



EFFECTIVENESS OF TRANSFORAMINAL EPIDURAL STEROID INJECTION IN PATIENTS HAVING RADICULAR PAIN COMING OUT OF LUMBAR DISC HERNIATION

Orthopaedics

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ABSTRACT

Study Design: Prospective Study **Objective:** To evaluate and analyses the effectiveness of Trans-Foraminal Epidural Steroid Injection (TFESI) in Lumbar disc herniation in preventing or delaying the need of surgery and alleviation of Radicular pain. **Method:** A total of 60 patients suffering from low back pain radiating to lower limbs who diagnosed as having Lumbar disc herniation (LDH) were selected and undergone TFESI (a mixture of methyl prednisolone 40mg/ml, 1 ml 0.2 % lignocaine, 1ml 0.5% bupivacaine) and were evaluated for 18 months duration. Out of 60 patients, 4 patients had L3–L4 disc herniation, 19 patients had on L4–L5 level, 10 patients on L5–S1 level. 8 patients had disc herniation at L3–L4 & L4–L5 level, 19 patients on L4–L5& L5–S1 level. **Result:** All of the 60 patients were available for periodic follow-up till 18months at regular intervals, the VAS was analysed and documented to assess the functional outcome. pre-injection mean VAS score was 6.88 and post TFESI VAS score was 1.64 (P=0.004) indicating effectiveness of TFESI in improving the outcome of patients with lumbar radiculopathy. During the follow-up, 43 (71.8%) patients had good pain relief maintained till 1.5year, 17 (28.2%) patients had recurrence of pain in subsequent serial follow up till 18 months. Out of 17 patients, 3 patients underwent surgery at a mean of 8 weeks after the failed TFESI. In none of the failed patients second injection was tried. **Conclusion:** Transforaminal epidural steroid injection acting as an important treatment tool in preventing the need of surgery and helps in pain alleviation (71.8% patients feels good following the intervention).

KEYWORDS

Lumbar disc herniation, Transforaminal Epidural Steroid Injection, Radiculopathy

INTRODUCTION:-

Back pain radiating to lower limbs is still, one of the unrewarding problems to deal with in clinical medicine. Among the various factors of low back pain, only those syndromes associated with neurological compression of the nerve roots of the cauda equina, have reasonably well understood clinical presentation^[1]. Among various spinal and extraspinal causes of low back ache, the most common one seems to be the lumbar disc disease. Low back ache is so common that at least 80% of the population will get it at some point of their lives.^[15] Radiculopathy (Radiating leg pain with or without low back pain) is a common symptom and occurs in approximately 40% of adult population at some point of time but clinically significant radiculopathy is only 4%-6%.^[15]

The intervertebral disc provides the spine, the mobility and acts as a shock absorber as well. Approximately 40% of cases of low back pain are associated with lumbosacral radicular pain, a condition caused usually by nerve root irritation and inflammation from herniated intervertebral discs^[9,10]. It is a well-recognized fact that back pain in a disc disease is not only because of compression on neural elements, but may also be due to chemical inflammation^[2]. In addition to the inflammatory reaction in the nerve roots, changes may occur in ion channel functioning of sensory neurons^[5,6,7].

As the technology advanced, the understanding about lower back pain improved leading to understanding that pathogenesis of lower back pain was mediated by Inflammation, immunity and mechanical compression.^[17] Phospholipase A2 which is a natural component of intervertebral disc triggers release of Arachidonic acid which is a precursor of Leukotrienes and prostaglandins causing inflammation of the nerve roots. High levels of PLA2 were found in the epidural space and the prolapsed disc material.^[18]

Steroids are supposed to reduce the inflammatory response induced by chemical, immunologic and mechanical lesions.^[19] Steroids can be used in lower back pain patients when they don't respond to NSAIDs (Non-steroidal anti-inflammatory drugs) as steroids inhibit inflammation at a higher place in the cascade than the NSAIDs. Local delivery of steroids into the epidural space gives a concentrated dose which will cause an effect that lasts longer. So, in patients who don't respond to the conservative treatment and are not indicated for surgical treatment, Epidural steroid injections can be given.

