

Efficacy of Bilateral vs. Unilateral Transversus Abdominis Plane Blocks in Pain Control After Kidney Transplantation: A Retrospective Review

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Background/Introduction

- Incision made during kidney transplant causes substantial postoperative pain
- Transversus abdominis plane (TAP) block: a common regional anesthesia technique for truncal incision pain control
- Local anesthetic is injected between the internal oblique and transversus abdominis muscles with ultrasound guidance
- TAP blocks have decreased the need for narcotics, enhanced respiratory function, increased satisfaction, and facilitated mobilization and discharge^{1,2}

Objective/Purpose

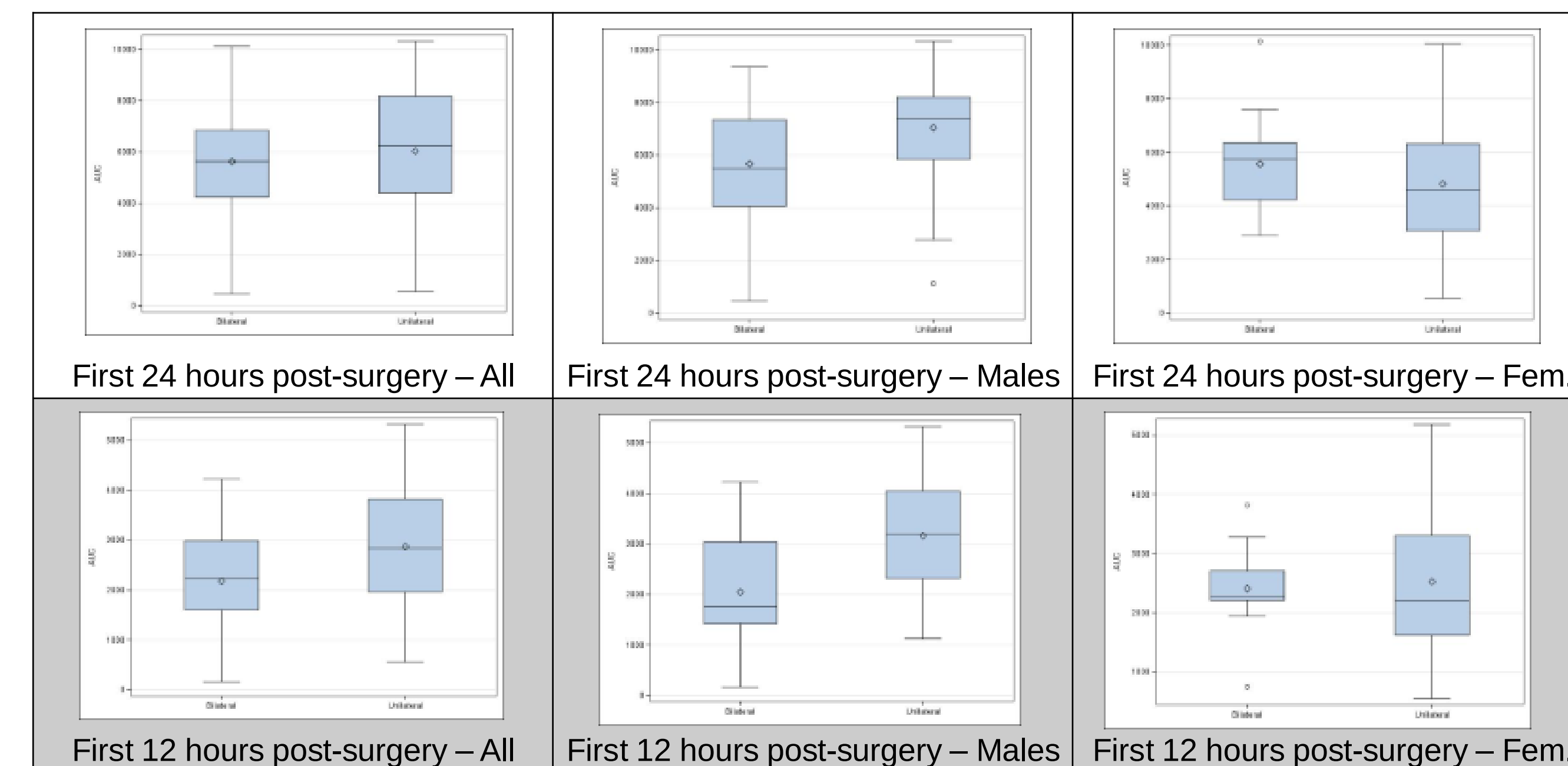
- Determine if laterality of block (bilateral vs. unilateral) plays a role in controlling pain from the unilateral incision made during kidney transplantation
- Compare patient pain scores and total opioid requirement

