

## Original Research Article

# A comparative study of postoperative analgesic efficacy between TAP block with wound infiltration in open gynaecological surgeries

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### ABSTRACT

**Background:** Gynaecological surgeries are performed by abdominal incision is common and post-operative pain and discomfort is always anticipated. TAP block is a regional anaesthetic technique which blocks the abdominal neural afferents by administering local anaesthetic drugs into the neuro-fascial plane. The other method for postoperative analgesia is surgical wound infiltration with local anaesthetic drugs. The aim of this study was to evaluate the post-operative analgesic efficacy of TAP block versus wound infiltration in gynaecological surgeries.

**Methods:** The study was a prospective randomized study conducted on patients undergoing open gynaecological surgeries, conducted at the Government medical college and ESI hospital, Coimbatore. The study was initiated after obtaining an ethical clearance from the institution. Group A: patients who underwent bilateral TAP block with 0.3 ml/kg 0.25% Bupivacaine on each side. Group B: patients who received wound infiltration of 0.25% Bupivacaine 0.6ml/kg.

**Results:** TAP block provided superior analgesic effect than the surgical site infiltration group, without significant changes in the hemodynamic parameters. The duration of analgesia was longer and the need of Tramadol in the postoperative period was found to be lesser in the TAP block group as compared to wound infiltration group.

**Conclusions:** The TAP block is an effective and safe technique for postoperative analgesia for gynaecological surgeries than compared to the surgical wound infiltration. The requirement of Tramadol as a postoperative analgesia was less with TAP block compared to surgical wound infiltration.

**Keywords:** Post-operative analgesia, Transversus abdominis plane block

### INTRODUCTION

Acute pain is defined as an unpleasant sensory and affective experience normally associated with potential tissue damage. The relief of pain from suffering is the primary concern of mankind. It arises from activation of the peripheral nervous system and emerges from complex higher-level processing. Postoperative pain is the most common problem which gives the patients an unpleasant experiences and hemodynamic stress responses. Poorly controlled pain is associated with unwanted post-

operative consequences like patient suffering, distress, confusion, respiratory and heart problems, prolonged hospital stays, and expenditures. Provision of adequate postoperative analgesia reduces the neuro-endocrine stress response, postoperative respiratory complications and the incidence of myocardial ischemia can be minimized. TAP block is a regional anaesthetic technique which blocks the abdominal neural afferents by introducing local anaesthetic into the neuro-fascial plane between the internal oblique and the transversus abdominis muscle.<sup>1</sup>

Local anaesthetic infiltration along the surgical wounds through subcutaneous planes also provides adequate analgesia without much of side effects. Both these techniques reduce the post-operative need of opioids and other side effects. The aim of our study was to compare the analgesic efficacy of two methods of delivering local anaesthetic agent, 0.25% Bupivacaine i.e., infiltration in the transversus abdominis plane and surgical site wound infiltration in patients undergoing open gynaecological surgeries.<sup>2</sup> The primary objective of this study was to assess the post-operative pain relief in patients, who receives TAP block and the local anaesthetic wound infiltration, with 0.25% bupivacaine, following open gynaecological surgeries, using visual analogue scale at rest and on movement. The secondary objectives of this study were

- To assess the requirement of Tramadol in the post-operative period,
- To assess the sedation score,
- To assess the incidence of side effects.

## METHODS

The study was a prospective randomized study conducted on patients undergoing open gynaecological procedures, conducted in the department of gynaecology and anaesthesia in Government Medical College and ESI Hospital, Coimbatore. The randomization was done by using closed envelope method and the duration of study was seven months from November 2016, to May 2017. Sixty cases who met a pre-defined inclusion and exclusion criteria were chosen for the study. The distribution of cases as follows.

TAP is a regional block and simple technique, can be done blindly via the lumbar triangle of Petit.<sup>3</sup> The Triangle of Petit is superior to the iliac crest, between the latissimus dorsi and external abdominal oblique muscle.<sup>4</sup> A pop is felt when pass the blunted needle through the fascial layer of the transversus abdominis muscle and internal oblique muscle the local anaesthetic is blindly deposited in this plane.

