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NEÜ YAYINEVİ

The Efficacy of Interfacial Plan Block Procedures on Postoperative Satisfaction of Surgeons: A Survey Study

İnterfasiyal Plan Blok Uygulamalarının Cerrahların Postoperatif Memnuniyeti Üzerindeki Etkisi: Anket Çalışması

Selcuk Alver[1]

[1]*Istanbul Medipol University, Department of Anesthesiology and Reanimation, Istanbul, Turkey*

Address correspondence to: Selcuk Alver, Istanbul Medipol University, Department of Anesthesiology and Reanimation, Istanbul, Turkey
e-mail: selcukalver@yahoo.com

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Öz

Amaç: İnterfasiyal plan blokları (İFPB) postoperatif dönemde multimodal analjezinin bir parçası olarak kullanılabilir. İFPB'nin postoperatif dönemde analjezik etkinliği, hastaların ve cerrahların memnuniyetini artırabilir. Anket çalışmaları anesteziyoloji araştırmalarında uzun yıllardır kullanılmaktadır Bu anket çalışmasında cerrahi ekibin memnuniyet düzeyini araştırmayı amaçladık
Gereçler ve Yöntem: Çalışma 1 Mayıs 2023 ve 31 Mayıs 2023 tarihleri arasında gerçekleştirildi. Anketimiz 450 uygulayıcıya telefon veya e-posta yoluyla gönderildi ve 30 gün içinde alınan yanıtlar çalışmaya dahil edildi. Yirmi yedi uygulayıcı anketi tamamlayamadığı için çalışma dışı bırakıldı.
Bulgular: 423 anketin cevapları geçerli cevaplar kabul edildi. Katılımcılara İFPB hakkında bilgileri soruldu ve cevaplar şu şekildeydi: 393'ünün İFPB hakkında bilgi sahibiydi. (%92,9). 360 katılımcı İFPB'nin, işlemin postoperatif analjezik tüketimini azalttığını (%85,1) bildirdi. 338 katılımcı İFPB'nin hasta takiplerine katkıda bulunduğunu bildirdi. (%80).
Sonuç: Bulgularımız cerrahi ekibin memnuniyet düzeyinin yüksek olduğunu ve cerrahların ameliyat olan hastaları için İFPB yapmak için anesteziden talepte bulunduklarını göstermektedir.

Anahtar Kelimeler: Postoperatif ağrı, interfasiyal plan blokları, memnuniyet, cerrahlar, anket çalışması

Abstract

Aim: Interfascial plane blocks (IFPB) can be used as part of multimodal analgesia in the postoperative period. The analgesic efficacy in the postoperative period of IFPB may increase the satisfaction of patients and surgeons. Survey studies have been used for many years in anesthesiology research. In this survey study, we aimed to investigate the satisfaction level of the surgical team.
Materials and Methods: The study was carried out between 1 May 2023 and 31 May 2023. Our survey was sent to 450 practitioners via telephone or email, and responses received within 30 days were included in the study. Twenty seven practitioners had not completed the questionnaire.
Results: 423 answers from practitioners were considered to be valid responses. Participants were asked knowledge about IFPB, and answering as follows: 393 have heard about IFPB (92,9%). 360 participants reported that the IFPB, procedure reduced postoperative analgesic consumption (85,1%). 338 participants reported that the IFPB, procedure contributed to their patient follow-ups (80%).
Conclusion: Our results show that the satisfaction level of the surgical team is high and the surgeons request from anesthesia to perform IFPB for their patients who underwent surgery.

Keywords: Postoperative pain, interfascial plane blocks, satisfaction, surgeons, survey study

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INTRODUCTION

Postoperative pain is acute pain and it is occurred by the inflammatory process due to surgical trauma and decreases with the tissue healing. Pain in the postoperative period is a serious problem that reduces patient comfort and delays the patient's return to work after surgery (1). Inadequate treatment of pain leads to complications such as respiratory depression, delayed mobilization, and prolonged hospital stays. Successful postoperative analgesia prevents these undesirable effects (2).

Thanks to the use of ultrasound (US) in regional anesthesia applications, the popularity and usage of interfascial plane blocks (IFPB) have increased nowadays (3). The clinicians can perform several IFPBs from the thoracic wall to the back according to the surgical area. Anterior and lateral thoracic wall blocks (pectoral blocks, and serratus anterior plane block), posterior abdominal wall and thoracolumbar plane blocks (quadratus lumborum block – QLB, thoracolumbar interfacial plane block – TLIP), and peri-paravertebral blocks (erector spinae plane block – ESPB, rhomboid intercostal block - RIB) have been commonly used and many papers have been published about the analgesic efficacy of them (4,5,6,7).

