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Introduction

- The usefulness of transversus abdominus plane (TAP) blocks for patients who undergo robotic-assisted prostatectomy (RAP) is unclear in current medical literature^{1,2}
- Baylor Scott and White Memorial Hospital (BSWMH), a 600 bed multi-specialty hospital in Central Texas started performing TAP blocks for RAP in 2022
- In this study, we hypothesized that patients who received TAP blocks following RAP would have lower 24-hour postoperative opioid consumption compared to patients who did not have a TAP block

Methods

- The Baylor Scott & White Research Institute IRB approved this study (025-298) and waived the requirement for informed consent.
- We performed a retrospective analysis on patients who underwent RAP between January 1, 2021 and December 31, 2024 at BSWMH
- TAP blocks were performed with a 22-gauge spinal needle using ultrasound guidance with 50-60 ml bupivacaine 0.25% depending on weight
- Our primary outcome was 24-hour oral morphine equivalent (OME)³ consumption
- The top tertile was the “high” OME consumption cohort and the bottom tertile was the “low” OME consumption cohort
- We performed a bivariate analysis between the cohorts followed by a multivariate logistic regression to determine associations with high OME consumption

TAP BLOCK WAS NOT ASSOCIATED WITH LOW OME CONSUMPTION

Table 1. Demographics and characteristics of patients in the high and low opioid consumption cohorts

Variable	24- hour postoperative OME consumption of 14.8 mg or less (N=77)	24-hour postoperative consumption of 32.5mg or greater (N=79)	P-value
Black or African American	11 (14%)	31 (39%)	0.001 (combined)
Hispanic	5(6%)	7 (9%)	
White or Caucasian	61(79%)	41 (52%)	
Age (years) (mean(SD))	64 ± 6	61 ± 7	0.008
Body Mass Index (kg/m²)(mean SD))	29.9 ± 4.5	30.2 ± 4.8	0.76
Hx of depression (yes)	2 (3%)	5 (6%)	0.44
Hx of anxiety (ys)	2 (3%)	11 (14%)	0.02
Hx of chronic pain	4 (5%)	11 (14%)	0.10
Hx of prior abdominal surgery	22 (29%)	25 (32%)	0.68

Table 2. Clinical Characteristics of patients in the high and low opioid consumption cohorts

Variable	24- hour postoperative OME consumption of 14.8 mg or less (N=77)	24-hour postoperative consumption of 32.5mg or greated (N=79)	P-value
Time from skin incision to wound closure (minutes) (mean(SD))	308 ± 52	307 ± 59	0.87
Time in post-anesthesia care unit Phase 1 until d/c criteria met (minutes) (median(IQR))	85 (65-115)	90 (69-124)	0.22
Received TAP block (yes)	21 (27%)	25 (32%)	0.55
Intraoperative dexmedetomidine(mcg) (median(IQR))	37.5 (20.0-40.0)	40.0 (21.0-50.0)	0.17
Intraoperative ketamine (mg) (median(IQR))	0 (0-0)	0 (0-10)	0.45
24-hr postoperative OME (mg) (median(IQR))	0 (0-0)	0 (0-10)	0.88
24- hr postoperative mean pain score	7.5 (0-14.8)	44.8 (38.8-30.0)	<0.001
Number of pain scores in 24- hr postoperative period(median(IQR))	2.9 ± 1.9)	5.3 ± 1.6	<0.001
Hx of prior abdominal surgery	7 (5-9)	11 (8-14)	<0.001
Total acetaminophen (mg)(median(IQR))	1950 (650-3000)	2600 (1950-3275)	0.002
Total celecoxib (mg)(median(IQR))	0 (0-0)	0 (0-0)	0.13
Total gabapentin(mg)(median(IQR))	200 (0-400)	300 (0-900)	0.12
Total ketorolac (mg) (median(IQR))	0 (0-45)	0 (0-30)	0.03

Table 3. Multivariate logistic regression to predict whether a patent would have lower opioid consumption following RAP

Variable	Units	Odds Ratio	95% Confidence Intervals	P-value
White or Caucasian (reference)		1.0		
Black or African American		0.35	0.140.85	0.02
Hispanic		0.52	0.132.07	0.35
Age	5 years	1.40	1.041.88	0.03
Hx of anxiety	Yes	0.15	0.030.87	0.03
Hx of chronic pain	Yes	0.34	0.081.39	0.13
Intraoperative OME	10 mg	0.88	0.681.14	0.33
Total acetaminophen	1000 mg	0.66	0.470.92	0.01
Total ketorolac	15 mg	1.36	1.061.75	0.02
TAP Block	Yes	1.26	0.523.03	0.61

Results

- 233 patients had RAP during the study period, and 229 patients met inclusion criteria
- 77 and 79 patients had 24-hour postoperative OME consumption of 14.8 mg or less and 32.5 mg or greater, respectively, and comprised the low and high OME cohorts, respectively
- Patients in the low and high OME cohorts had statistically significant differences in race, age, history of anxiety, 24-hour mean postoperative pain score, and 24-hour postoperative acetaminophen and ketorolac consumption
- Black versus White race, age, history of anxiety, total acetaminophen consumption, and postoperative ketorolac consumption were independently associated with patients being in the low opioid consumption cohort
- C-statistic of multivariate model: 0.79

Conclusions

- Performance of a TAP block was not associated with being in the low OME cohort among patients who underwent RAP
- An increase in ketorolac consumption was associated with being in the low OME cohort
- Increase in acetaminophen consumption was inversely associated with being in the low OME cohort
- Future improvements in postoperative pain management following RAP may be realized by optimization of multimodal pain medications

Citations

- Rogers T, Bhat KRS, Moschovas M, et al. Use of transversus abdominis plane block to decrease pain scores and narcotic use following robot-assisted laparoscopic prostatectomy. *J Robot Surg.* 2021;15:81-86
- Kazior MR, Nguyen A, Kang J, et al. Bilateral transversus abdominis plane and rectus sheath blocks with liposomal bupivacaine for patients undergoing robotic prostatectomy. *J Robot Surg.* 2023;17:1817-1823
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