"COMPARISION OF SAFETY AND EFFICACY OF UNILATERAL PARAVERTEBRAL BLOCK WITH SUBARACHNOID BLOCK FOR INGUINAL HERNIA REPAIR"

Dissertation submitted to

THE TAMIL NADU DR. M.G.R. MEDICAL UNIVERSITY

In partial fulfilment for the award of the degree of

DOCTOR OF MEDICINE

IN

ANAESTHESIOLOGY

BRANCH X

INSTITUTE OF ANAESTHESIOLOGY AND CRITICAL CARE

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APRIL 2018

INTRODUCTION

Inguinal herniorrhaphy (IH) is a common day care procedure. It can be performed under generalanaesthesia (GA) peripheral nerve blockade, subarachnoid block (SAB) or paravertebral block (PVB). PVB is providing long-lasting unilateral anaesthesia, haemodynamic stability, early ambulation and prolonged pain relief. PVB produces ipsilateral segmental analgesia through injection of local anaesthetic onto the spinal nerve roots alongside the vertebral column. It is advocated predominantly for unilateral procedures such as thoracotomy, breast surgery, chest wall trauma, hernia or renal surgery This study was undertaken to compare safety and efficacy between unilateral PVBs and SAB in patients undergoing IH.

AIM OF THE STUDY

1.Duration of post operative analgesia

(Post operative Visual Analogue Scale pain score)

2.Time to reach the discharge citeria

(Modified post- anaesthetic discharge scoring.)

3.Intra operative and post operativehaemodynamics

4. Total rescue analgesic consumption

METHODOLOGY OF STUDY

This study was done at the Institute of Anaesthesiology and critical care,Madras Medical College between April to September 2017. The aim of this

study is to Compare the safety and efficacy of Unilateral paravertebral block with Subarachnoid block for Inguinal hernia repair

Patients were excluded if they had a history of sensitivity to local anesthetic,bleeding disorders or receiving anticoagulant, spine or chest wall deformity orpregnancy.Before surgery patients were randomly allocated according to thecomputer generated sequence into two equal groups. Group P (PVB = 30 patients) received ipsilatera Paravertebral block from T10 to L2 with 5ml of bupivacaine (0.5%) with 1: 400,000 epinephrine at each segment. while the group S (SAB=30 patients)received Sub arachnoid block with 12.5ml of hyperbaric bupivacaine (0.5%). PVB was performed with thepatient in sitting position from T10 to L2 thoracic vertebra under completeaseptic precaution with low resistant technique with saline using an 25- G Quincke needle seeking contact with the transverse process of the thoracicvertebra then sliding the needle caudally for 1–1.5 cm into the paravertebral space and 5 ml of

