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Comparison of the effect of transversus abdominis plane block or conventional analgesia on pain scores, patient satisfaction and incidence of chronic pelvic pain after total abdominal hysterectomy.

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Introduction

The control of postoperative pain for patients undergoing major gynaecological surgery is a critical component of perioperative management. The majority of patients receive a multimodal approach to pain relief, often involving large amounts of opiates, which may cause significant side effects[1]. Patients undergoing gynaecological procedures are also at higher risk of persistent postsurgical pain, with an incidence of up to 32% described in some studies[2].

The use of transversus abdominis plane block (TAPB) in abdominal surgery has been shown to reduce postoperative pain scores and morphine usage in a number of patient groups[3]. This study aims to determine the efficacy of TAPB in patients undergoing total abdominal hysterectomy and its potential effect on chronic postoperative pain.

Methods

Thirty adult patients were included in this double-blinded, single-centre, randomised controlled trial. Patients were randomly allocated to one of the two treatment groups to receive either a transversus abdominis plane block (TAPB) or a "sham" injection. A Short Form McGill Pain Questionnaire (MPQ) describing any preexisting pain in the preoperative period was completed by all participants.

Anaesthesia was induced in a standard manner with fentanyl 1-2µg/kg, propofol 2.0-2.5mg/kg & rocuronium 0.6mg/kg and maintained with sevoflurane in an oxygen/air mixture. Patients then received either bilateral TAPB (landmark technique) with 1mg/kg 0.375% levobupivacaine or subcutaneous infiltration of 1ml 0.375% levobupivacaine to the same areas.

All patients received morphine sulphate 0.1 mg/kg, paracetamol 1g iv and ondansetron 4mg. A standard postoperative analgesia regimen was employed in all patients comprising patient controlled analgesia with morphine (1mg bolus, 5 minute lockout) and regular paracetamol (1g, 6 hourly). No assessment of block height was performed in order to maintain blinding.

Postoperative assessment was carried out in the PACU and at 4, 24 & 48 hours after surgery. Pain scores were assessed using a visual analogue scale (VAS) at both rest & movement along with morphine consumption, incidence of nausea or other complications. A short patient satisfaction questionnaire was completed after 48 hrs & a further MPQ after 12 weeks.

Independent t-testing was applied to test the statistical significance of the parametric data and non-parametric data assessed with Mann Whitney U testing.

Results

29 patients completed the study with one withdrawn from analysis after declining to continue with the study process after randomisation but before surgery. We were unable to recruit as many patients as planned due to a change in surgical technique in our unit.

There were no significant differences between either groups in either age or weight (Table 1).

	TAPB + PCA (n=16)	PCA Only (n=13)
Age (years)	46 (7.13)	45 (7.22)
Weight (kg)	77.2 (16.80)	75.6 (13.46)
ASA (I/II)	3/13	6/7

Table 1: Demographic data of patients randomised to receive TAP or sham block. Data are Mean (SD) or number

There was no significant difference in the mean intraoperative dose of morphine administered with patients in the TAPB group receiving a mean dose of 7.7mg (SD 1.68 mg) and the PCA only group 7.6mg (SD 1.35 mg) (p=0.79). Pain scores and morphine consumption were similar in both groups. (Table 2).

Overall patient satisfaction was high in both groups the TAPB group having a mean satisfaction score of 82% and in the PCA only group 86% (p=0.25). In patients whose satisfaction score was lower (< 75% n=3) the main issues were those of lack of support from nursing staff or family, nausea and a feeling of loss of control.

The average MPQ score in the preoperative period was 15 (SD 8.97), out of a maximum score of 42.

Time Post Procedure	4 Hours			24 Hours			48 Hours		
	TAPB + PCA	PCA Only	p value	TAPB + PCA	PCA Only	p value	TAPB + PCA	PCA Only	p value
VAS (Rest)	5.6 (1.71)	5.0 (2.54)	0.51	4.4 (2.55)	4.3 (2.63)	0.92	3.1 (1.64)	2.7 (1.65)	0.59
VAS (Movement)	7.2 (2.05)	6.8 (2.27)	0.61	7.0 (1.86)	6.9 (1.73)	0.86	5.3 (2.28)	6.15 (1.70)	0.28
Cumulative PCA Morphine Consumption (mg)	15.9 (8.78)	15.9 (6.42)	0.99	50.9 (21.52)	44.2 (15.74)	0.36	65.4 (26.24)	72.5 (39.84)	0.57

Table 2: Postoperative VAS pain scores and morphine consumption in patients following total abdominal hysterectomy randomized to receive TAP or sham block. Data are Mean (SD)

18 patients returned their postoperative questionnaire with a mean postoperative score of 7 (SD 6.01). 28% of patients in total had a increase in postoperative pain in comparison to their preoperative assessment but there was no significant difference between pre and postoperative MPQ scores in the two groups (p=0.68).

Discussion

This study demonstrated no significant difference in postoperative pain scores or morphine consumption in patients undergoing total abdominal hysterectomy with TAPB or sham block. Despite the small sample size, this data is in keeping with other studies in similar patient groups and further questions the usefulness of TAPB in patients undergoing lower abdominal surgery – both gynaecological or for caesarean section[4].

The incidence of chronic postoperative pain of 28% is similar to previous studies and demonstrates a significant cause of postoperative morbidity. Further studies are planned in order to determine if anaesthesia technique may reduce the incidence of chronic postoperative pain in this patient group.

References

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