



ORIGINAL ARTICLE

# Management of post-operative pain in patients undergoing abdominal hysterectomy, is the transversus abdominis block a reliable option?

Ashok Perchani<sup>1</sup>, Hamid Raza<sup>2</sup>, Ahmeduddin Soomro<sup>3</sup>, Maqsood Ahmed Siddiqui<sup>4</sup>, Kamlesh<sup>5</sup>, Safia Maqsood Siddiqui<sup>6</sup>

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**ABSTRACT... Objective:** To determine the efficacy of transverse abdominal block for patients undergoing abdominal hysterectomy. **Study Design:** Randomized Controlled Study. **Setting:** Ghulam Muhammad Mahar Medical College Hospital, Sukkur. **Period:** September 2018 to September 2019. **Material & Methods:** Included all females above the age of 18 years who were scheduled for abdominal hysterectomy. We excluded all the patients who have had a abdominal hysterectomy before, had malignancy, and had a hospital stay of less than 24 hours. All the patients receiving transverse abdominal pain block, had received an ultrasound guided block after the hysterectomy procedure, and was given 20 cc to 60 cc of 0.25% Bupivacaine, while the non-TAP group received standard narcotics as required. **Results:** We included a total of n= 66 patients, the mean age of the patients was found to be 47 +/- 8 years. There were no statistically significant differences in the two groups based on the patients age, length of hospital stay, time spent in the recovery room, and time duration of the surgical procedure. The average consumption of narcotics was lower during the procedure, at 24 hours after the procedure, and the length of hospital stay was also low for the TAP group, however these were not statistically significant findings, the p values were 0.419, 0.533 and 0.754 respectively. Overall narcotic use and patient controlled analgesia also showed no statistically significant differences in the two groups, the p values were 0.252 and 0.669. The numeric pain rating scale also did not show any significant differences between the two groups. **Conclusion:** Transverse abdominal pain block failed to lower the narcotics requirement and failed to be a superior analgesic in patients undergoing abdominal hysterectomy.

**Key words:** Anesthesia, Abdominal Hysterectomy, Transverse Abdominal Pain Block.

## INTRODUCTION

Patients undergoing abdominal hysterectomy has significant amounts of pain, and transverse abdominal incisions can cause significant pain in the first 48 hours post procedure. This impacts the patients healing and outcomes.<sup>1,2</sup> Gynecologists have used narcotics for pain management however there are some side effects such as nausea, sedation and pruritis among others.<sup>1,3,4</sup> Scientists have been exploring other methods of pain management for hysterectomy patients. Transversus abdominal pain block uses a regional anesthetic technique with local anesthetics injected into the 'Triangle of Petit'.<sup>5,6</sup> This technique blocks the nerves in the anterolateral abdominal wall at the T6 to L1 levels.<sup>7</sup> It has shown to be effective pain management for laparoscopic

surgeries and other abdominal surgeries.<sup>8,9</sup> Recent studies have found mixed results with transverse abdominal block especially during gynecological procedures.<sup>10,11</sup> Hence the aim of our study is to compare transverse abdominal block with post-operative analgesia, for patients undergoing abdominal hysterectomy procedure at our single large tertiary health care center in Karachi, Pakistan.

## MATERIAL & METHODS

We conducted a randomized controlled trial for one-year duration from September 2018 to September 2019, at Ghulam Muhammad Mahar Medical College Hospital, Sukkur. The ethics approval was provided by the hospital's ethics review committee (MS/GMCHS/SUKKUR/8889),

1. MBBS, FCPS, MCPS, Assistant Professor Anesthesiology & Surgical ICU & Pain Management, Dow University of Health Sciences, Karachi.
2. MBBS, FCPS, MCPS, Associate Professor Anesthesiology & Surgical ICU, Liaquat University of Medical and Health Sciences, Jamshoro Hyderabad.
3. MBBS, FCPS, MCPS, Associate Professor Anesthesiology and Surgical ICU, CMC Hospital, Larkana.
4. MBBS, FCPS, MCPS, M.Sc Pain Medicine, Assistant Professor Anesthesiology & Surgical ICU & Pain Management, Ghulam Muhammad Mahar Medical College Hospital, Sukkur.
5. MBBS, MCPS, Senior Anesthetist Anesthesiology & Surgical ICU & Pain Management, Civil Hospital Karachi.
6. MBBS, FCPS, Chairperson and Head of Department Obstetrics and Gynecology, Ghulam Muhammad Mahar Medical College Hospital, Sukkur.

### Correspondence Address:

Dr. Hamid Raza  
Department of Anesthesiology & Surgical ICU  
Liaquat University of Medical and  
Health Sciences, Jamshoro Hyderabad.  
drhamidraza1@gmail.com

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and all the patients signed a full informed consent to partake in our trial. We included all females above the age of 18 years who presented to us with certain signs and symptoms of diseases where abdominal hysterectomy was considered to be the treatment of choice. We excluded all the patients who have had a abdominal hysterectomy before, had malignancy requiring hysterectomy, and had a hospital stay of less than 24 hours.