Interfascial plane blocks (IFPB) can be used as part of multimodal analgesia in the postoperative period. The use of IFPB is simple and safe due to the US-guidance (8). Clinicians can use IFPB as the sole anesthetic method in high-risk patients (9). Since the effective analgesic efficacy, IFPB may be an opioid-sparing strategy. Simple visualizing of the sonoanatomy and the spread of the local anesthetic under US-guidance are the most important factors in the widespread use of IFPB (7,8). The analgesic efficacy in the postoperative period of IFPB may increase the satisfaction of patients and surgeons (10-13). Survey studies have been used for many years in anesthesiology research. There is no survey study that evaluates the level of surgical satisfaction with the IFPB in the literature.

In this survey study, we aimed to investigate the satisfaction of surgical teams in terms of IFPB applications in surgical clinics in Turkey. We objectively evaluated the advantages and disadvantages of IFPB, and for which operations IFPB is mostly used.

MATERIALS AND METHODS

Compliance with Ethical Standards

Approval was obtained from Istanbul Medipol University Ethics and Research Committee for this survey study (13.04.2023, Decision no: 371).

Study Design

After ethical approval, the survey questions were prepared by considering the IFPB that is commonly performed by anesthesiologists. The study is a cross-sectional type study and a questionnaire form created electronically (Google Forms) was used to collect data. In order to determine the study universe prior to the dissemination of the questionnaire, anesthesiologists who routinely applied the fascial plane block in their clinical practices were reached with the help of the Regional Anesthesia Society. Afterward, the questionnaire form was sent to the surgeons they worked with via e-mail and WhatsApp. Questions were directed to the participants between 1 May and 31 May 2023. An informative letter about the purpose and nature of the survey is given to the participants in the introduction of the questionnaire. A total of 21 questions were asked of the participants in the survey. A total of 450 surgeons were delivered a questionnaire and the data obtained from the questionnaire forms of 423 participants who completed the questionnaires completely within the specified date range were analyzed.

We prepared the questions according to the most commonly performed surgeries in Turkey. The survey includes 21 questions. We prepared the questions according to the following issues; information and consent, fear-anxiety, pain score, complications, disturbed behavior, trust, willingness to be applied again, and satisfaction criteria. The questions were determined by the consensus of the authors (8,10,11).

The Inclusion Criteria

Surgeons who perform surgery actively were included in the study.

The Exclusion Criteria

Answering the survey questions incompletely and not desiring to participate in the study were determined to be exclusion criteria.

Questions about neuraxial and peripheral nerve blocks were excluded.

Survey Questions Content

There are no limitations in terms of age and education status in the survey questions. The participants were asked to detail the working duration of the surgical service and the departments they most commonly worked in the surgical branch. In addition, they were questioned about IFPB procedures, at which stage of their procedures they want IFPB (preemptive or postoperative), the advantages and disadvantages

of IFPB, and unwanted applications in the procedures. The surgical team was also questioned about the contribution of IFPB procedures to patient follow-up and recovery in the postoperative period. Thus, at which stages of the operation the IFPB is used and the advantages and disadvantages of this application in operations have been determined. The survey questions are detailed in (Table 1).

Statistical Analyses

The pooled data were evaluated using the SPSS 22.0 statistical program (IBM Corp., Armonk, NY, USA). Frequency distributions were calculated and presented as numbers and percentages.

RESULTS

Our survey was sent to 450 practitioners via telephone or email, and responses received within 30 days were included in the study. Because it was determined that 27 practitioners had not completed the questionnaire, 423 answers were considered to be valid responses.

There were 283 male (66,9%) and 140 female participants. The experience range of 25,5% of the participants was under 5 years, making up a majority of participants in our survey. Among the practitioners, 51 were professors (12.1%), 96 were associate professors (22,7%), 66 were assistant professors (15,6%), 102 were specialist doctors (24,1%), and 108 were resident doctors (25,5%). Also among the practitioners, 108 were general surgeons (25,5%), 63 were neurosurgeons (14,8%), 48 were gynecology and obstetrics surgeons (11,4%), 82 were orthopedics and traumatology surgeons (19,3%), 60 were thoracic surgeons (14,1%), 17 were plastic and reconstructive surgeons (4%), 45 were cardiovascular surgeons (10,6%). In addition, 245 general practitioners were affiliated with university hospitals (57.9%), 162 were affiliated with tertiary hospitals (38.3%), and 16 were affiliated with secondary level hospitals (Table 2).

