

## CAUDAL EPIDURAL INJECTIONS FOR LUMBAR PROLAPSED INTER VERTEBRAL DISC: ASSESSMENT WITH URDU VERSION OF OSWESTRY DISABILITY INDEX

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### BACKGROUND/AIMS:

Oswestry Disability index is an established tool for assessment of Spinal Disability. It has been translated into many languages and but

observational study was translation, application and validation of Urdu version of the Oswestry Disability Index (Urdu ODI) for our specific cultural background.

### METHODS:

Urdu version of ODI was developed and applied for outcome assessment in 50 patients, suffering from lumbar prolapsed inter vertebral discs and treated with caudal epidural steroid injection. All patients having mechanical low backache with radiculopathy and single level disc prolapse at L-4-5 or L5-S1 on Magnetic Resonance Imaging (MRI) were included in the study. Single Steroid Injection with local anesthetic was injected into sacral caudal epidural space through sacral hiatus. A Performa was made for each patient and records were kept in a custom built Microsoft access database. Outcome was assessed using Urdu ODI and validation by comparing with Numeric rating Scale 0-10 at each visit.

### RESULTS:

Fifty patients received caudal epidural injections, 23 (46%) were male and 27 (54%) were female. The mean age was 34 years, with the range being 21-55. Low mechanical backache with right sided radiculopathy was in 29 (58%) and left sided in 21 (42%) patients. The commonest involved disc was L4-5 in 28 (56%) and L5-S1 in 22 (44%) patients Pain was assessed with Numeric Rating Scale (NRS) of ten points. This was

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mean 7.35, range 9-6 at presentation and mean improvement was 4.15 with range 5-3 at first week, 3.80 with range 5-2 at first month and 3.05 with range 4-1 after six months. Functional disability assessment was done using Urdu ODI. The mean Urdu ODI at the time of presentation was 66.23% with range 81%-48%. The mean functional status was found to be 38.64% with range 26%-45% at the end of the first week, 43.65% with range 31%-48% after one month and 44.85% with range 28%-48% after six months. So there was mean improvement in score of Urdu ODI: 41.65% at the end of the first week, 34.09% after the first month and 32.28% after the end of six months. Pain at injection site was the only complication in 4 (8%) patients.

### **CONCLUSION:**

Urdu ODI is useful tool for assessment of spinal disability in Pakistani population. This will meet the local cultural and literacy requirement. Caudal epidural injection can be injected in Out Patient Clinics safely with good outcome avoiding surgery in majority of the cases. To our knowledge this is the first Urdu translation and validation of ODI.

### **KEY WORDS:**

Oswestry Disability Index, ODI, Urdu Oswestry Disability Index, Urdu ODI, Caudal Epidural Injection

### **INTRODUCTION:**

Low backache and radiculopathy are common symptoms in prolapsed inter vertebral disc.<sup>1</sup> The life time incidence of backache is about 80% and annual prevalence ranges from 15%-45% which is associated with enormous economic, societal, and health impact especially in a developing country.<sup>2</sup> The management is conservative, injections and surgery. Epidural steroid injections (ESIs) are the most widely used pain management procedures in the world.<sup>1</sup> ESIs can be injected in inter laminar space, transforaminal and sacral hiatus.<sup>3</sup> The low mechanical backache with radiculopathy responds to ESIs

decreasing the need for surgery. Caudal epidural injections of corticosteroids injected through sacral hiatus are beneficial in 18-90% cases and hence is injected all over the world.<sup>4</sup> The equilateral triangle is formed between the apex of the sacral hiatus and right and left posterior superior iliac spines in most of cases and can be used in determining the location of the sacral hiatus during Caudal epidural injections.<sup>5</sup> Surrounding bony irregularities, different shapes of hiatus and defects in dorsal wall of sacral canal should be taken into consideration before undertaking caudal epidural block to avoid its failure.<sup>6</sup>

