RESEARCH ARTICLE

Comparison Immediate and Acute Adverse Effects Following Transforaminal Epidural Steroid Injections with Dexamethasone and Diluted Triamcinolone

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Background: Transforaminal epidural steroid injections (both lumbar and cervical) are used in many treatments. The use of this method in the control and treatment of radicular pain is intensively expanding. In this method, and for the purpose of implementing the injection process, the needle is inserted from the posterolateral of the spine and steroids injected.
Steroids include a wide range of medications, many of which are used in modern medicine. Research on these drugs is still underway. The use of Dexamethasone in lumbar transforaminal epidural injections and the study of complications caused by it have been less studied. In some previous studies, use of this steroid for lumbar transforaminal epidural injections has been mentioned.
Methods: The present study was conducted in Shohada-e-Tajrish Hospital in Tehran. Patients over 18 years of age who were afflicted with Lumbar stenosis Foraminal (Diagnosis by MRI) and had associated with Radio Kevlar pain were selected. These patients are divided into two groups of 14. In a group, 2.5 cc dexamethasone 8 mg / cc diluted with 2.5 cc distilled water was injected. In the second group, 2.5 cc triamcinolone 40 mg / cc was injected with 2.5 cc distilled water in a volume of 5 cc. In order to evaluate and compare the effects of these two steroids on the patients, the results of the questionnaire were evaluated by statistical techniques and software SPSS 21.
Results: The results showed that the use of dexamethasone had far more successful effects than another drug. However, the above conclusion is a relative conclusion and absolute expression is not possible. Pharmaceutical manifestations are the result of patient reactions. Thus, doing similar research and comparing drug performance should be put on the agenda of various research and medical teams.
Conclusion: Use of Dexamethasone had far more successful effects than Triamcinolone on epidural steroid injections.
Keywords: Transforaminal; Epidural; Steroid; Dexamethasone; Triamcinolone

Today, in all modern medical disciplines, minimizing the complications of executive techniques for patients is one of the main priorities of all teams. These techniques are widely used in care and treatment departments. Meanwhile, the use of various anesthetic methods to reduce patient injuries is the same as in other developing methods.
Transforaminal epidural steroid injections (both lumbar and cervical) are used in many treatments. The use of lumbar transforaminal injection, along with Intervertebral Disc, is one of the most commonly used pain control methods in patients [1]. The use of this method in the control and treatment of radicular pain is intensively expanding [2-7]. In this method, and for the purpose of implementing the injection process, the needle is inserted from the posterolateral of the spine and injected steroids [6]. Both types of transforaminal epidural steroid injections (lumbar and cervical) have various effects and dangers [8-9]. Among the side effects of cervical injection include: Quadriplegia, Cortical blindness,
Fatal stroke is within the posterior cerebral circulation range [10-11]. However, in the case of the lumbar type of infusion, we encounter Paraplegia [12]. All of these effects (caused by Transforaminal epidural steroid injections) are caused by various mechanisms. One of the effective mechanisms in this regard is arterioles obstruction following particle steroids injection [13-14].
Steroids include a wide range of medications, many of which are used in modern medicine [15]. Many studies have been done on these drugs and the complications caused by their use [16]. However, research on these drugs is still underway [17]. The use of Dexamethasone in lumbar transforaminal epidural injections and the study of complications caused by it have been less studied [18]. However, in some previous studies, use of 20 mg of this steroid for lumbar transforaminal epidural injections has been mentioned [19]. Dilution of steroids in order to be

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injected into different individuals is associated with a reduction in the complications (Numbness, itching, tremor, decreased heart rate, general weakness, pain in the injection site, headache, insomnia, nausea, hives, hiccups, imbalances, spasms and muscle clam, headache and pain in Different organs) of this type of infusion.

Achieving further results in this regard can be considered as a research challenge for research and medical teams.

Methods

The present study was conducted in Shohada-e-Tajrish Hospital in Tehran. For this purpose, patients over 18 years of age who were afflicted with Lambar stenosis Foraminal (Diagnosis by MRI) and had associated with Radio Kevlar pain were selected. In the meanwhile, all patients with drug allergy, pregnancy, cancer with spinal metastasis, people with a history of spinal surgery, infection site, fracture and any spinal instability were excluded from the research group and 28 assigned to the final examination were selected. These patients are divided into two groups of 14. All of these individuals use the same techniques for anesthesia under the same conditions [20-21]. However, in a group, 2.5 cc dexamethasone 8 mg/cc diluted with 2.5 cc distilled water was injected. In the second group, 2.5 cc triamcinolone 40 mg/cc was injected with 2.5 cc distilled water in a volume of 5 cc. After performing this process, the complications caused by the implementation of the above technique are recorded in both groups of patients (based on the designed questionnaire).

