

Abstract

- In this study, we aim to demonstrate the efficacy that TAP blocks may have to provide meaningful relief to those suffering with pelvic cancer related pain.
- TAP blocks are commonly used as part of a multimodal analgesia plan for abdominal surgical procedures involving the anterolateral abdominal wall.
- Recent literature suggests that nerve blocks and other interventional procedures can be a key component of multimodal cancer related pain management.¹ Neuraxial blocks work by inhibiting both neuropathic and nociceptive pain signals.
- There was no statistically significant difference found in pre-block opioid use compared to post-block use ($p=0.6373$, table 1). However, there was a statistically significant improvement in verbal assessment scale (VAS) post-block, suggesting that TAP blocks have use in the management of pelvic cancer related pain.
- TAP blocks provided a statistically significant decrease in pain, as evident by a lower patient-reported verbal assessment (VAS) score post procedure. However, TAP blocks were not shown to provide a statistically significant decrease in the amount of opioids used for treatment of pelvic cancer pain.
- This study, though small, illuminates the need for further research on the use of nerve blocks in the multimodal treatment of cancer-related pain. This shows study illustrates the potential for interventional pain care in cancer management.

Introduction

- Pain is a common side effect of late-stage cancer.¹
- it is estimated that 10-20% of patients are not adequately controlled with polypharmacy^{2,3} despite the WHO recommended analgesic stepladder
- In prior studies, TAP blocks have been associated with a significant decrease in pain scores for up to 3 to 4 months post-procedure, along with decreased opioid use; however, these studies primarily consist of case reports or low power studies.^{1,3,4,5}
- The purpose of this retrospective study is to confirm prior findings:
 - TAP blocks can lower VAS scores and decrease opioid usage
 - contribute to meta-analysis studies in the future
 - expand our knowledge about the efficacy of these procedures and how to utilize them in the treatment of cancer related pelvic pain.

Methods

- We conducted a retrospective chart review of patients with pelvic cancer at Henry Ford Hospital treated between 11/22/2012 and 5/21/21.
- Pelvic cancers diagnosis included cancers of the sacrum, genitals, perineum, ovaries, cervix, uterus, bladder, anus, urethra, rectum, and colon using ICD-9 and ICD-10 diagnosis codes.
- We identified 42 patients with pelvic cancer who completed a Ganglion Impar, Pudendal Nerve,Ilioypogastric/ilioinguinal, Transverse abdominis plane (TAP), Superior hypogastric or Genito-Femoral Nerve block for cancer-related pain during that time.
- Exclusion criteria included local anesthetic-only injections, blocks which were not performed for cancer-related pain, and patients who expired within 3 months of the procedure.
- Patients were assessed for opioid usage in morphine equivalents 3 months prior to and 3 months following the procedure. Additionally, we evaluated the self-reported Visual analog scale (VAS) from 0 being no pain and 10 being severe pain.
- We collected demographic information including age, ethnicity, gender and primary diagnosis code (type of cancer). Regarding statistical analysis, the degree to which opioid use changes from pre-block to post-block was analyzed using a non-parametric Wilcoxon Signed Rank Test. We then used a nonparametric Kruskal Wallace analysis to determine which blocks were most effective at reducing pain.

Above Median Age	N	Level	Median	IQR	P-Value
No	20	VAS Pre-Block VAS Post-Block	7.00 4.00	3.00 6.00	< 0.0001
Yes	20	VAS Pre-Block VAS Post-Block	8.00 1.00	4.00 5.00	< 0.0001
Gender	N	Level	Median	IQR	P-Value
Female	23	VAS Pre-Block VAS Post-Block	8.00 4.00	4.00 6.00	< 0.0001
Male	17	VAS Pre-Block VAS Post-Block	8.00 2.00	3.00 5.00	< 0.0001
Ethnicity	N	Level	Median	IQR	P-Value
African American	10	VAS Pre-Block VAS Post-Block	7.50 3.50	5.00 5.00	0.0078
White	29	VAS Pre-Block VAS Post-Block	8.00 2.00	4.00 6.00	< 0.0001

Above Median Age	N	Level	Median	IQR	P-Value
No	20	Opioid Pre-Block Opioid Post-Block	150.00 217.50	520.00 427.50	0.2439
Yes	20	Opioid Pre-Block Opioid Post-Block	30.00 30.00	55.00 3.75	0.2148
Gender	N	Level	Median	IQR	P-Value
Female	23	Opioid Pre-Block Opioid Post-Block	75.00 106.00	280.00 295.00	0.5016
Male	17	Opioid Pre-Block Opioid Post-Block	20.00 55.00	72.00 45.00	0.7734
Ethnicity	N	Level	Median	IQR	P-Value
African American	10	Opioid Pre-Block Opioid Post-Block	52.80 45.60	90.00 264.00	0.8125
White	29	Opioid Pre-Block Opioid Post-Block	50.00 60.00	235.00 230.00	0.6525

Discussion

- The transversus abdominis plane (TAP) block targets the anterior divisions of spinal nerves T7 to L1 at the plane between the internal oblique muscle and the transversus abdominis muscle
 - Different approaches (lateral and oblique subcostal) can add additional coverage to various portions of the abdomen
- TAP blocks have been long used for post-operative pain for gynecological procedures
- While there is significant evidence that demonstrates the efficacy of TAP blocks in the treatment of acute pain management, there is limited research revolving around their use in the treatment of chronic pain.
- Strategies to prolong pain coverage
 - Continuous infusion from catheter
 - Phenol, alcohol, and liposomal formulations of local anesthetics ^{3,4,5}
 - Phenol neurolysis – 45 days ¹
 - Alcohol neurolysis – 17 days to 6 months ¹

Conclusions

- This study demonstrated a statistically significant decrease in verbal assessment scores with the addition of TAP blocks in the management of pelvic cancer-related pain.
- Our results are consistent with other studies which recommend the expansion of their indications to include patients with pelvic cancer related pain.
- This study may contribute to future meta-analyses to yield more powerful studies; and has important implications leading to the advancement of comprehensive cancer pain care.
- Limitations of this study include its small sample size and low power. Additional limitations are related to the retrospective nature of the study due to its reliance on accurate reporting and diagnosis codes assigned to patients with pelvic cancer – which may result in underreported data or missed patients.
- Based on our observations, we recommend specialty consultation when approaching the treatment of pelvic cancer related pain.
- Overall, TAP blocks are an effective treatment option to help alleviate suffering and to improve the quality of life in patients with pelvic cancer.

References

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