Lumbosacral radicular pain is characterized by pain arising in the back and radiating into the lower limbs in the distribution of one or more Spinal nerves [3,4]. More than half of the patients report a decrease in their daily activities and their ability to work^[8]. One in every 4 patients continues to have severe pain despite the use of oral pharmacologic treatments^[10,11], whereas 14% of patients eventually require surgery for severe pain, especially if the pain is accompanied by neurologic deficits^[12]. With the wide availability of MRI, it can be done not only to confirm the disc herniation and grade it, but also to rule out other possible causes of back pain like infections or tumours of spine.

The natural course is usually favourable, and for most clinicians, the first treatment option is conservative with nonsteroidal anti-inflammatory drugs and physical therapy^[13]. Operative intervention become necessary and are indicated in patients with herniated disc with progressive neurological deficits. Surgery aims at decompressing the pressure on neural elements and conservative treatment aims to combat the chemical radiculitis.

Many a times a disc lesion in MRI may influence the surgeon to operate and remove the offending disc. However, many such patients may not actually need surgery and can be treated non-operatively. It is also a well-known fact that the 10 years of study by Weber et al.,^[2] states that the results of conservative treatment is comparable to surgical treatment on a long term.

The condition is increasing in number in our society and is associated with considerable morbidity and significant disability. With the only definitive treatment option being surgery so far, which is both economically overbearing and having risk of post-operative complications, TFESI is coming up as a potential option we can look forward to for management in such cases. Currently variety of non-operative therapies for lower back pain are available. They are simple rest, exercises, massage, heat therapy, traction therapy.

“Epidural steroid injections (ESIs) have been used as an adjunct in the treatment of lower back pain. Since the early reports, success rates ranging from 18% to 90% (average, 67%) have been documented.

Epidural corticosteroid injections are contraindicated in the presence of infection at the injection site, systemic infection, bleeding diathesis, uncontrolled diabetes mellitus, and congestive heart failure. Epidural corticosteroid injections are performed in a fluoroscopy suite equipped

with resuscitative and monitoring equipment. The use of fluoroscopy is recommended for diagnostic and therapeutic epidural injections for several reasons. Epidural injections performed without fluoroscopic guidance are not always made into the epidural space or the intended interspace. Even in experienced hands, needle misplacement occurs in 40% of caudal and 30% of lumbar epidural injections when done without fluoroscopic guidance. Accidental intravascular injections also can occur, and the absence of blood return with needle aspiration before injection is an unreliable indicator of this complication. In the presence of anatomical anomalies, such as a midline epidural septum or multiple separate epidural compartments, the desired flow of epidural injectants to the presumed pain generator is restricted and remains undetected without fluoroscopy. In addition, if an injection fails to relieve pain, it would be impossible without fluoroscopy to determine whether the failure was caused by a genuine poor response or by improper needle placement.

In this context, the purpose of this study was to elicit the functional outcome of transforaminal epidural block in preventing the need of surgery in patients complaining of lumbar radicular pain due to LDH and to observe the effects up to a period of 1.5 year and possible complications during and after injection.

MATERIAL AND METHOD:-

The study is hospital based prospective study. The patients who came to orthopaedics Out Patient Department of Index Medical College Hospital with Lower backache and were diagnosed with lumbar disc herniation (clinically and radiologically) underwent epidural steroid injection and were followed up for 18 months. Number of patients was 60. Adult patients with established lumbar disc herniation treated non-operatively with transforaminal epidural steroid injection in Index Medical College Hospital were evaluated and assessed for a period of 18 months. These patients were followed up during the post epidural steroid injection period at the end of 1,3,6,12 & 18 months.