All the patients receiving transverse abdominal pain block, had received an ultrasound guided block after the hysterectomy procedure, and was given 20 ml to 60 ml of 0.25% Bupivacaine, while the non-TAP group received standard narcotics as required. Emergency analgesics were always ready at hand to be administered if the patient reported very high levels of pain. We collected data around the various demographic variables along with various clinical parameters such as length of hospital stay among others. Numeric pain rating scale was used to measure the subjective levels of pain. Objective levels of pain were assessed by looking at the total narcotic consumption. These values were measured during surgery, immediately afterwards, at first post-operative day and every day that the patient stays at the hospital till discharge. A two-tailed T test to analyze the data where appropriate, similarly means and standard deviations were used for continuous data and frequency and percentages were used for categorical variables. Data was analyzed using IBM SPSS package

version 24.0 for windows and a p value of 0.05 was considered as statistically significant.

## RESULTS

We included a total of n= 66 patients in our study who fit our inclusion and exclusion criteria. Half the patients received TAP block and the other half received the standard pain management protocol. The mean age of the patients was found to be 47 +/- 8 years. There were no statistically significant differences when it comes to comparing the two groups based on the patients age, length of hospital stay, time spent in the recovery room, and time duration of the surgical procedure, see Table-I.

The amount of narcotics that were consumed in the transverse abdominal block group was less than the amount used in the non-TAP group, having a p value of 0.012 respectively. The average consumption of narcotics was lower during the procedure, at 24 hours after the procedure, and the length of hospital stay was also low for the TAP group, however these were not statistically significant findings, the p values were 0.419, 0.533 and 0.754 respectively. Overall narcotic use and patient controlled analgesia also showed no statistically significant differences in the two groups, the p values were 0.252 and 0.669. The numeric pain rating scale also did not show any significant differences between the two groups, the mean NPRS scores are given in Table-I.

Variable	Transverse Abdominal Pain Block, n= 33	Normal Analgesic Use, n= 33	P-Value
Age in years	49 +/- 10	45 +/- 6	0.035
Body Mass Index (BMI)	31.21 +/- 6.10	29.85 +/- 5.61	0.331
Length of stay in the hospital in days	2.86 +/- 1.30	2.61 +/- 0.75	0.335
Time spent in recovery room in mins	114.20 +/- 6.80	151.31 +/- 51.85	0.535
Time duration of surgery in mins	115.39 +/- 46.20	120 +/- 53.70	0.715
<b>Numeric Pain Rating Scale (NPRS) at various time intervals post-operatively</b>			
2 hour	2.38	3.19	0.173
4 hour	1.84	2.4	0.345
8 hour	2.406	2.39	0.976
12 hour	2.09	3.29	0.110
16 hour	2.47	2.77	0.630
20 hour	2.25	3.1	0.133
24 hour	3.38	2.74	0.298

**Table-I. Patient characteristics and other variables for the study population of n= 65 patients.**

## DISCUSSION

According to our observations the transverse abdominal pain block did not show any superiority in controlling the post-operative abdominal hysterectomy pain. We did observe a change in the amount of narcotics consumed in the recovery room for TAP group, but this was only during the recovery period and could be due to the fact that the TAP blocks were administered right after the surgical procedure. This is attributed to the short duration of action of bupivacaine, the marginal reduction in consumption of narcotics does not translate well into clinical practice and does not seem to affect long term patient outcomes for the target population. Anesthesiologists can tweak the TAP procedure to achieve better efficacy, one such technique is to use a longer acting analgesic such as the likes of liposomal bupivacaine as compared to the regular bupivacaine.<sup>13</sup> Using continuous administration devices such as a catheter can prolong the action of bupivacaine as well, Becal et al also propose administering the block prior to the procedure and then immediately after the procedure to achieve better outcomes.<sup>14,15,16</sup>

We also failed to show any improvement as per the numeric pain rating scores with using TAP block over the traditional analgesia, for the first post-operative day. According to De Oliveira et al patients who experience pain tend to use higher doses of analgesia which brings the pain scores down, when the analgesia is patient controlled.<sup>8</sup> There could be some confounding variables such as patient's age and associated co-morbidities that might result in minor discrepancies in the data, which was observed in our results as well. Where initially the NPRS was lower for TAP group but equalized as time went on.

Carney et al reported a significantly less use of morphine in patients undergoing transverse abdominal pain block, however other scientists have failed to duplicate the results, raising questions on the results of the study.<sup>10,11,17</sup> Our results also did not support their findings. Other disputes regarding the efficacy of the TAP block are centered around its administration with ultrasonic guidance versus operative site

injection, but these results too are questionable.<sup>18</sup> One possible explanation could be anatomical variations in the patients which can limit the spread of the anesthetic. Similarly, it is shown that TAP is more effective at controlling parietal pain as compared to visceral pain.<sup>19,20</sup> There were some limitations to our study, first our sample size is quite small and the study is from a single center, where the same anesthesiologists administered the drugs. We also did not measure the ASA scores of the patients.

## CONCLUSION

Transverse abdominal pain block failed to lower the narcotics requirement and failed to be a superior analgesic in patients undergoing abdominal hysterectomy.


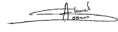



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### AUTHORSHIP AND CONTRIBUTION DECLARATION

No.	Author(s) Full Name	Contribution to the paper	Author(s) Signature
1	Ashok Perchani	Conceptualization, Write up, Data collection, Literature review, Proof reading.	
2	Hamid Raza	Conceptualization, Write up, Literature review, Proof reading, Corresponding Author.	
3	Ahmeduddin Soomro	Literature review, Write up, Analysis, Proof reading.	
4	Maqsood Ahmed Siddiqui	Write up, Analysis, Literature review.	
5	Kamlesh	Data collection, Write up, Analysis, Literature review.	
6	Safia Maqsood Siddiqui	Write up, analysis, literature review.	