Participants were asked about their knowledge of IFPB and answered as follows: 393 of them have heard about IFPB (92,9%) and 30 had never (7,1%). 378 of the participants are performing IFPB currently in their hospitals (89.3%), 25 of them are not performing IFPB currently in their hospitals (5,9%) meanwhile 20 of them had no idea about performing IFPB currently in their hospital (4,7%). 326 participants would like their patients to have facial plane blocks routinely done (77%), 39 participants would not like their patients to have facial plane blocks routinely done (9,2%) and 58 of them had no idea (13,7%). 333 participants were given sufficient information about IFPB by the practitioner (78,7%), 39 participants weren't given sufficient information about IFPB by the practitioner (9,2%), and 51 of them had no idea (12,1%) (Table 3).

Participants were asked about the clinical impact, follow-up, satisfaction, complications, and disruptive behaviors related to IFPB and responded as follows: 360 participants reported that the IFPB procedure

Table 1. Survey questions

QUESTIONS
Gender?
Education Status?
Total length of professional service?
What is your specialty?
The organization/affiliation you are currently working for?
Do you know what IFPB is / Have you ever heard about IFPB? (Anesthesia information)
Is IFPB performed to your patients currently in your hospital? (Anesthesia information)
Would you like your patients to have facial plane blocks routinely done? (Satisfied)
Has sufficient information been provided by the practitioner about the IFPB? (Information)
Which of your cases need IFPB the most? (Anesthesia information)
Have IFPB procedure reduced the postoperative analgesic consumption? (Satisfaction)
Have the IFPB procedure contributed to your patient follow-ups? (Satisfaction)
Have you ever been asked if your patient suffers from pain while in the postoperative recovery room after the IFPB? (Satisfaction)
Do you have any worries about IFPB before the procedure? (Worry-anxiety)
Were there any applications that you were worried about during the IFPB procedure? (Disruptive behavior)
Do you trust the anesthesia team during the IFPB procedure? (Trust)
Were there any complications after the IFPB procedure? (Complication)
If you had surgery, would you like to be performed IFPB to yourself? (Request)
When do you prefer the IFPB procedure?
What are the disadvantages of IFPB procedure?
What are the advantages of IFPB procedure?

Table 2. Demographic Data

n:423		n	%
Gender	Male	283	66,9%
	Female	140	33,1%
Title	Resident	108	25,5%
	Specialist	102	24,1%
	Assistant professor	66	15,6%
	Associate professor	96	22,7%
	Professor	51	12,1%
Experience (year)	<5	108	25,5%
	6-10	72	17%
	11-15	99	23,4%
	16-20	84	19,8%
	>21	60	14,1%
Specialty	General Surgery	108	25,5%
	Neurosurgery	63	14,8%
	Gynecology and Obstetrics	48	11,4%
	Orthopedics and traumatology	82	19,3%
	Thoracic Surgery	60	14,1%
	Plastic and reconstructive surgery	17	%4
	Cardiovascular surgery	45	10,6%
Organization/affiliation	University Hospital	245	57,9%
	Tertiary hospital	162	38,3%
	Secondary hospital	16	3,7 %

Table 3. Knowledge about IFPB

n:423		n	%
Do you know what IFPB is / Have you ever heard about IFPB?	Yes	393	92,9%
	No	30	7,1%
Is IFPB performed to your patients currently in your hospital?	Yes	378	89,3%
	No	25	5,9%
	No idea	20	4,7 %
Would you like your patients to have facial plane blocks routinely done?	Yes	326	77%
	No	39	9,2%
	No idea	58	13,7%
Has sufficient information been provided by the practitioner about the IFPB?	Yes	333	78,7%
	No	39	9,2%
	No idea	51	12,1%