Inclusion Criteria:

- The patients above 18 years and below 70 years of age with low back pain, less than 6 months in duration.
- Symptomatic patients with lumbar disc herniation with positive MRI findings and clinically evident Radicular pain.
- Patients who were available for follow up for minimum of 12 months.
- No history of lumbar surgery.
- Patients who doesn't have any history of chronic illness like diabetes, arthritis, skin disorder and smoking.

Exclusion Criteria:

- Patients below 18 years and above 70 years of age.
- Patients with progressive neurological deficits.
- Patients with signs of instability of the spine.
- Patients with cauda equina lesions.
- Patients with history of previous spine surgery, stroke or other comorbidities.
- Patients associated with infection or discitis
- Patients having Low Backache > 6 months in duration without Radicular pain symptoms.
- Bed ridden patients.
- Patients with past Intra-articular defects or fracture

METHOD:

All patients suffering from low back pain radiating to lower limbs were subjected to detailed clinical history and examination along with X-ray and MRI of lumbosacral spine and those having a lumbar disc herniation as the cause of back pain were selected. All selected patients were informed about the study. Patients planned for Transforaminal epidural steroid injections after ruling out Systemic infections & Diabetes, and were briefed about the pain management and its goals and a written consent was taken. With patient positioned in prone position. 0.5 ml of omnipaque dye (iohexol) was used to locate the exact epidural space and the desired dye pattern was visualised, after which injection containing Methyl prednisolone 40 mg /1 ml (depot preparation) mixed with 1 ml of 2% lignocaine was injected to the epidural space, under fluoroscopic guidance, by transforaminal approach. All the injections were performed at the level of disc herniation.

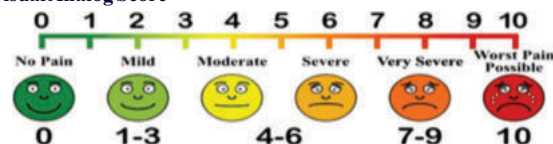
Risks- Direct injection into the nerve root – Intense pain, damage of nerve, Vasovagal syncope, Injection in to blood vessel, Dural puncture

and Infections, Bleeding—can compress the nerve root – short term worsening of pain, Radiation Exposure

Post Procedural Evaluation : Patients were evaluated with VAS and questionnaire related to the distribution and the degree of their symptoms before and after the procedure. Pre-interventional VAS score was obtained from all patients and compared with post-procedure scores. Questionnaire was issued to all patients and profile of each patient documented. Pre-interventional complete Neurological examination was done. Dynamic radiographs were taken to rule out any spinal instability.

Outcome : measured on visual analog score, Patient satisfactory score

Visual Analog Score



Blood And Radiological Investigations

- Haemoglobin level, total leucocyte count, differential leucocyte count, platelet count, blood sugar, serum urea, creatinine, uric acid, bleeding time and coagulation time.
- Xray-AP & Lateral view, Dynamic radiographs (Flexion & Extension views) was taken to rule out any spinal instability. MRI L-S spine.

Procedure :

On arrival in the operating room after 6 hours of fasting for solid food, routine monitors like non-invasive blood pressure, electrocardiogram and pulse oximetry were used. Peripheral intravascular cannulation was established and Ringer's lactate solution was started slowly. All patients received antibiotic ceftriaxone and sulbactam 1.5g 30 min prior to the procedure.

- Patients were positioned in prone position and under fluoroscopic (C-arm) guidance the level of disc herniation marked.
- Scotty dog position of the planned level was identified (the c-arm was aligned to look for parallel end plates)

