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Erector spinae plane block in chronic pain: a retrospective study

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Abstract: Patients with various aetiology of pain who underwent erector spinae plane block at different levels were evaluated at the tertiary Algology clinic. Visual analog scale (VAS) values were recorded before the block; 30 min, two weeks, and two months after the block. Medical records of fifteen patients have been obtained. The average VAS decreased from 7 ± 1 to 5 ± 3 in the second month when compared to the values before block ($p < 0.01$). ESP block can be an option for chronic pain in postsurgical pain syndrome and myofascial pain management.

Key words: Chronic pain, nerve block, pain management

Erector spinae plane block (ESP) is an interfacial plane block that is performed by the application of local anaesthetic between the erector spina muscle and transverse process. ESP block takes effect by diffusing local anesthetic into musculofacial part over craniocaudal multiple vertebra levels [1]. As it can be carried out from different levels, it is used for postoperative analgesic effects in various operations [2,3]. The efficiency in chronic pains is mostly based on case reports and case series [1,4,5]. The aim of this study is to evaluate the effect of ESP block on pain severity in chronic pain due to different etiologies.

Patients undergoing ESP block due to chronic pain between February 2019 and February 2021 were reviewed retrospectively. All reported research involving "Human beings" was conducted in accordance with the principles set forth in the Helsinki Declaration 2008 and local ethical approval was obtained (2021/12-05). Written informed consent was obtained from the patients for the performance of ESP block. The ESP blocks were performed by using 18 mL of bupivacaine 0.5% and 2 mL of 8 mg dexamethasone with a 22-gauge 100-mm spinal needle (Egemen, İzmir, Turkey). The intensity of pain was evaluated by using visual analog scala (VAS) before and after the block at the 30th min, 2nd week, and 2nd month.

The patients' demographics, ESP block levels, and VAS values are given in Table 1. The mean VAS level is 7 ± 1 before the intervention. After the ESP block, the means are respectively determined as 2 ± 2 in the 30th min, 4 ±3 in the 2nd week, and 5 ± 3 in the 2nd month. There was a statistically significant difference between baseline and post-block VAS score ($p < 0.05$). The patients who have myofascial pain consist of the ones showing no response to the trigger point injection. There has been a statistically significant decrease in myofascial pain intensity in the 2nd week and 2nd month compared to the before block pain level ($p < 0.05$) as shown in Table 2. Five of the six patients who have postsurgical chronic neuropathic pain went through gynecologic and thoracic malignancy operations. Although there has been a statistically significant decrease in pain level in the 2nd week compared to the before block pain level, there has not been a statistical decrease in pain level in the 2nd month ($p = 0.066$) (Table 2). No major complications such as nerve damage, motor block, unceasing hemorrhage, and infection were observed after the intervention.

In this study, it is found that in chronic pain, which is with no response to the medical treatment, ESP block is able to decrease the pain level. Although it is ineffective for pain due to endometrium and over malignancy, ESP block has been determined as effective in postsurgical chronic pain and myofascial pain which most patients suffer from.

In a 7-patient case series, where the effctiveness of ESP blok in postthoracotomy pain was evaluded the analgesic effect losted 2-6 weeks in 4 patients, while it losted no more

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Table 1. Patients' demographics and VAS values.

					VAS change			
Etiology		**Gender**	**Age**	**ESPB level**	**Baseline**	**30 min**	**2 weeks**	**2 months**
Endometrium carcinoma		F	59	T8*	9	3	8	9
Over malignancy		F	78	T9*	8	3	8	8
Myofascial pain syndrome		M	41	T12	7	3	5	5
		M	44	T12	5	0	1	1
		M	43	T6*	5	0	2	5
		M	51	T6*	7	3	4	5
		F	54	T4*	6	1	2	4
		F	34	T8	7	0	0	1
		F	46	T3*	7	0	6	7
Postsurgical pain syndrome	nephrectomy	F	19	T11	8	0	1	2
	lobectomy	F	52	T8	9	1	1	2
	lobectomy	M	58	T7	7	0	1	1
	hysterectomy	F	56	T8*	10	1	2	2
	lobectomy	M	35	T8	8	4	5	8
	hysterectomy	F	49	T8*	9	5	9	9

F: female, M: male, PSPS: postsurgical pain syndrome, ESPB: Erector spinae plane block, T: thoracic
*bilateral block

Table 2. VAS changes in myofascial pain and postsurgical pain syndromes.

	Myofascial pain syndrome		**Postsurgical pain syndrome**	
	VAS[a]	P value[b]	VAS[a]	P-value[b]
Baseline	6 ± 1		9 ± 1	
Thirty min	1 ± 1	0.017	2 ± 2	0.027
Two weeks	3 ± 2	0.018	3 ± 3	0.042
Two months	4 ± 2	0.039	4 ± 4	0.066

a: mean ± standard deviation [a]: mean ± standard deviation Friedman test
[b]: Wilcoxon signed rank test

than 2 days in 3 patients [4]. In our study, in 2 of the 3 patients with postthoracotomy pain, pain control has been provided for 2 months. We think that this situation is based upon the dexamethasone being used. Glucocorticoids inhibit prostaglandin synthesis and nociceptive impulse transmission in myelinated C fibers [6].

Piraccaniet al. have investigated the effectiveness of ESP block in patients with myofascial pain. They stated that ESP block is effective only in short term and it does not have a significant effect in long term [7]. Tulgar et al. Stated in their case report that they provided pain palliation respectively for 8 weeks and 3 months [8]. Besides, Yürük et al. recorded that in a prospective randomized controlled study in which ESP block effectiveness is analyzed, there has been a distinct decrease in pain for 4 weeks with ESP block compared to trigger point injection therapy. Researchers linked this finding to the fact that ESP block influences and deep nociceptors [5]. In our study, there has been a statistically significant decrease in pain in our patients for 2 months.

ESP block is an inexpensive, easily applicable, safe, and effective technique in chronic pain. We believe that ESP block may be administered in patients and before the more complicating invasive procedures.

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