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RESEARCH ARTICLE

FUNCTIONAL OUTCOME OF INTERVERTEBRAL DISC PROLAPSE TREATED WITH EPIDURAL STEROID AND LOCAL ANAESTHETIC -A PROSPECTIVE STUDY.

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Abstract

The intervertebral disc is subject to continuous and progressive degenerative changes through out life, L3,L4,L5 showing greatest degree of degeneration. This study aims to study the outcomes of use of a mixture of epidural steroid and local anaesthetic in cases of IVDP. 20 cases of IVDP were treated with above mentioned method. Clinical results were analysed at the end of 4, 6, 8 and 12 weeks. The parameters assessed during each visit are: improvement in symptoms like, backache, sciatica, ability of carrying out daily activities, lifestyle, walking ability, SLRT and motor and sensory system improvements. This method has allowed symptomatic relief from back pain for atleast 12 weeks.

Introduction:-

Disc prolapse amounts for 5% of lower back disorders. Intervertebral disc prolapse can be treated conservatively or surgically.

The intervertebral disc is subject to continuous and progressive degenerative changes through out life, L3,L4,L5 showing greatest degree of degeneration.

Clinical features can be discussed under three headings:
Low backache: Back pain is common in the second decade, disc disease and disc herniation in the third or fourth decade.

Radiculopathy: This refers to pain in the distribution of the sciatic nerve and is invariably due to disc herniation. This is called as sciatica.

Nerve root compression: About 95 percent of the disc prolapse takes place through the L4-5 region compressing the L5 nerve root . The other nerve roots commonly involved are L4 and S1 due to disc prolapse between L3-4 and L5-S1 respectively.

The conservative methods include (1) bed rest (2) anti-inflammatory drugs (3) various forms of physiotherapy (4) manipulation and exercise training (5)corsets (6) epidural nerve block

Epidural Steroids
Epidural steroids are a symptomatic method of treatment, and consist of injecting a long-acting steroid and a local anesthetic into the epidural space.There are three different ways to perform an epidural injection caudal block, translumbar and transforaminal. Epidural Mixture - 20 ml of solution is injected containing 40 mg

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triamcinolone, a long acting depot steroid lasting 21 days, mixed with 0.5% lignocaine. The triamcinolone exerts the anti-inflammatory effect, whilst the lignocaine (lidocaine) helps to make the procedure more comfortable.

Materials And Methods:-

The present study is a prospective study. 30 patients in the age group of 20- 70 yrs who suffered from IVDP were treated by epidural steroid and local anaesthetic injection at Government Medical College, Thrissur From January 2014 to June 2015, were studied and followed up for a period of 12 weeks. Patients were assesed by Japanese orthopedic association score before and after the procedure.

Japanese Orthopedic Association Low Backache Score

Subjective symptoms	Score
A. Low back pain	(3 points)
a. No low back pain	3
b. Occasional mild low back pain	2
c. Low back pain always present /severe low back pain	
occurs occasionally	1
d. severe low back pain always present	0

Leg pain and/ tingling	(3 points)
a. No lower extremity pain / numbness	3
b. Occasional mild lower extremity pain / numbness	2

Lower extremity pain and numbness always present / severe lower extremity pain and numbness occur

Occasionally	1
d. severe lower extremity pain and numbness	0

Ability to walk (3 points)
Normal walking 3

Walking at least 500m is possible, but pain, numbness	
and weakness are felt	2

In walking 500m / less, pain , numbness and weakness	
occur, and walking becomes impossible	1

In walking at most 100m, pain, numbness and weakness

occur, and walking becomes impossible	0

2. Clinical findings	(score)
A. SLRT	(2 points)
a. Normal	2
b. 30 degree – 70 degree	1
c. Less than 30 degree	0

B. Sensory abnormality	(2 points)
a. Normal	2
b. Mild sensory disturbance(Hypoaesthesia)	1
c. Distinct sensory symptoms(Anaesthesia)	0

Motor abnormality (2 points)

a. Normal	2
b. Slightly decreased muscle strength	1
c. Markedly decreased muscle strength	0

Total Score	15

Rate of improvement= post treatment score – pre tre atment score /
15 – pretreat ment score x 100
Results after treatment are assessed according to rate of improvement Excellent : >90% improvement
Good : 75% to 89% improvement
Fair : 50% to 74% improvement
Poor : < 49% improvement

Age, sex, occupation, side, symptoms, nerve tension signs were noted for each case after proper history taking, clinical examination and radiological work up.

Caudal epidural steroid and localanaesthetic (lignocain 5%) was given under aseptic precautions.

Patient was then allowed to do all routine activities and was assessed on 4, 6, 8 and 12 weeks by JOA scoring system.