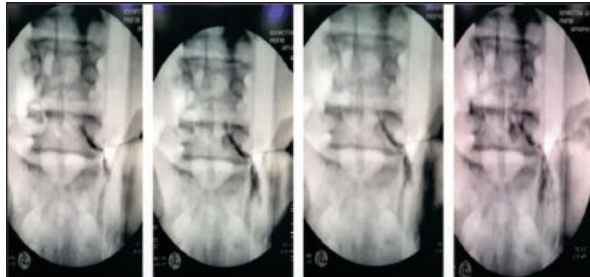


- With the oblique of image intensifier, the pedicle of the corresponding vertebra was identified as the eye of Scotty dog. Ipsilateral tilt for Scotty dog appearance was given. (23-degree medio-lateral tilt)
- After local infiltration of 10 ml 2% Xylocaine, under AP view of C arm, a 22-gauge spinal needle was administered gradually to reach the transforaminal space targeting 6'o'clock position of the desired pedicle in scotty dog view, giving away feeling of epidural space was appreciated, at this time a lateral C arm check was done to look for adequate needle placement
- Then 0.5 ml of radio-opaque dye was injected and desired dye pattern was appreciated





If the dye was found to traverse the nerve root pathway, the position of the needle was confirmed and drug was injected. If the dye was found to traverse a different path or geographic pattern the needle was withdrawn and procedure was repeated with fine fluoroscopic adjustments. Still if the dye was found to follow a different path, accidental vascular injection of dye was suspected and procedure was abandoned.



After satisfactory position, 2 ml of the mixture of local anaesthetic and steroid was administered slowly (the drug should be freely administered, resistance to drug required repositioning) while simultaneously checking for patient ankle /toe movements and constantly monitored vital parameters (Pulse, Blood Pressure, Oxygen Saturation). The patient was shifted out of the operating room after successful procedure and stable vital parameters.

Post-Op Protocol We Followed

- Bed rest for 2-3 hrs and mobilization after that.
- Analgesics till 2nd day.
- Lumbar strengthening exercises from 7th day onwards.
- Weight lifting and sports after 2 months.
- Some patients complained of late onset post-procedural increase in pain attributed to mass effect of the drug being given in already compromised foraminal space which settled within few days with analgesics.
- Pt. may feel some sort of heaviness/numbness of their leg and feet post procedure which settles in 6 to 8 hrs.
- Follow up – VAS on POD-1 and on subsequent follow ups at 1 month, 3 months, 6 months, 12 months and 18 months.

RESULT:-

Age Distribution

The following table and chart show the age distribution of the participants. Age of the patient ranges from 17 to 70 with the mean age of 45 years. Among 60 patients studied, Male Patients were 24 & Female patients were 36.

Table1: Age Distribution

PATIENTS			
AGE	MALE	FEMALE	TOTAL
<= 20	3	1	4
21 – 40	7	14	21
41 – 60	12	13	25
>= 61	2	8	10

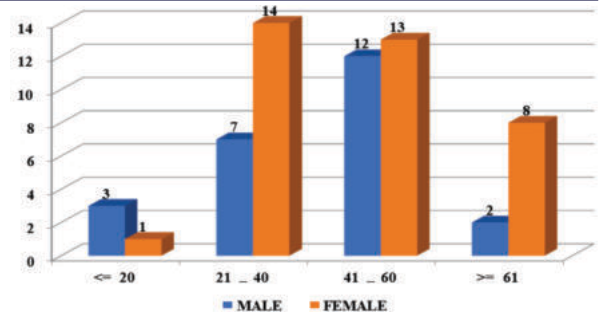


Figure1: Age Distribution

Gender Distribution

The following table and chart show the sex distribution of the participants. Out of 60 patients 24 were males and 36 were female patients included in our study.

Table2: Gender Distribution

GENDER	NO. OF CASES	NO. OF CASES (%)
MALE	24	40%
FEMALE	36	60%

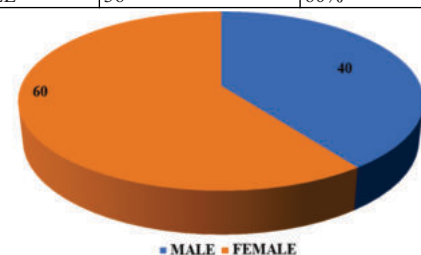


Figure2: Gender Distribution

Side Distribution

The Side Distribution is shown in the following table and chart of the participants. Out of 60 patients, 23 (38%) patients had radiculopathy to right side and 29 (49%) patients had on left side and 08 (13%) patients had radiculopathy on bilateral lower limbs.