reduced postoperative analgesic consumption (85,1%), 51 participants reported that the IFPB procedure didn't reduce postoperative analgesic consumption (12%), 12 of them had no idea (2,8%). 338 participants reported that the IFPB procedure contributed to their patient follow-ups (80%), 22 participants reported that the IFPB procedure didn't contribute to their patient follow-ups (5%), and 63 of them had no idea (15%). 322 participants had been asked if their patient suffers from pain while in the postoperative recovery room after the IFPB (76,4%), 89 participants hadn't been asked (12%) and 12 of them had no idea (2,8%). 84 participants had worries about IFPB before the procedure (19,8%), 280 participants hadn't any worries (66,1%) and 59 of them had no idea (13,9%). 376 participants trusted the anesthesia team during the IFPB procedure (88,8%), 3 participants didn't trust (0,7%) and 44 of them had no idea (10,1%). 4 participants had complications after the IFPB procedure (0,09%), 378 participants hadn't any complications after the IFPB procedure (89,4%) and 41 of them had no idea (9,7%). The most frequently reported complication was a hematoma. 319 participants would prefer IFPB if they had surgery (75,4%), 15 participants wouldn't prefer it (3,5%) and 89 of them had no idea (21%) (Table 4).

Practitioners were asked, "When do you prefer the IFPB procedure?" responded to multiple options as

Table 4. Clinical Effect, Follow-up, Satisfaction, Complications and Disruptive Behavior

n:423		n	%
Have IFPB procedure reduced the postoperative analgesic consumption?			
	Yes	360	85,1%
	No	51	12 %
	No idea	12	2,8%
Have the IFPB procedure contributed to your patient follow-ups?	Yes	338	80%
	No	22	5%
	No idea	63	15%
Have you ever been asked if your patient suffers from pain while in the postoperative recovery room after the IFPB?	Yes	322	76,4%
	No	89	21,4%
	No idea	12	2,8 %
Do you have any worries about IFPB before the procedure?	Yes	84	19,8%
	No	280	66,1%
	No idea	59	13,9%
Were there any applications that you were worried about during the IFPB procedure?	Yes	355	83,6%
	No	24	5,6%
	No idea	44	10,4%
Do you trust the anesthesia team during the IFPB procedure?	Yes	376	88,8%
	No	3	0,7%
	No idea	44	10,1%
Were there any complications after the IFPB procedure?	Yes	4	0,09%
	No	378	89,4%
	No idea	41	9,7%
If you had surgery, would you like to be performed IFPB to yourself?	Yes	319	75,4%
	No	15	3,5%
	No idea	89	21%

follows: 25% in a preoperative block room, 43% after anesthesia induction before surgery, 86% end of the surgery, 27% at PACU and 5% had no idea. (Figure 1A). Practitioners were asked, “Which of your cases need IFPB the most?” responded multiple options as follows: 22,3% breast surgery, 30,2% laparoscopic abdomen surgery, 22,1% laparotomy abdomen surgery, 27,3% spine surgery, 15,1% vats surgery, 18% thoracotomy surgery, 16,5% knee surgery, 19,4% hip surgery, 11,5% open heart, 16,5% transplant surgery, 6,5% robotic surgery, 6,5% urogenital surgery, 7,9% breast surgery, (Figure 1B).

Practitioners were asked, “What are the advantages of the IFPB procedure?” responded to multiple options as follows: 87.9 % reduced analgesia, 70% early recovery, 60,7% early discharge, 63,6% early mobilization, 75% patient satisfaction, 20,7% reduced thromboembolic event, 18,6% less chronic pain and 3,6 % had no idea. (Figure 2A).

Practitioners were asked, “What are the disadvantages of the IFPB procedure?” responded

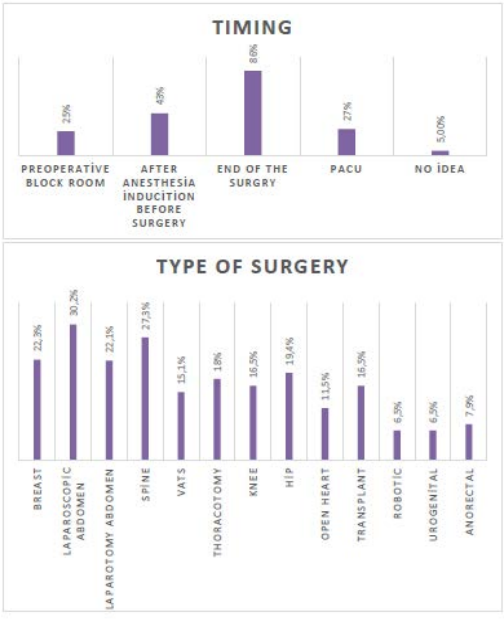

Figure 1A.-1B. Graphics of Timing and Indications of IFPB Procedure

Figure 2A.-2B. Advantages and Disadvantages of IFPB Procedure

to multiple options as follows: 80% time consuming, 70% costly, 40% difficult to follow-up, 12,1% need for communication with anesthesia, 4,3% routine analgesic selection after block, and 6,4 % had no idea. (Figure 2B).