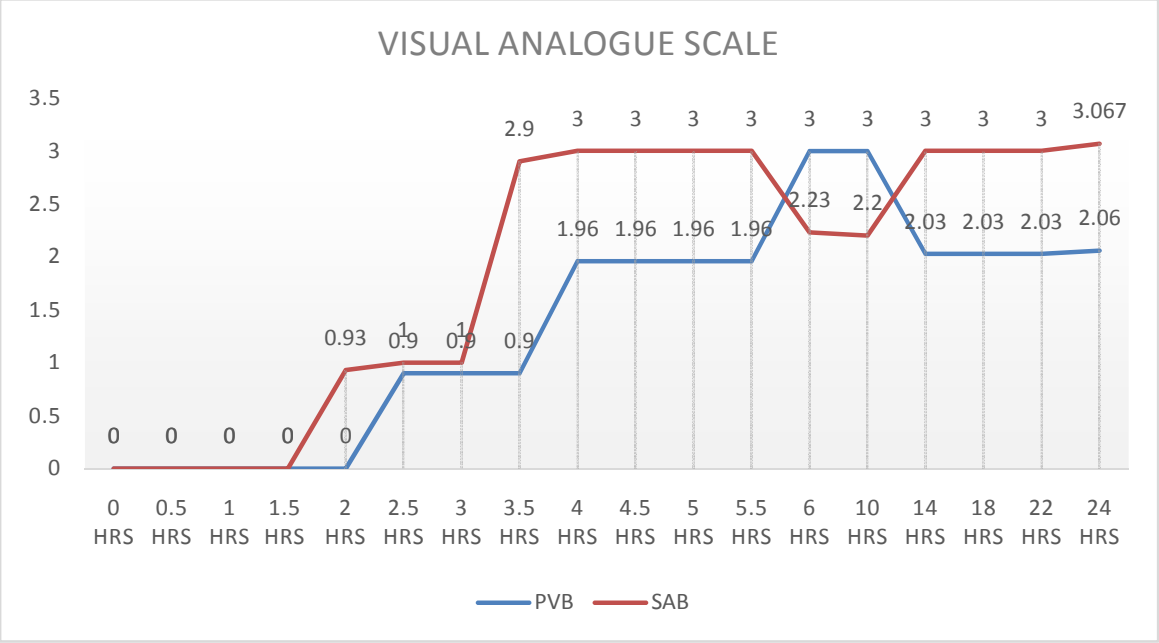
bupivacaine 0.5% with 1:400,000 epinephrine at each segment was injected. SAB block wasperformed while the patient in sitting position infiltration of the skin at puncture site with 2 ml of xylocaine 2%, 25- G Quincke the needle was inserted in L3 L4 space injected 12.5mg (2.5ml) of hyperbaric bupivacaine (0.5%) in subarachnoid space. Hypotension was defined as a decrease of more than20% of the base line MBP and was treated with increments of 6 mg bolus dosesof ephedrine iv and 250 ml fluid bolus. Intra operative haemodynamics was monitored. After the surgery patients was shifted to ward . VAS Score and Modified post anesthesia discharge scoring observed. Postoperative analgesia was provided withtramadol. Pain intensity was measured using VAS painscore. Nausea lasting more than 10 min or vomiting was treated withondansetron 4 mg. Complications related to local anesthetic drug and PVB technique likepneumothorax or epidural spread of local anesthetic as evidenced by test forsensory deficit on contralateral side were also recorded. Chest X-ray wasrequested for any patient in PVB group if had any difficulty of breath,desaturated or had diminished air entry at any time after the block. Primaryoutcome was the time to first analgesia in minutes to first registration of VASpain score >6. Secondary outcome measures were mean VAS scores,intraandpost operative hemodynamic variables and postoperative nausea and vomiting(PONV).

OBSERVATION RESULTS and ANALYSIS

1)Duration of post operative analgesia

VISUAL ANALOGUE SCALE

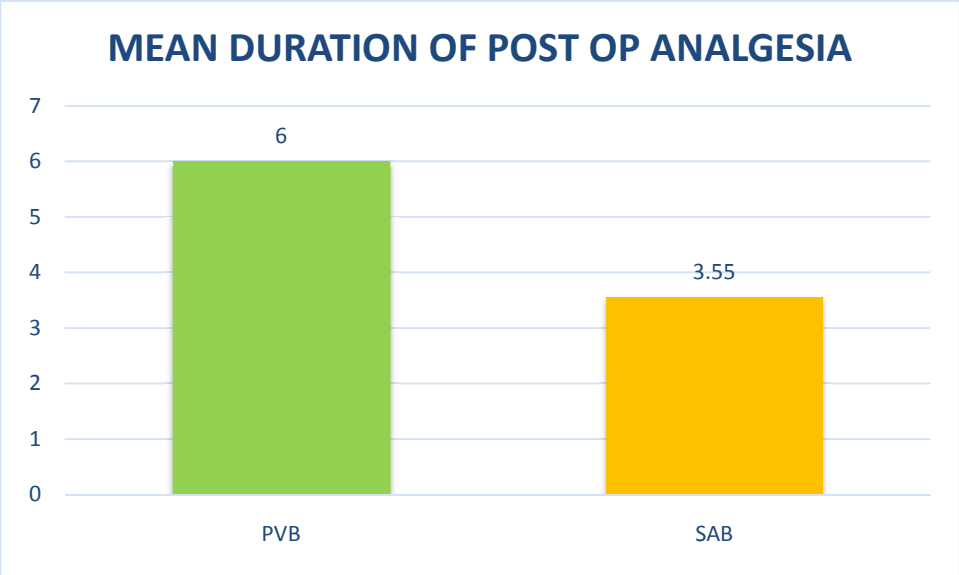
VISUAL ANALOGUE SCALE			
TIMELINE	PVB	SAB	P VALUE
0 HRS	0	0	NIL
0.5 HRS	0	0	NIL
1 HRS	0	0	NIL
1.5 HRS	0	0	NIL
2 HRS	0	0.93	0.001
2.5 HRS	0.9	1	0.078
3 HRS	0.9	1	0.001
3.5 HRS	0.9	2.9	0.001
4 HRS	1.96	3	0.001
4.5 HRS	1.96	3	0.001
5 HRS	1.96	3	0.001
5.5 HRS	1.96	3	0.001
6 HRS	3	2.23	0.001
10 HRS	3	2.2	0.001
14 HRS	2.03	3	0.001
18 HRS	2.03	3	0.001
22 HRS	2.03	3	0.001
24 HRS	2.06	3.067	0.001