Table 3: Side Distribution

SIDE	NO.OF CASES	NO.OF CASES (%)
RIGHT	23	38%
LEFT	29	49%
BILATERAL	08	13%

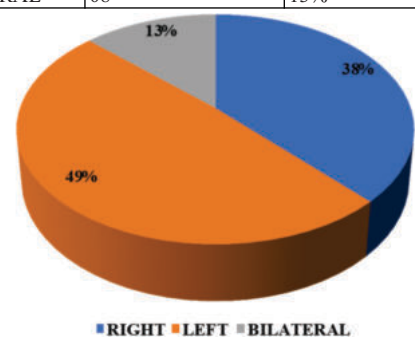


Figure 3: Side Distribution

Distribution-based On Disc Level

The distribution of cases based on disc level. Out of 60 patients, 4 patients had L3–L4 disc herniation, 19 patients had on L4–L5 level, 10 patients on L5–S1 level. 8 patients had disc herniation at L3–L4 & L4–L5 level, 19 patients on L4–L5& L5–S1 level.

Table4: Categorical Distribution of Level of Disc

DISC LEVEL	NO OF CASES	NO OF CASES (%)
L3-L4	04	7%
L4-L5	19	32%
L5-S1	10	17%
L3-L4, L4-L5	08	13%
L4-L5, L5-S1	19	32%

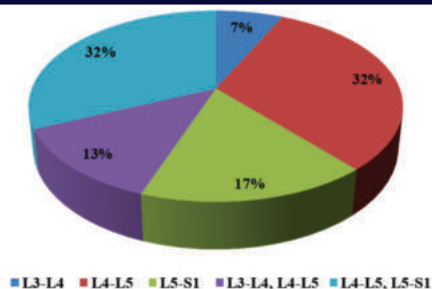


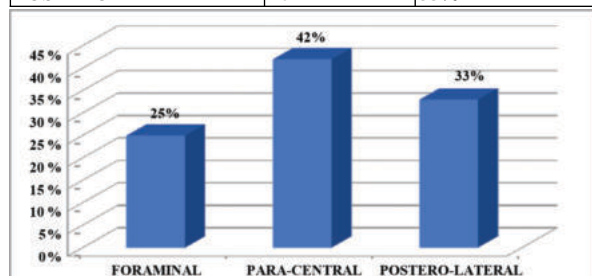
Figure 4: Categorical Distribution of Level of Disc

Distribution – Based On Type Of Disc – Axial Section

Based on type of disc herniation on axial section, 20 patients had postero-lateral, 25 had para-central and 15 had foraminal disc herniations.

Table 5: Categorical Distribution Of Disc Herniation On Axial Section

DISC TYPE	ZONE (Axial Section) MRI	
	nos.	%
FORAMINAL	15	25%
PARA-CENTRAL	25	42%
POSTERO-LATERAL	20	33%



Distribution - Based On Type Of Disc-sagittal section

Out of 60 patients, 8 cases had localised disc herniation, 30 patients had extrusion type and 22 patients had protrusion of disc herniation.