Methods

- A retrospective chart review evaluated the efficacy of bilateral (N=37) versus unilateral (N=46) TAP blocks
- 85 kidney transplant recipients, Jan. 2021 through Jan 2024
- Inclusion criteria: age ≥ 19 yo
- Exclusion criteria (2 subjects excluded):
 - ASA $> V$
 - Emergent or redo surgeries
 - Opioid abuse disorder / chronic opioid use
 - Chronic pain conditions
- Opioid requirements converted to morphine milligram equivalents (MME)
- Patient pain scores and postoperative opioid requirements compared using nonparametric Mann-Whitney U test

Results

- **First 12-hour post-op pain scores:** Significantly lower ($p=0.015$) in bilateral (N=39) vs. unilateral (N=46) group overall
 - Pain scores significantly lower in males ($p=0.002$) in bilateral group (N=23) vs. unilateral group (N=25)
 - No significant difference for females ($p=0.777$) in bilateral (N=14) vs. unilateral (N=21) groups
- **First 24-hour post-op pain scores:** No significant difference ($p=0.3917$) between bilateral (N=37), unilateral (N=46)
 - Pain scores significantly lower in males ($p=0.034$) in bilateral group vs. unilateral group
 - No significant difference for females ($p=0.355$)
- **90 minutes, 12 hours post-surgery:** No significant difference ($p=0.050$) in total group median pain scores
 - Pain scores significantly lower for males ($p=0.029$) in bilateral
 - No significant difference in females ($p=0.655$)
- **180 minutes, 24 hours post-surgery:** No significant difference ($p=0.543$) in total group, males ($p=0.218$), or females ($p=0.583$)
- **Total opioid requirement (MME):** No significant difference in total groups ($p=0.953$), males ($p=0.702$), or females (0.751)



Discussion / Conclusion

- Our retrospective chart review demonstrated bilateral TAP blocks significantly reduce 12-hour pain scores compared to unilateral TAP blocks in adult kidney transplant recipients
- Pain scores in males were significantly reduced with bilateral TAP block in many timeframes analyzed
- Findings suggest bilateral TAP blocks may provide superior early postoperative analgesia during the first 12 hours after surgery
- Lack of significant difference in overall opioid consumption between the two groups highlights need for further research to determine clinical significance
 - Effect on overall impact to patient recovery remains to be studied
- Further research needed to determine why bilateral TAP block more effective in males in terms of patient pain scores



References

1. Ozciftci, S., Sahiner, Y., Sahiner, I. T., & Akkaya, T. (2022). Research Article Is Right Unilateral Transversus Abdominis Plane (TAP) Block Successful in Postoperative Analgesia in Laparoscopic Cholecystectomy? International Journal of Clinical Practice, 2022, 2668215. <https://doi.org/10.1155/2022/2668215>
2. Elnabity, A. M., & Shabana, W. M. (2016). Unilateral versus bilateral ultrasound-guided transversus abdominis plane blocks during ureteric shock wave lithotripsy: A prospective randomized trial. Urology Annals, 8(3), 265–269.