DISCUSSION

According to our results; IFPB is commonly used thanks to the use of the US. Academic studies especially in university hospitals, provide the use and spread of novel blocks. The IFPB is commonly performed in general surgery, orthopedics, neurosurgery, thoracic surgery, and plastic surgery operation rooms. The performance of IFPB at the level of resident, specialist, and academician affects surgical satisfaction at all education levels. Decreasing postoperative pain scores increases patient satisfaction and indirectly increases the satisfaction of the surgeons.

In our study; early mobilization and fast recovery are considered as the other factors that increase surgical satisfaction. In addition, the disadvantages of IFPB are the time consuming and the procedure is costly. The surgical team mostly wants the IFPB application to be performed after the surgical procedure. Some surgical teams want from the anesthesia team to perform the IFPB procedure in the preoperative or postoperative recovery unit so that it does not affect the surgical time. In our study, neuraxial blocks and peripheral nerve blocks were not included. Despite this, current IFPBs have been shown to increase surgical satisfaction. In addition, we contacted as many surgical teams as we could to get the opinions of different surgical teams in our study.

Thoracic paravertebral blocks, intercostal blocks, and pectoral blocks are performed for the management of postoperative pain following breast surgery (3). In addition, ESPB and RIB are peri-paravertebral blocks and they are performed for many indications from perioperative pain management to chronic pain interventions (14,15). According to our results, the IFPB is commonly requested by general surgeons to reduce postoperative pain.

US-guided ESPB, oblique subcostal transversus abdominis plane block (OSTAP), rectus sheath block, thoracoabdominal nerve with modified perichondral approach (M-TAPA) block and external oblique block (EOB) are widely performed in patients underwent open and laparoscopic abdominal surgeries (12,13). M-TAPA block targets the anterior and lateral cutaneous branches of the thoracoabdominal nerves and provides abdominal analgesia at T4-T12/L1 levels (16-18). In a cadaveric study performed by Ciftci et al, it was shown that M-TAPA provides abdominal analgesia to the level of T12/L1 (18). Güngör et al and Alver et al reported that M-TAPA provided effective analgesia management after laparoscopic cholecystectomy and inguinal surgeries (12,13). Therefore, IFPB is commonly performed in daily anesthesia practice and IFPB increases the satisfaction of the surgical team. In our study, IFPB is commonly requested for laparoscopic abdominal surgeries by the surgeons.

Adductor canal block and pericapsular nerve group block (PENG) are performed for orthopedic surgery procedures (19,20). The PENG block is a novel IFPB defined by Arango et al (19). In addition, lumbosacral ESPB may be used for several orthopedic surgeries such as hip and lower extremity surgery (14).

Video-assisted thoracic surgery (VATS) is the standard surgical procedure for thorax surgery nowadays. Thoracic paravertebral block (TPVB) is the first-line regional technique for VATS surgery. TPVB is difficult to perform and may cause several complications such as pneumothorax, and vascular injury. US-guided ESPB and RIB are commonly performed IFPB for VATS (3,14,15,21). Serratus posterior superior intercostal plane block (SPSIB) is a novel interfacial plane block that was defined by

Tulgar et al. in 2023 (22). It has been reported that SPSIB may be performed for thoracic analgesia (22,23).

Lumbar spinal surgery is one of the most common surgeries performed for the treatment of back and leg pain. In patients undergoing lumbar disc herniation (LDH) operation, severe pain may occur especially in the postoperative period at the operation site. Effective postoperative pain control reduces complications such as hospital-acquired infection and thromboembolism as it provides early mobilization and early discharge. QLB was defined by Blanco (24), TLIP block was defined by Hand et al. in 2015 (25). Modified TLIP defined by Ahiskalıoglu et al. in 2017 (26). There are several IFPBs for lumbar and abdominal analgesia (27).

Our survey study has some limitations. Our study was not a single-center study. we reached out to surgeons from different centers. Thus, there were different surgical teams from each other.

In conclusion, this survey study shows that although the IFPB is a novel and current technique, IFPB is commonly used and known in all surgical units. Our results show that the satisfaction level of the surgical team is high and the surgeons request from anesthesia to perform IFPB on the patients who underwent surgery.

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Address correspondence to: *Selcuk Alver, Istanbul Medipol University, Department of Anesthesiology and Reanimation, Istanbul, Turkey*
e-mail: *selcukalver@yahoo.com*

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