Table 6: Categorical distribution of Disc Herniation on – Sagittal Section

SAGITTAL	ZONE (Axial Section) MRI	
	nos.	%
EXTRUSION	27	45%
PROTRUSION	26	43%
LOCALISED	07	12%
SEQUESTRATION	00	00%

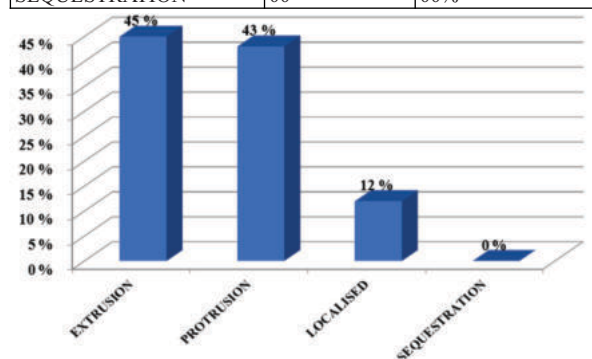


Figure 6: Categorical distribution of Disc Herniation on Sagittal Section

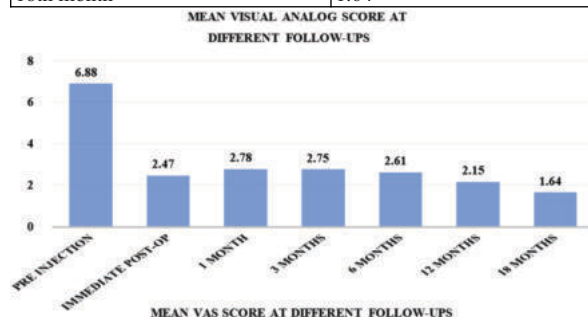
Mean Visual Analog Score

Analysis Of Mean Visual Analog Score

Among 60 patients, pre-injection Mean VAS was 6.88. Immediate post-injection VAS significantly decreased to 2.47. With further follow up at 1, 3, 6, 12 & 18 months, there was a moderately increasing trend of VAS score with patients reporting with recurrence of pain at subsequent follow-up till 3rd. month. However, 6th month VAS reduced, 12th month & 18th month was further reduced to a lower value than the Immediate Pre-OP.

Table 8: Mean VAS at serial follow-up

MEAN VISUAL ANALOG SCORE	
Pre-injection	6.88
Immediate post injection	2.47
1st month	2.78
3rd month	2.75
6th month	2.61
12th month	2.15
18th month	1.64



RESULTS

During the study period, 60 patients underwent TFESI and formed the study cohort. All of them underwent TFESI by trained surgeons as described previously. Out of 60 patients, 26 were males and 36 were females. Age of the patient ranges from 17 to 70 with a mean age of 45, age has no significance related to the outcome. In this study, 28 patients had Radiculopathy on right side and 22 had on left side and 10 had on bilateral side. In this study, the level of disc herniation doesn't have any significance.

Post-injection rehabilitation was started according to the protocol. All the patients were available for periodic follow-up till 1.5 year at regular intervals, the VAS was analysed and documented to assess the functional outcome. Functional outcome was based on patient's pain scoring system by Visual analog score. Visual analog score is 10-point score measured on a longitudinal scale. In our study, pre-injection mean VAS score was 6.88 and post TFESI VAS score was 1.64 ($P=0.004$). It indicates that transforaminal block improves the outcome of patients with lumbar radiculopathy.

During the follow-up, 43 patients had good pain relief maintained till 1.5 year (**43/60, 71.8% efficacy**). 17 patients had recurrence of pain in subsequent serial follow up till 18 months. Out of 17 patients, 3 patients underwent surgery at a mean of 8 weeks after the failed TFESI. In none of the failed patients second injection was tried.

Patients with complications such as dizziness and temporary muscular weakness were moved to the recovery room for observation and all symptoms were absent at discharge. No correlations were found between the success rate and several investigated factors, such as injection method, age, gender and prevalence period.

Other factors including age ($P=0.41$), gender ($P=0.31$), side of pain ($P=0.19$), level of lesion (L3-L4, L4-L5 and L5-S1) ($P=0.54$) and other MRI findings (disc type and position, level of degeneration) ($P=0.62$) were not predictive.