In Visual analogue scale ,paravertebral block has an reduced range over a time period which is also statistically significant.

DURATION OF POST OP ANALGESIA

DURATION OF POST OP ANALGESIA		
TYPE OF BLOCK	MEAN	SD
PVB	6	0
SAB	3.55	0.15
P VALUE - 0.001		
UNPAIRED T TEST		
SIGNIFICANT		

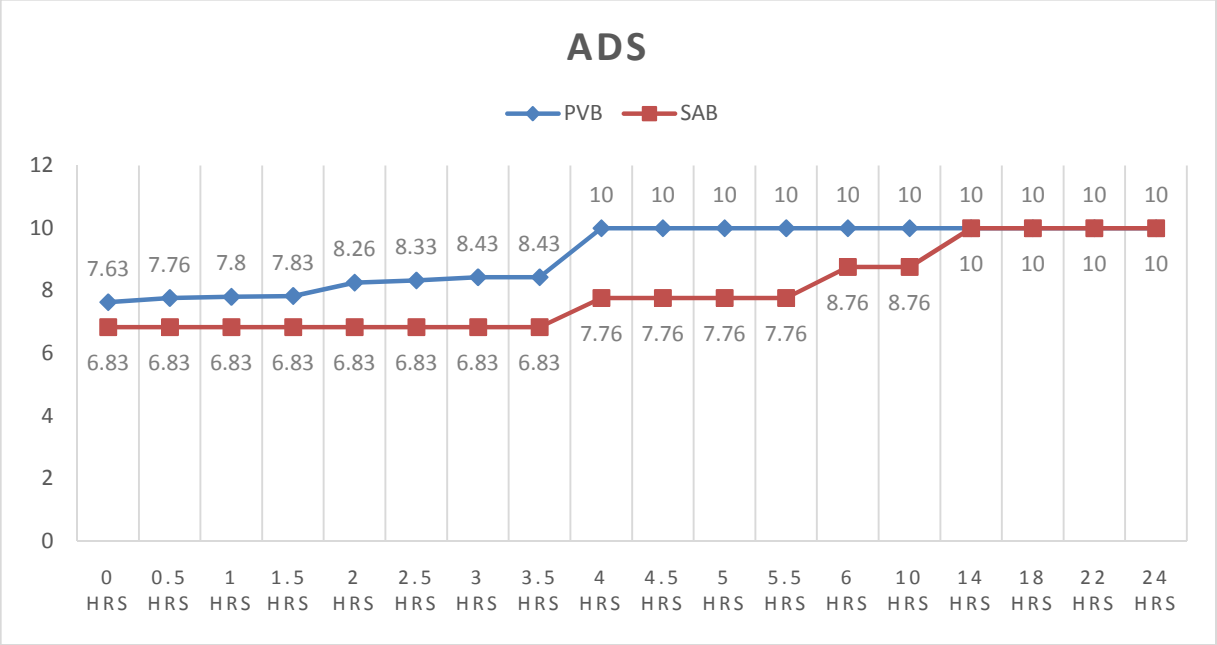


Mean duration required for post op analgesia is much higher in paravertebral block compared to that of sub arachnoid block which show analgesia is sustained for longer period in paravertebral and this is also statistically significant with an P value of 0.001.