Oswestry Disability Index (ODI) is an established tool for measuring spinal disability<sup>7</sup> which has been translated to many languages like Greek<sup>8</sup>, Korean<sup>9</sup>, Turkish<sup>10</sup>, Chinese<sup>11</sup>, Arabic<sup>12</sup> and many others languages. Pakistan is the most populated country in the Eastern Mediterranean region and has a population of over 170 million with different literacy rates in its provinces, Punjab has highest literacy rate of 80%.<sup>13</sup> The literacy rate is even low in low socioeconomic class.<sup>14</sup>

Spine Surgery is a growing specialty in the country. Most of the people can read Urdu, there is need to translate and validate spine disability assessment tools. Neck disability Index (NDI) has already been translated and validated. The purpose of this study was translation and validation of the Urdu version of ODI (Urdu ODI) which is the first translation to our knowledge. This will aid outcome assessments in Spinal studies done in local populations.

### **PATIENTS AND METHODS:**

This prospective observational study was conducted in Tertiary Care Hospital Peshawar over a period of one year. Patients with low mechanical low backache with radicular symptoms and evidence of one level prolapsed disc on Magnetic Resonance Imaging (MRI) not responding to conservative treatments for six weeks were included. Exclusion criterion

was motor deficit, diabetes mellitus, multi level disc prolapse, degenerative spinal stenosis and bleeding disorders. Patients were investigated for Erythrocytes Sedimentation Rate (ESR), Blood sugar random (BSR) and C-reactive proteins (CRP) and booked for caudal spinal epidural injections with steroid in Out Patient Clinic, if these levels were found normal. For the procedure they were asked to lie prone on couch, back was draped with povidone iodine 7.5% and then cleaned with spirit. Sacral hiatus was localized as it forms equilateral triangle with right and left posterior superior iliac spines along with sacral cornu and by palpation. Injection site was anaesthetized with 2% lignocaine in apprehensive patients and those patients in whom sacral hiatus was not entered clinically. The feeling of needle going into epidural space, loss of resistance during injection and no subcutaneous swelling was considered enough to complete the procedure. No image or ultrasound guidance was used. The caudal epidural steroid Injection, triamcinolone acetone 80 milligrams with 3 milliliters of bupivacaine hydrochloride 2.5% was diluted with sterile water to 20 ml volume and injected through sacral hiatus once. Patients were instructed to lie in supine position for fifteen minutes with legs flexed. Oral antibiotics were prescribed for three days in all patients. The records were kept in custom built Microsoft access database. Informed consent was taken from patients and the study was approved by the hospital research committee. Urdu version of Oswestry Disability Index (Urdu ODI) was developed as per International standards of translation procedure including forward translations, reconciliation, backward translation and pre-testing steps. It was also adapted to cultural differences in local Pakistani patient population. Then, a peer review was done for construct validity by a panel of specialists and teachers of Urdu language with postgraduate qualification. Finally, it was applied to 25 backache patients who were not included in

the study. The outcome assessment was done using Urdu ODI (Fig 1) and the patients were followed after one week, one month, three months and then after six months.

## RESULTS:

Fifty patients received caudal epidural injections 23 (46%) were male and 27 (54%) female. The mean age was 34 years, with range being 21-55. Low mechanical backache with right sided radiculopathy was found in 29 (58%) and left side in 21 (42%) patients. The commonest involved disc was L4-5 in 28 (56%) and L5-S1 22 (44%). In 47 (94%) patients sacral epidural was injected without difficulty and in 3 (6%) local anesthetic had to be injected to find sacral hiatus. In 6 (12%) apprehensive female patients injection site was anesthetized with local anesthesia. Pain was assessed with Numeric Rating Scale (NRS) of ten points. This was mean 7.35, range 9-6 at presentation and mean improvement was 4.15 with range 5-3 at first week, 3.80 with range 5-2 at first month and 3.05 with range 4-1 after six months (Fig 2). Mean Urdu ODI at the time of presentation was 66.23% with range 81%-48%. The functional status of the patient was found to be mean 38.64% with range 26%-45% at end of first week, 43.65% with range 31%-48% at one month and 44.85% with range 28%-48% after six months (Fig3). There was mean improvement of Urdu ODI 41.65% at first week, 34.09% at first month and 32.28% at the end of six months (Fig 4). Four patients did not improve after injections and underwent surgery. Pain at injection site was the only complication in 4 (8%) patients.