DISCUSSION:-

Herniated nucleus pulposus or extruded lumbar disc herniation is one of the most common diseases that causes radicular pain and back pain. Some cases require surgical intervention because of persistent severe pain or neurological deficit. However, in most cases, pain can be relieved using conservative treatment, or in some cases, pain spontaneously resolves. Sometimes the pain can be unbearable, but the patient does not want surgical intervention. For these patients, appropriately performed transforaminal epidural steroid injections are clinically effective for treating lumbar and radicular pain^[23,24,25,26]. The diagnosis of the level and degree of protrusion or prolonged disc based upon clinical findings was confirmed by magnetic resonance imaging which has a high sensitivity and specificity. The first line of management is conservative being bed rest, skin traction, physiotherapy, exercise therapy, and also epidural steroid infiltration.

Epidural steroids injection with local anaesthesia is believed to be a neural blockade which alters or interrupts nociceptive input, the reflex

mechanism of the afferent fibres, self-sustaining activity of the neurons, and the pattern of central neuronal activities^[27,28].

Corticosteroids have also been shown to reduce inflammation by inhibiting either the synthesis or release of a number of proinflammatory mediators and by causing a reversible local anesthetic effect [28,29] Epidural steroid injections are considered the intermediate between conservative management and surgical management of radiculopathy.^[44,45] Since the first epidural steroid injection given in the 1952 by Robecchi and Capra.^[46] They used hydrocortisone which was being replaced by different drugs. The drugs that are mainly used nowadays are Methyl Prednisolone, Triamcinolone, Dexamethasone and Betamethasone.

Justification of Epidural steroid injection:

The pathogenesis of Radiculopathy as described above is by inflammation, immunity and mechanical compression. Non steroidal anti-inflammatory drugs (NSAIDs) are effective against inflammation but when they are not giving adequate symptomatic relief, steroids are supposed to deliver better response as they act at higher steps in the cascade of inflammation. Steroids are also known to be powerful immune modulators which are implicated in the pathogenesis of radiculopathy. Steroids also act by inhibiting aggregation of Leukocytes, prevents degranulation of granulocytes, macrophages and mast cells; stabilization of lysosomal membranes. They also inhibit the synthesis and release of substances which are pro-inflammatory like PLA2, Arachidonic acid, IL-1, PG-E2, TNF- α . Due to these inflammatory substances the nerve roots get inflamed and will become extremely sensitive. These inflamed nerve roots produce pain for prolonged durations even with gentle manipulation or pressure. So, steroids are believed to decrease the symptoms. Large and sustained doses of steroids can be delivered locally to the region of pathology via epidural route with minimal or no exchange to the systemic circulation.

In a prospective, double blind randomized controlled study conducted by Breivik and colleagues; they studied 35 patients with low back pain with radiculopathy which was not responding to the conservative management for a significant amount of time. They studied the outcomes with epidural steroid injections and found that there was a good outcome in 65% of patients and so they could return to work early [47]. In the prospective, randomized controlled study conducted by Ridley et al, they observed a statistically significant improvement in 65% patients who received epidural steroid injection^[48].

Buttermann et al in a prospective, non-blinded, randomized controlled study, including 169 patients observed that there was a good or favourable outcome in 56% of patients who got epidural steroid injection. In this study he compared the outcomes after epidural steroid injection with that of discectomy. He concluded that ESIs are not as good as discectomy in reducing the symptoms or disability when associated with a herniated disc which is large, but they were found to be effective in around half of the patients with symptoms even after 6 weeks of non-invasive conservative management.^[43]

This study consisting of 60 patients, which is a prospective cohort study, who were given the TFESI in the study period i.e., January 2021 to June 2022, having lumbar disc herniation with radiculopathy, participating with follow up of 18 months. The evaluation was carried out by the degree of the pain and comparing the pre-op and post-op VAS score by subsequent outpatient visits at 1, 3, 6, 12 & 18 months (final follow-up). The degree of pain was assessed using visual analog score. Pre-injection average pain (VAS) was 6.88 (range 6 – 8) after selective transforaminal block the average pain score decreased from 6.88 to 1.64 at 18 Months follow up. Most no. of patients significantly improved with a single dose transforaminal block injection. 71.8% of the patients had complete pain relief up to a follow-up period of 18 month. And this result was consistent with the literature quoted above.

