹, the hypobaric solution (bupivacaine/lidocaine) does not cause the same; motor blockade was not observed in 90% of the patients. To

conclude, spinal block with hypobaric bupivacaine (4.5 mg) or lidocaine (18 mg) was effective and safe in anorectal surgeries and preserved motor function. Bupivacaine is associated with longer blockade than lidocaine.

REFERÊNCIAS – REFERENCES

01. Dahl V, Raeder J – Regional anaesthesia in ambulatory surgery. *Curr Opin Anaesthesiol*, 2003;16:471-476.
02. Vaghadia H, McLeod DH, Mitchell GWE – Small-dose hypobaric lidocaine-fentanyl spinal anesthesia for short duration outpatient laparoscopy. I. A randomized comparison with conventional dose hyperbaric lidocaine. *Anesth Analg*, 1997;84:59-64.
03. Pavlin DJ, Rapp SE, Polissar NL et al. – Factors affecting discharge time in adult outpatients. *Anesth Analg*, 1998;87:816-826.
04. Vaghadia H, Viskari D, Mitchell GWE et al. – Selective spinal anesthesia for outpatient laparoscopy. I: Characteristics of three hypobaric solutions. *Can J Anaesth*, 2001;48:256-260.
05. Vaghadia H – Spinal anaesthesia for outpatients: controversies and new techniques. *Can J Anaesth*, 1998;45:R64-R70.
06. Imbelloni LE, Gouveia MA, Cordeiro JA et al. – Low dose of lidocaine: comparison of 15 with 20 mg/ml with dextrose for spinal anesthesia in lithotomy position and ambulatory surgery. *Acta Anaesthesiol Scand*, 2008;52:856-861.
07. Bodily MN, Carpenter RL, Owens BD – Lidocaine 0.5% spinal anaesthesia: a hypobaric solution for short-stay perirectal surgery. *Can J Anaesth*, 1992;39:770-773.
08. Imbelloni LE, Vieira EM, Gouveia MA et al. – Hypobaric 0.15% bupivacaine versus hyperbaric 0.5% bupivacaine for posterior (dorsal) spinal block in outpatient anorectal surgery. *Rev Bras Anestesiol*, 2006;56:571-582.
09. Maroof M, Khan RM, Siddique M et al. – Hypobaric spinal anaesthesia with bupivacaine (0.1%) gives selective sensory block for ano-rectal surgery. *Can J Anaesth*, 1995;42:691-694.
10. Imbelloni LE, Carneiro AN, Sobral MGC – Anestesia subaracnóidea isobárica com lidocaína 2%. Efeitos de diferentes volumes. *Rev Bras Anestesiol*, 1992;42:131-135
11. Kahn CH, Blank JW, Warfield CA – Lumbar Spinal Nerve Root, em: Hahn MB, McQuillan PM, Sheplock GJ – Regional Anesthesia: An atlas of anatomy and techniques. Mosby-Year Book, 1996;285-294.
12. Prasad ML, Abcarian H – Urinary retention following operations for benign anorectal diseases. *Dis Colon Rectum*, 1978;21:490-492.
13. Gottesman L, Milsom JW, Mazier P – The use of anxiolytic and parasympathomimetic agents in the treatment of postoperative urinary retention following anorectal surgery. A prospective, randomized, double-blind study. *Dis Colon Rectum*, 1989;32:867-870.
14. Kamphuis ET, Ionescu TR, Kuipers PWG et al. – Recovery of storage and emptying functions of the urinary bladder after spinal anesthesia with lidocaine and with bupivacaine in men. *Anesthesiology*, 1998;88:310-316.
15. Liam BL, Yim CF, Chong JL – Dose response study of lidocaine 1% for spinal anaesthesia for lower limb and perineal surgery. *Can J Anaesth*, 1998;45:645-650.
16. Bodily MN, Carpenter RL, Owens BD – Lidocaine 0.5% spinal anaesthesia: a hypobaric solution for short-stay perirectal surgery. *Can J Anaesth*, 1992;39:770-773.
17. Casati A, Fanelli G, Aldegheri G et al. – Frequency of hypotension during conventional or asymmetric hyperbaric spinal block. *Reg Anesth Pain Med*, 1999;24:214-219.
18. Ben-David B, Maryanovsky M, Gurevitch A et al. – A comparison of minidose lidocaine-fentanyl and conventional-dose lidocaine spinal anesthesia. *Anesth Analg*, 2000;91:865-870.
19. Cuvvas O, Gulec H, Karaaslan M et al. – The use of low dose plain solutions of local anaesthetic agents for spinal anaesthesia in the prone position: bupivacaine compared with levobupivacaine. *Anesthesia*, 2009;64:14-18.

RESUMEN

Imbelloni LE, Gouveia MA, Cordeiro JA – Bupivacaína 0,15% Hipobárica Versus Lidocaína 0,6% Hipobárica para Raquianestesia Posterior en Cirugía Anorrectal Ambulatorial.

JUSTIFICATIVA Y OBJETIVOS: *Bajas dosis de bupivacaína y lidocaína han sido usadas para raquianestesia en cirugía ambulatorial. El objetivo de este estudio fue comparar la bupivacaína con la lidocaína ambas en solución hipobárica en pacientes ambulatoriales de cirugía anorrectal.*

MÉTODO: *Dos grupos de 75 pacientes, estado físico ASA I-II, candidatos a cirugía anorrectal en posición prona (prone jackknife), que recibieron 3 mL (4,5 mg) de bupivacaína 0,15% hipobárica o 3 mL (18 mg) de lidocaína 0,6% hipobárica. Fueron comparados la selectividad del bloqueo, la calidad de la analgesia quirúrgica, la intensidad del bloqueo motor y el tiempo de recuperación en el paciente de cirugía ambulatorial. Después del alta se mantuvo la comunicación diaria por teléfono hasta el 3º día y después en el 30º de postoperatorio.*

RESULTADOS: *El bloqueo fue adecuado para la cirugía en todos los pacientes. El nivel promedio de la dispersión cefálica fue L₁ con variación de T₁₀-L₃ con la bupivacaína y L₁ con variación T₁₁-L₂ con la lidocaína. No se observó bloqueo motor en 135 pacientes (65 de la bupivacaína x 70 de la lidocaína). La hipotensión y la bradicardia no se detectaron en ningún paciente. El promedio de duración del bloqueo sensitivo fue de 99,1 (11,0) minutos con la bupivacaína y de 64,1 (7,6) minutos con la lidocaína, con una diferencia significativa (p < 0,0005). La cefalea post-punción lumbar no acaeció en ningún paciente.*

CONCLUSIONES: *La Bupivacaína o la lidocaína en solución hipobárica generan predominantemente un bloqueo sensitivo después de la inyección subaracnoidea en la posición prona. La solución de lidocaína hipobárica proporciona una analgesia con la misma dispersión de la bupivacaína, pero con menor duración. Las mayores ventajas incluyen una estabilidad hemodinámica y la ausencia de bloqueo motor.*