

Randomised Control trial (RCT) for comparing postoperative pain in patients undergoing Transabdominal preperitoneal (TAPP) Inguinal hernia repair: Transversus Abdominis Plane (TAP) Block before peritoneal incision vs. Transversus Abdominis Plane (TAP) Block after peritoneal incision closure

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Introduction

- Inguinal hernia repair is among the most common elective surgeries, with laparoscopic Transabdominal Preperitoneal (TAPP) repair increasingly preferred due to less trauma, reduced complications, and faster recovery.
- In era of day care surgery, post operative pain remains a significant concern, especially during the first 24 hours.
- Transversus Abdominis Plane (TAP) block is a well-established regional anaesthetic technique for lower abdominal surgeries, providing effective analgesia by blocking T10–L1 intercostal nerves.
- The optimal timing of TAP block administration (before peritoneal incision vs. after peritoneal closure) remains inconclusive in literature.
- Determining ideal timing could reduce analgesic needs, shorten hospital stay and improve patient satisfaction.

Aim

To evaluate the effect of **timing of TAP block** (before peritoneal incision vs. after peritoneal closure) on postoperative pain in patients undergoing laparoscopic TAPP inguinal hernia repair.

Method

Design: Randomised Controlled Trial (single centre, parallel group)

•Groups:

- Group A: TAP block before peritoneal incision
- Group B: TAP block after peritoneal closure

•**Randomisation:** Computer-generated sequence allocation and concealment by SNOSE technique

•**Inclusion:**

- 1. Elective TAPP inguinal hernia repair
- 2. 18 to 75 years.
- 3. ASA status I or II

•**Exclusion:**

- 1. Patients who underwent a conversion to open surgery
- 2. Allergic to local anaesthetic.
- 3. Opioid use
- 4. Coagulopathy or bleeding disorders
- 5. Local skin conditions
- 6. Irreducible and strangulated hernia



•**Intervention:** Direct-vision TAP block with 0.25% bupivacaine; standardized anaesthetic protocol

•**Postoperative Analgesia:**

- Weight based IV paracetamol (8 hourly) and IV Diclofenac (12 hourly)
- Rescue analgesic-IV Tramadol as required

•**Outcomes:**

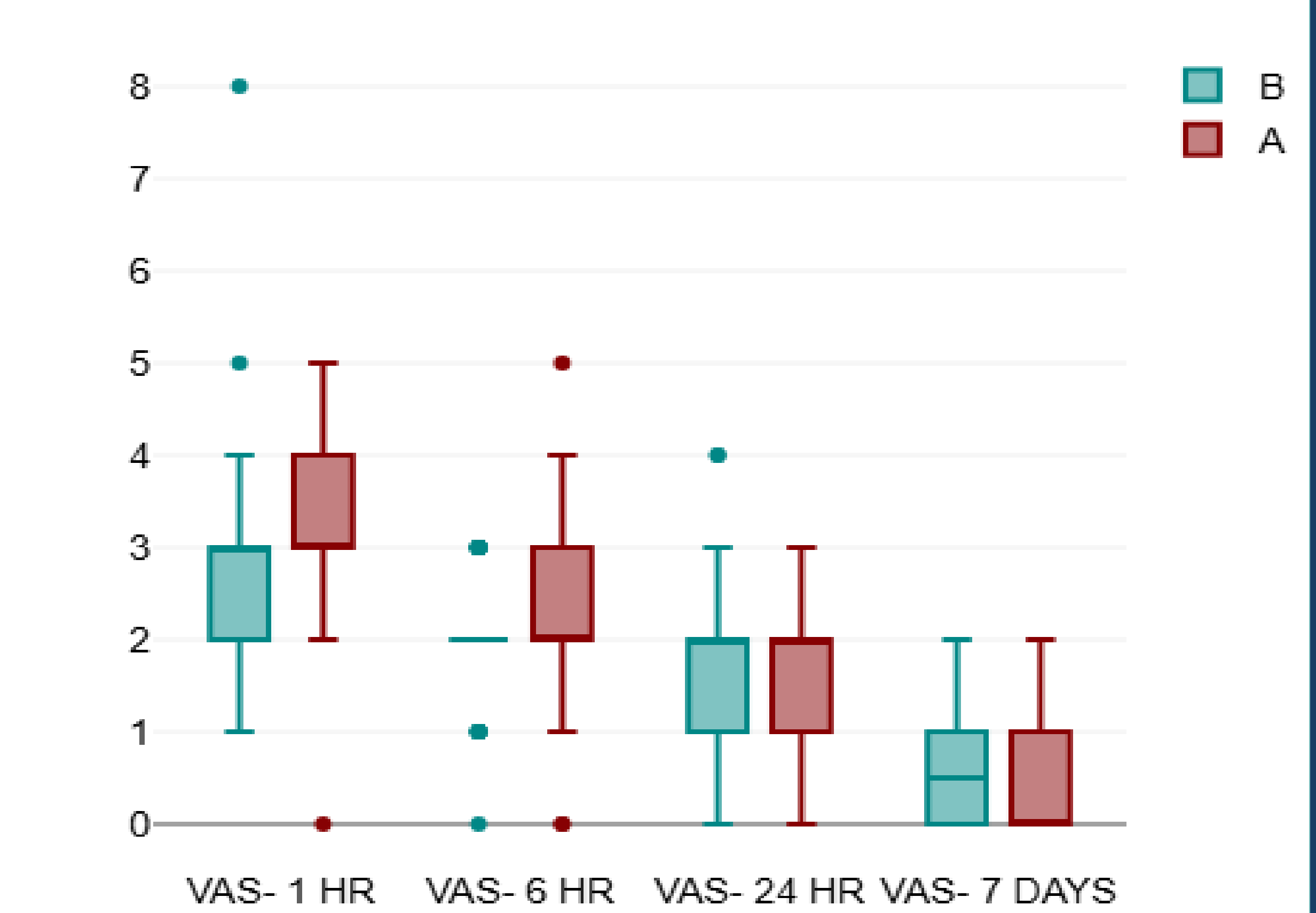
- Primary: Pain score (VAS) at 1 hour
- Secondary: Pain score (VAS) at 6 hours, 24 hours, 7 days; rescue analgesic requirement and timing of ambulation

•**Analysis:** Statistical tests applied considering p < 0.05 significant

Results

Using Mann-Whitney U-Test for statistical analysis and considering 5% level of significance

	Group	Median	IQR	p value	r
VAS at 1 hours	A	3	1	0.049	0.231
	B	3	1		
VAS at 6 hours	A	2	1	0.904	0.014
	B	2	0		
VAS at 24 hours	A	2	1	0.575	0.066
	B	2	1		
VAS at 7 days	A	0	1	0.35	0.109
	B	0.5	1		
Ambulation after surgery in hours	A	7	2.5	0.586	0.06
	B	6.75	2.125		



Discussion

Administering TAP block before peritoneal incision led to a statistically significant reduction in pain at 1 hour postoperatively (p = 0.049) with a small effect size (r = 0.231). No significant differences or notable effect sizes were observed at later time points or for ambulation.

Conclusion

TAP block is effective for postoperative analgesia in TAPP patients and the time point at which it should be administered is **“before peritoneal incision”** because it provides a statistically significant pain reduction in early post operative period which could ultimately result in better post surgical experience, could hasten patient recovery and discharge.