2) Time to reach the discharge citeria

ANAESTHETIC DISCHARGE SCORING

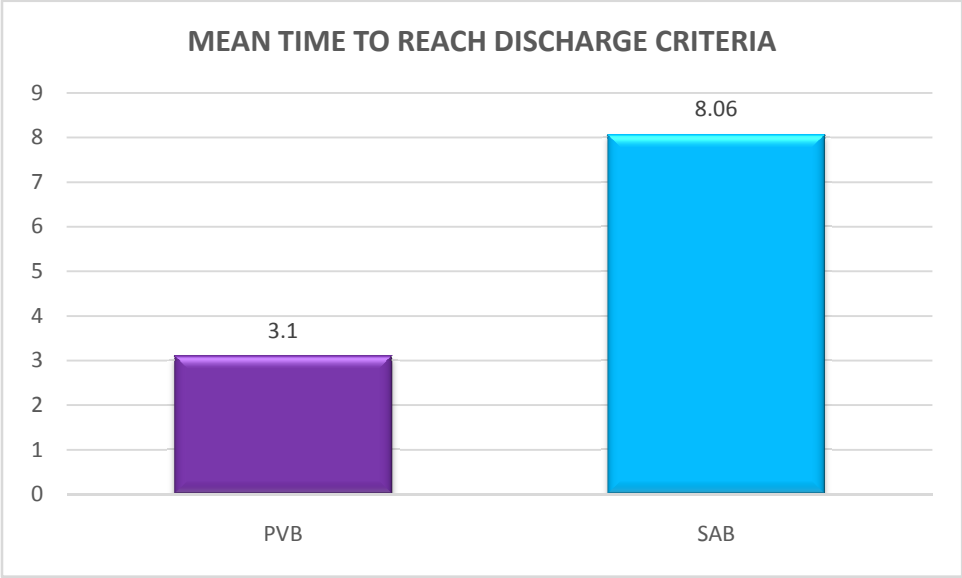
TIMELINE	PVB	SAB	P VALUE
0 HRS	7.63	6.83	0.001
0.5 HRS	7.76	6.83	0.001
1 HRS	7.8	6.83	0.001
1.5 HRS	7.83	6.83	0.001
2 HRS	8.26	6.83	0.001
2.5 HRS	8.33	6.83	0.001
3 HRS	8.43	6.83	0.001
3.5 HRS	8.43	6.83	0.001
4 HRS	10	7.76	0.001
4.5 HRS	10	7.76	0.001
5 HRS	10	7.76	0.001
5.5 HRS	10	7.76	0.001
6 HRS	10	8.76	0.001
10 HRS	10	8.76	0.001
14 HRS	10	10	NIL
18 HRS	10	10	NIL
22 HRS	10	10	NIL
24 HRS	10	10	NIL



In anaesthetic discharge scoring, paravertebral block has an higher criteria over a time period which is also statistically significant all over during surgery which proves an better availability for the patient under paravertebral block.