## DISCUSSION:

ODI is an established tool for assessing spinal disability. This has been translated and validated in many world languages and even touch screen entering scores are developed.<sup>15</sup> This include Greek version<sup>8</sup>, Korean<sup>9</sup>, Turkish<sup>10</sup>, Italian<sup>16</sup>, Chinese<sup>11</sup>, Brazillian-Portuguese<sup>17</sup>, Arabic<sup>12</sup>, Hungarian<sup>18</sup> and

Marathi.<sup>19</sup> Spine is a growing sub specialty in Pakistan with increasing work of documentation. The local population and masses cannot understand English although literacy rate is 80% or higher in some provinces like Punjab. There is need for translation and validation of spinal disability assessment tools in Urdu for better patient understanding and local cultural requirements. The Urdu ODI developed is as per international protocols involving forward-backward translation, final review by an expert committee and test of the pre final version.<sup>16</sup>

Epidural spinal injections are injected into patients all over the world for the management of prolapsed intervertebral disc with good outcome. Epidural steroids are injected through interlaminar, caudal and transforaminal roots. Caudal epidural steroid injections not only relieve leg pain but also relieve back pain.<sup>20,21</sup> The available literature on the effectiveness of epidural injections in managing chronic low back pain secondary to disc herniation is highly variable.<sup>22</sup> The caudal epidural injected through sacral hiatus under fluoroscopy<sup>23</sup> or ultrasound guidance gives satisfactory results.<sup>24</sup> However, it may be injected without fluoroscopic or ultrasound guidance. In one study the success of caudal epidural injections was 85% which was simultaneously confirmed with fluoroscope.<sup>25</sup> In present, study 94% caudal epidural injections were clinically assessed to be correct, although no fluoroscope was used. In one study evaluating the clinical success of epidural injection which was confirmed with ultrasonography the author found 66% success at first attempt and 92% at subsequent attempts.<sup>26</sup> We did not find any significant difference of outcome of caudal epidural injections at L4-5 or L5-S1. One study

showed similar outcome with Oswestry Disability Index, patient satisfaction and final outcomes using similar procedure in disc prolapse at L4-5 and L5-S1.<sup>21</sup>

The mean Urdu ODI was 66.23% at presentation which improved by 41.65% by the end of the first week, 34.09% by the end of the first month and by 32.28% at the end of six months. In present study pain was assessed with Numeric Rating Scale (NRS) of ten points. This was mean 7.35, range 9-6 at presentation and mean improvement was 4.15 with range 5-3 at first week, 3.80 with range 5-2 at first month and 3.05 with range 4-1 after six months. There was corresponding improvement in NRS at same time which resulted in validation of the Urdu ODI. One study showed evidence of caudal epidural steroids at 1-year follow-up.<sup>22</sup> Study done at Khyber Teaching Hospital Peshawar showed 40% improvement in ODI after 3 months after single caudal epidural steroid injection in 60 patients.<sup>27</sup>

There was pain at injection site in 12% patients; this was the only complication. The study did not encounter any infection possibly because of exclusion of diabetic patients and use of oral antibiotics.

## CONCLUSIONS:

ODI is an established tool for spinal disability assessment which has been translated to many languages in the world for local population understanding and cultural requirements. Spine is a growing specialty in Pakistan and Urdu ODI introduced in this study will assist in measuring spinal disability in local population. To our knowledge this is first Urdu translation application and validation of Urdu ODI.