Results:-

We found that IVDP was common between the 4^{th} and 5^{th} decades of life with mean age of 50 years. Female predominance was seen i.e 18 of our patient were female (60%) and 12 were male (40%). In our series patient with Agriculture as occupation were 10 (33.33%), mechanic 1 (3.33%), house wife 8 (26.66%), clerk 1 (3.33%), merchant 4 (13.33%), coolie 6 (20%). Patient with back pain radiating to RIGHT lower limb were 10 (33.33%), LEFT side were 9 (30%), BILATERALLY were 11(36.66%). All 30 (100%) patients had LBA and Radicular pain, 6 (20%) patients had paraesthesia and 0/ no (0%) patients had weakness and sensory loss. In our study 3 (10%) were SLRT positive, 2 (6.66%) patients were positive for Lasegues test and 25 (83.33%) were positive for both. Quadrants of IVDP on MRI were, cental 1(3.33%), paracentral 24(80%), foraminal 3(10%), far lateral 2 (6.66%). In our series 0 (0%) patients had JOA pre treatment scores between 0-3, 0 (0%) patients between 3-6, 19 (63.33%) patients between 6-9, 8 (26.66%) patients between 9-12 and 3 (10%) patients between 12-15. In our series 0 (0%) patients had JOA post treatment score between 0-3, 0 (0%) patients between 3-6, 1 (3.33%) patients between 6-9, 0 (0%) patients between 9-12 and 29 (96.66%) patients between 12-15.

Final JOA post treatment outcomes are:

Excellent	3
Good	22
Fair	4
Poor	1
Total	30

Discussion:-

Though humans have been tormented by back and leg pain since the beginning of recorded history, it astonishes that origin of disc related sciatica and clinical neurologic findings were not recognized until the 20^{th} century. Lumbar disc surgery and intra discal therapy are relatively recent developments.

Intervertebral disc as such was first described by Andreas Vesalius a Belgian Anatomist in 1543. In 1764, Dominico Cotunio described sciatica as a clinical entity and for many years sciatica was being known as Cotunio's disease.

The first articles regarding epidural therapies describe cocaine being injected via the sacral hiatus for sciatica in 1901. De Pasquier and Leri illustrated the use of cocaine in lumbar intrathecal injections, but these unfortunately produced 'toxic cocaine accidents'. In 1952, Robecchi and Capra reported the treatment of lumbar disc herniation with periradicular hydrocortisone. . The caudal and interlaminar insertion of steroids into the posterior epidural space have been the main methods for insertion of steroids, but recently small volume perineural (transforaminal) epidural injection into the anterior/lateral epidural space for targeted steroid placement has become increasingly used.[1] Methylprednisolone has been shown to suppress the transmission in thin unmyelinated C-fibres while not affecting myelinated A_β fibres and it is thought that this effect is via a direct membrane—stabilizing effect as

opposed to an indirect action via mediators.[2]Manchikanti believed transforaminal injection to be superior in its ability to reach the site of pathology while being able to use even smaller doses of steroids. While the increased technical difficulties are noted to perform this method, his study showed better outcomes after a series of epidural steroid injections (there were no differences in pain relief after the first injection) with the transforaminal approach followed by the caudal approach as a reasonable secondary approach. A further method of administration would be under direct vision during spinal endoscopy (epiduroscopy) in a selected group of patients who have lower limb radicular pain and back pain due to epidural scarring after spinal operation.[3]

In May 2009, NICE guidelines were published with regard to treatment of persistent non-specific low back pain of duration between 6 weeks and 12 months.[4] The guidelines state 'do not offer injections of therapeutic substances into the back for non-specific low back pain'.). Derby and colleagues[5] have published a study which documents the size and aggregation of corticosteroids used in epidural injections. They noted that only dexamethasone and methylprednisolone have particles consistently smaller than a red blood cell (7.5–7.8 μm) but that methylprednisolone had a tendency to aggregate and pack densely with a possible propensity to cause emboli and block a small arteriole whereas dexamethasone did not. Dreyfuss and colleagues[6] have shown in cervical transforaminal injections for cervical radicular pain significant improvements in pain scores at 4 weeks using either a particulate or a non-particulate steroid.

Conclusion:-

1. Treating Intervertebral disc prolapse with a mixture of Epidural steroid (Triamcenolone 80 mg) and Local anaesthetic (5% lignocaine 1.5ml) is a very effective and successful method.
2. Epidural Steroid and Local anaesthetic mixture is effective in controlling low backache and radicular pain caused by IVDP.
3. It allows the patient to go back to his / her work early as compared to other modalities of conservative treatment.

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