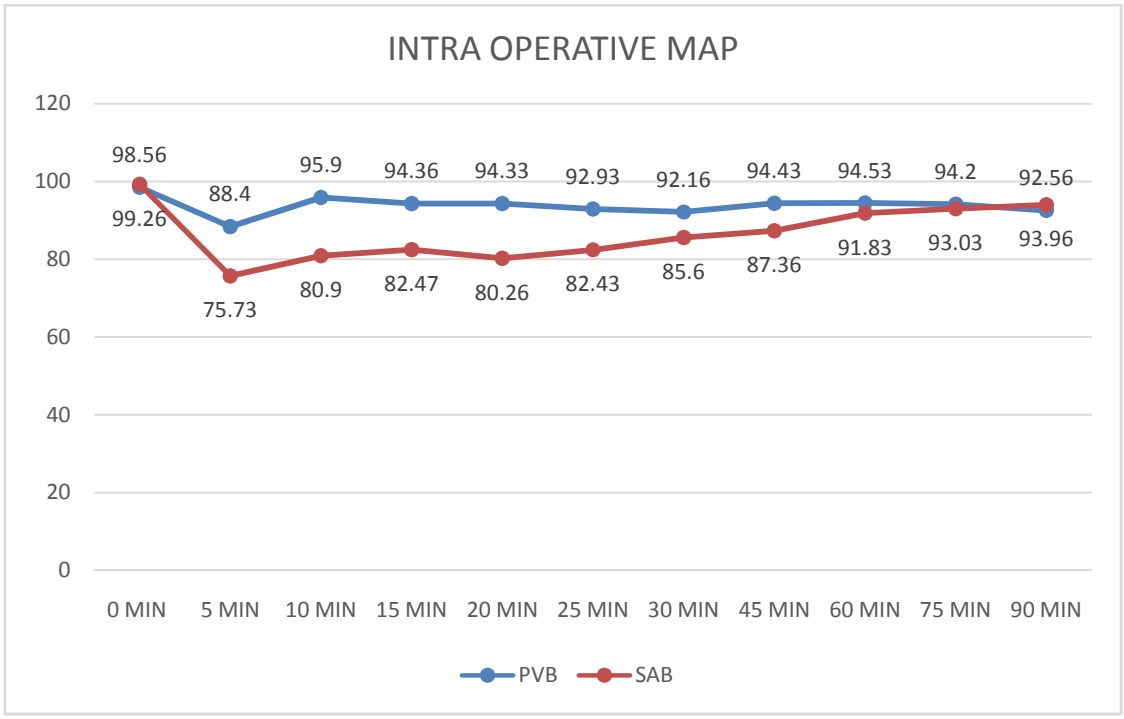
TIME TO REACH DISCHARGE CRITERIA

TYPE OF BLOCK	MEAN	SD
PVB	3.1	0.95
SAB	8.06	3.65
P VALUE - 0.001		
UNPAIRED T TEST		
SIGNIFICANT		



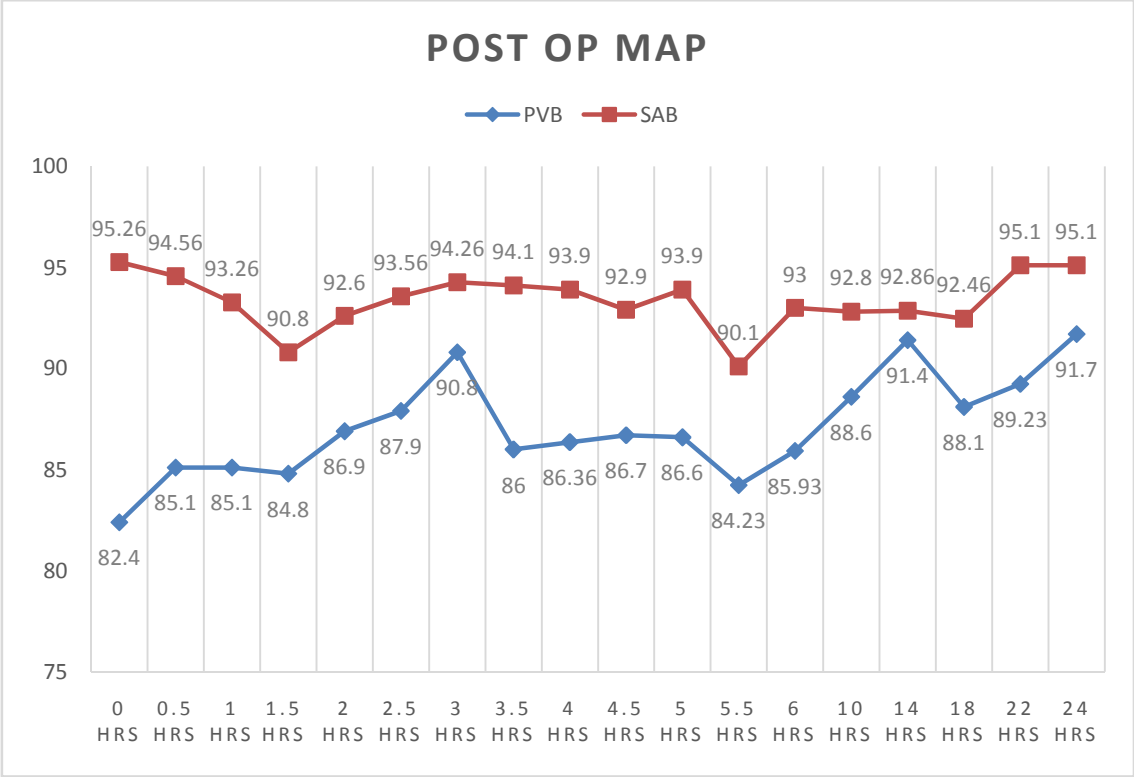
Mean time to reach discharge criteria is much lower in paravertebral block compared to that of sub arachnoid block which show patients recover quick from anaesthesia in paravertebral and this is also statistically significant with an P value of 0.001.