In order to evaluate and compare the effects of these two steroids on the patients, the results of the questionnaire were evaluated by statistical techniques and software SPSS 21.

Results

According to (Table 1), the variables studied such as age, gender, body mass index, blood glucose level, and patients were in two cases of age and BMI of normal distribution, while in other indices this distribution was not observed.

According to (Table 2), the comparison of blood glucose levels and levels in the two groups did not show any significant difference.

The results show that dexamethasone has a greater effect on reducing complications in patients treated with triamcinolone (Figures 1 to 5).

However, (Figure 6) shows the higher efficacy of Triamcinolone than dexamethasone.

Table 1- Reviewing the distribution of data in the indexes studied in two groups

	Statistic	df	Sig.	Statistic	df	Sig.
age_in_years	0.098	28	0.200*	0.961	28	0.369
gender	0.355	28	0.000	0.637	28	0.000
BMI	0.144	28	0.143	0.960	28	0.341
level	0.344	28	0.000	0.748	28	0.000
Elevation_in_blood_sugar	0.171	28	0.035	0.920	28	0.034

Table 2- Comparison of blood glucose levels and levels in two different groups of patients (with Dexamethasone(D) and Triamcinolone(T) injection)

Ranks				
	KIND	N	Mean Rank	Sum of Ranks
Elevation_in_blood_sugar	D	14	13.18	184.50
	T	14	15.82	221.50
	Total	28		
level	D	14	14.29	200.00
	T	14	14.71	206.00
	Total	28		

Figure 1- Comparison of the Effect of Dexamethasone (D) and Triamcinolone (T) on Increased pain at injection site

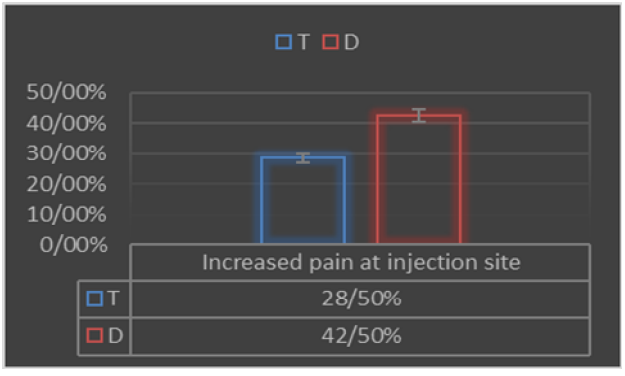


Figure 2-Comparison of the Effect of Dexamethasone (D) and Triamcinolone (T) on Increased spine pain

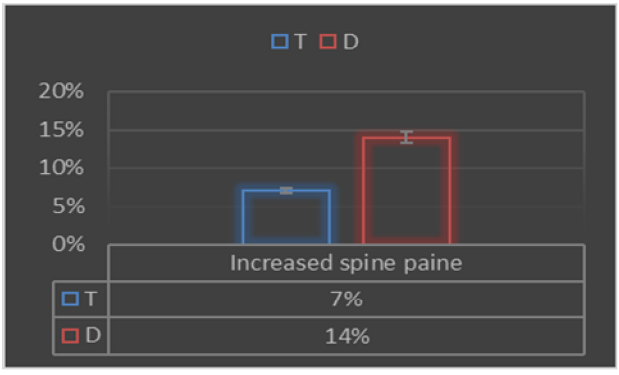


Figure 3- Comparison of the Effect of Dexamethasone (D) and Triamcinolone (T) on General discomform

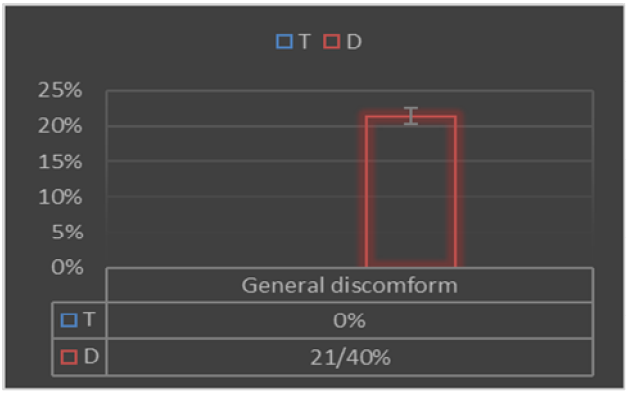


Figure 4-Comparison of the Effect of Dexamethasone (D) and Triamcinolone (T) on Elevation of heart rate