Incidence of surgery after ESI

The cross over rate from Epidural steroid injection to the discectomy group was mentioned by Buttermann and Riew in different studies. They both observed the cross over rate be around 50%. In Buttermann's randomized controlled study 27 out of 50 (54%) patients from epidural steroid injection underwent discectomy and in Riew's study 29 out of 55 (53%) patients did cross over.^[43,50]

In the Meta analysis conducted by William Lavalie et al, they studied a

large group of population 482,893 patients were diagnosed to have disc herniation. 27,799 (5.76%) underwent discectomy. 41,420 patients received epidural steroid injections and 9.34% of them underwent discectomy at a later date.^[51]

In our study 3 patients out of 60 patients (5%) with IVDP underwent operative procedure after being given an epidural steroid injection. The average time period between the epidural steroid injection and the discectomy as was in the study conducted by Buttermann et al was 3.3 months and a range of 1 to 13 months.^[43]

In our study there were 2 patients who underwent surgery at 1.5-month, 1 patient at 3 months. The average time period between the epidural steroid injection and the surgery was 2.25 months.

Our study demonstrated a 71.8% reduction in surgical cases in a patient population with chronic symptoms & dysfunction with severe radiculopathy. Through this study TFESI can be attributed to this reduction in the number of surgeries performed.

Both nonsurgical and surgical interventions have proven safe and effective in the treatment of LDHs^[32-36] These findings were further confirmed via the SPORT trial^[37,38] focused on LDH.

Our study shows very good relief of radicular pain in patients with lumbar disc herniation, 18 months after transforaminal epidural steroid injections. Transforaminal epidural injections result in a significant reduction of pain scores in patients with lumbar radiculopathy when compared with pain scores of patients receiving no treatment or conservative management without injection therapy. Transforaminal epidural steroid injections appear to be cost effective, particularly in comparison with the costs associated with surgical intervention^[41,42].

This study demonstrated the continued efficacy of TFESI in the treatment of LDH with Radiculopathy, even in patients with longstanding symptoms. Transforaminal epidural steroid injection is an additional non-operative treatment option that alleviates symptoms and may alleviate the need for surgery for many patients. The delay in surgical treatment observed with the creation of the TFESI pathway is justifiable based on the number of successful treatments. The significant maximal benefit was reached at immediate post injection status. Selective transforaminal block injection is an easy procedure, safe (nonreactions), cheap for both patient & institution devoid of any bio-hazard complications, minimally traumatic, avoids regular usage of NSAIDs, early recovery, no complications, effective & reduced recurrence rate, provides pain free state and improving functional status.

CONCLUSION:-

From our study we conclude that there is a significant functional improvement both statistically and clinically in patients with intervertebral disc prolapse after giving epidural steroid injections. The immediate response to transforaminal epidural steroid injection was satisfactory and has a considerable pain free life style over a term of 1.5 year and its outcome for a long-term pain relief has to be further evaluated in coming days. Epidural steroid injections are very safe in safer hands without any major adverse effects. The technique of TFESI is very easy to learn and master and seems to be one of the best way of managing severe radicular pain. Patients with radiculopathy from lumbar disc herniation obtain significant pain relief from a TFESI irrespective of age, gender, disc level, symptom and pain intensity. Transforaminal epidural steroid therapy has better outcome (Mostly after 3 months of injection) with respect to VAS and Patient Satisfaction Score. After Transforaminal injection ADL (Activity of Daily Living) improves significantly. Maximum improvement occurs at three months and lasts even more than 12-18 months. In few patients even surgery could be avoided or could be well postponed.

Transforaminal epidural steroid injection (TFESI) is cost- effective as it is a day care procedure which doesn't require admission at all.

Hence, we concluded that Transforaminal epidural steroid injection prevent as well as delay the need for surgery in a pt. with lumbar disc herniation with radiculopathy.