3)Intra operative and post haemodynamics



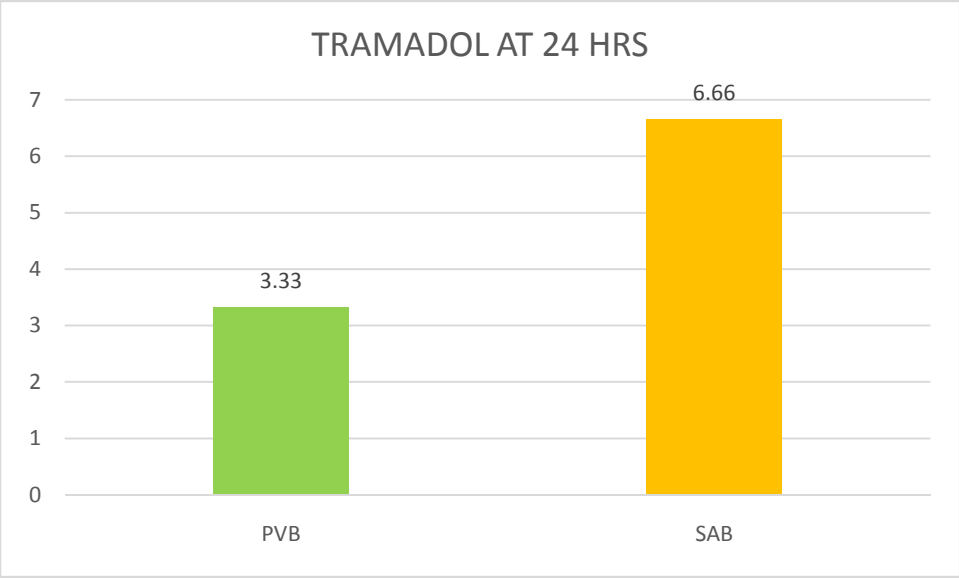
Intra operative mean arterial pressure there is difference in two blocks where MAP is comparatively lower in SAB compared to that of PVB.This difference was analysed using unpaired t test and was statistically significant at various time period except at later stages after 60 minutes.

Post operativehaemodynamics



There is statistically significant difference in mean arterial pressure post operatively between both groups almost upto 24 hrs post-surgery except during 14 hrs where the difference was much less.

4)Total rescue analgesic consumption



Tramadol was required only after 24 hours in both type of blocks .whicle we compared the total rescue analgesic in two groups, it was much lesser in paravertebral block though it was not statistically significant with P value of 0.561.

CONCLUSION

It is concluded that paravertebral block might be an alternative to spinal anaesthesia method in inguinal hernia surgery as it provides adequate anaesthesia during perioperative period and high quality analgesia during the postoperative period