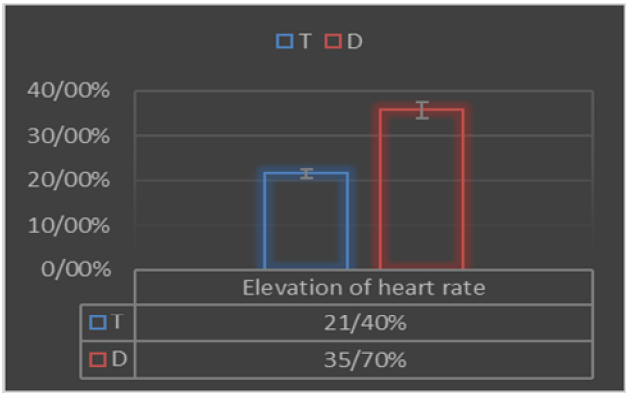


Figure 5-Comparison of the Effect of Dexamethasone (D) and Triamcinolone (T) on warm sensation on the limb

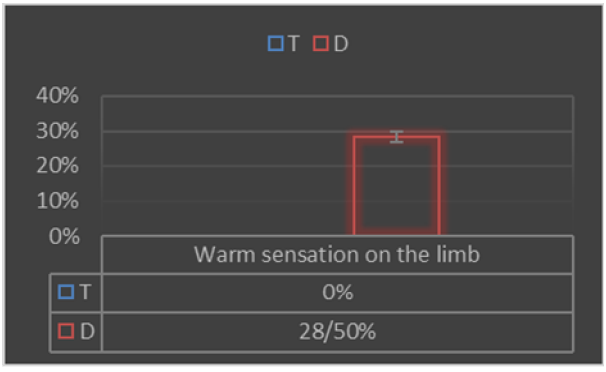
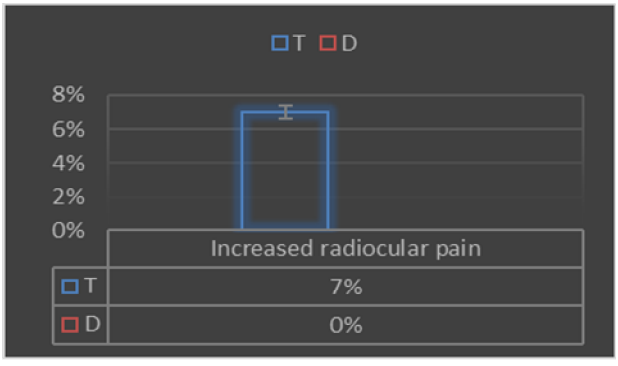


Figure 6- Comparison of the Effect of Dexamethasone (D) and Triamcinolone (T) on Increased Radicular pain



Discussion

Transforaminal epidural injection is an appropriate method for reducing pain in patients. This method, by increasing the blood flow in the affected areas, can heal the complications and reduce the severity of pain in the patients [7]. The use of steroids in transforaminal epidural injection has been investigated many times by researchers [22]. Because of the different physiological causes and conditions that are created for the patient, these medications produce various effects and dangers [23-24]. Meanwhile, dexamethasone exhibits better effects with proper use [25]. Dexamethasone sodium phosphate at equipotent doses, almost lacks the salt-retaining properties in hydrocortisone. This drug, suspension is used intravenously very commonly for treatment of multiple systemic conditions and gained popularity amongst spine interventionalists [26]. However, the use of dexamethasone is also associated with its own particular hazards. One interesting side effect noted was temporary perineal pruritus occurring immediately after dexamethasone injection. It is possible that it is due to the rapid injection of the medicine, due to an unrecognized vascular injection, or both [24].

In the present study, we tried to examine the efficacy of dexamethasone and triamcinolone in patients undergoing transforaminal epidural injection by collecting information from target patients (described in the materials and method section). The results showed that the use of dexamethasone had far more successful effects than another drug. However, the above conclusion is a relative conclusion and absolute expression is not possible [27]. Pharmaceutical manifestations are the result of patient reactions. Thus, doing similar research and comparing drug performance (in a larger statistical society and with new challenging approaches) should be put on the agenda of various research and medical teams.

Conclusion

Use of Dexamethasone had far more successful effects than Triamcinolone on epidural steroid injections.

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