**Table 1: Distribution of cases.**

Group	Age	Weight
Tap block	44.46	56.93
Surgical site infiltration	46.23	58

The other method with ultrasound image guidance.<sup>5</sup> Several studies have been published where the analgesic use of TAP block gives improvement in pain scores and reduces Tramadol requirements. Most of the studies compared the TAP block with placebo. Here we compared the TAP block with local anaesthesia infiltration, although both take care of the incision pain. TAP block acts only on the nerves supplying the anterior abdominal wall and thereby reduces parietal component of pain. The complications of TAP block were intravascular entry of local anaesthetic drugs, liver injury and local anaesthetic toxicity.<sup>6</sup> In our study we evaluated the postoperative analgesic efficacy of TAP block versus wound infiltration with local anaesthetic agent in patients undergoing open gynaecological procedures with the primary objective of this study to assess the post-operative pain relief in patients, using visual analogue scale at rest and on movement.<sup>7</sup>

## RESULTS

**Table 2: VAS score on rest.**

Group A	Vas score	30 min	2hr	4hr	6hr	12hr	24hr
	0	27	23	0	0	0	0
	1	1	3	0	0	0	0
	2	1	1	6	0	0	0
	3	0	2	10	4	2	6
	4	1	0	4	15	12	15
	5	0	1	5	4	16	4
	6	0	0	2	2	0	4
	7	0	0	2	3	0	1
	8	0	0	1	2	0	0
	9	0	0	0	0	0	0
	10	0	0	0	0	0	0
<b>Group B</b>							
	0	0	8	0	0	0	0
	1	0	5	0	0	0	0
	2	0	6	0	0	0	0
	3	0	9	4	0	3	4
	4	0	1	7	6	18	5
	5	0	1	17	10	4	16
	6	0	0	2	12	4	5
	7	0	0	0	2	1	0
	8	0	0	0	0	0	0
	9	0	0	0	0	0	0
	10	0	0	0	0	0	0
	P value	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05

TAP block provided superior analgesic effect, without significant differences in the hemodynamic but the duration of analgesia was better in the TAP block.<sup>8</sup>

The duration of analgesia due to block as indicated by the need for rescue analgesia, the duration was significantly

higher in the TAP block group as compared to the surgical site infiltration group. The requirement of opioid, Tramadol was lesser (3.5%) in the TAP block group than the surgical site infiltration group (20%). In our study there was no difference in the sedation scores between the two groups.

**Table 3: Mean VAS score on movement.**

Mean vas score on movement	30 min	2hrs	4hrs	6hrs	12hrs	24hrs
Group b	0	2.53	5.97	6.51	5.37	4.9
Group a	0.1	0.53	0.87	6.67	5.43	5.10
P value	0.98	<0.05	<0.05	<0.05	<0.05	<0.05

## DISCUSSION

We conducted a study on the postoperative analgesic efficacy of TAP block versus wound infiltration with local anaesthetic agent in patients undergoing open gynaecological surgeries.<sup>9</sup>

- TAP block with 0.25% Bupivacaine provided superior analgesic effect than the surgical site infiltration, without significant differences in the hemodynamic parameters.
- The duration of analgesia was longer in the patients with TAP block than in patients who received surgical wound infiltration.
- The requirement of Tramadol in 24hrs postoperative period was lesser in the patients with the TAP block for postoperative analgesia.
- There was no significant difference between the incidences of sedation.
- The side effects like nausea and vomiting was noted in 3.0 % of patients who received surgical wound infiltration.
- In TAP block group a failure rate of 5% was noted.

## CONCLUSION

The TAP block is more effective and safe technique for postoperative analgesia for lower abdominal gynaecological surgeries, compared to the surgical wound infiltration.<sup>10</sup> The need of Tramadol in the postoperative period is less in patients receiving TAP block.

However, there was no significant difference between the sedation score and the side effects. The procedural simplicity of this block, along with reliable level of analgesia, longer duration as well as good quality of analgesia, with lesser opioid requirement and their side-effects makes the TAP block a good option for lower abdominal gynaecological surgeries.

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