## Fig 1 Urdu Oswestry Disability Index (Urdu ODI)

### اوسوسٹری معذوری انڈیکس

#### اُردو ورژن

ڈاکٹر ابراہیم فاروق پاشا

#### سوال نامہ

مہربانی فرما کر ان سوالوں کا جواب دیں یہ اس طرح تیار کئے گئے ہیں کہ ہمیں معلوم ہو کہ کمر کے درد کی وجہ سے آپ کی زندگی کے روزمرہ کاموں پر کیا اثر پڑتا ہے۔  
مہربانی فرما کر نیچے دیئے ہوئے سیکشن میں سے صحیح جواب کا انتخاب کریں جو اس وقت آپ کی تکلیف کو ظاہر کرتا ہے۔ آپ محسوس کر سکتے ہیں / کر سکتی ہیں کہ ایک سے زیادہ جواب اس وقت آپ کے لیے صحیح ہے لیکن یہ بہت ضروری ہے کہ آپ صرف ایک ایسے جواب کا انتخاب کریں جو کہ اس وقت آپ کی تکلیف کو ظاہر کرتا ہو۔  
مجھے "دائمی" یا ایسا درد ہے جو تین ماہ یا اس سے زیادہ ہے۔

نہیں

ہاں

کسی ایک پریشان لگائیں۔ سرجری سے پہلے  سرجری کے تین ماہ کے بعد  سرجری چھ ماہ کے بعد  سرجری کے ایک سال بعد  سرجری کے دو سال بعد

#### سیکشن 1: درد کی شدت:-

- 1- میں اپنے درد کو برداشت کر سکتا / کر سکتی ہوں بغیر کوئی درد کی دوا لیے ہوئے۔
- 2- درد زیادہ ہے لیکن میں درد کی دوا لیے بغیر برداشت کر سکتا / کر سکتی ہوں۔
- 3- درد کی دوائی کھانے سے میرا درد مکمل طور پر ختم ہو جاتا ہے۔
- 4- درد کی دوائی کھانے سے میرا درد مناسب کم ہو جاتا ہے۔
- 5- درد کی دوائی کھانے سے میرا درد نہ ہونے کے برابر کم ہوتا ہے۔
- 6- درد کی دوائی کھانے سے میرے درد کو کوئی فرق نہیں پڑتا اور اب میں اسے استعمال نہیں کرتا / کرتی۔

#### سیکشن 2: ذاتی تجمہداشت:-

- 1- میں تمام طور پر اپنی دیکھ بھال کر سکتا / کر سکتی ہوں اور اس سے مجھے اضافی درد نہیں ہوتا۔
- 2- میں اپنی دیکھ بھال کر لیتا / لیتی ہوں لیکن اس سے مجھے اضافی درد ہوتا ہے۔
- 3- مجھے اپنی دیکھ بھال کرنے سے درد ہوتا ہے جس سے میں آہستہ آہستہ احتیاط سے کام کرتا ہوں / کرتی ہوں۔
- 4- مجھے زیادہ تر اپنے ذاتی کاموں کے لیے کسی کی مدد کی ضرورت ہوتی ہے۔
- 5- مجھے ہر روز اپنے خود کی دیکھ بھال کے لیے کسی کی مدد کی ضرورت ہوتی ہے۔
- 6- میں خود کپڑے تھیلے یا منہ ہاتھ نہیں دھو سکتا / دھو سکتی اور بستر میں رہتا ہوں / رہتی ہوں۔

#### سیکشن 3: وزن اٹھانا

- 1- میں بغیر کسی اضافی درد کے ہماری وزن اٹھا سکتا ہوں / کر سکتی ہوں۔
- 2- میں ہماری وزن اٹھا تو سکتی / سکتا ہوں لیکن مجھے زیادہ درد ہوتا ہے۔
- 3- درد کی وجہ سے میں ہماری وزن زمین سے نہیں اٹھا سکتا / کر سکتی ہوں لیکن اگر کسی اونچی جگہ جیسا کہ میز پر ہونو اٹھا لیتا / لیتی ہوں۔
- 4- درد کی وجہ سے میں ہماری وزن تو نہیں اٹھا سکتا / کر سکتی لیکن اگر تھوڑا وزن اونچی جگہ پر پڑا ہونو میں اٹھا لیتا / لیتی ہوں۔
- 5- میں صرف ہلکا وزن ہی اٹھا سکتا / کر سکتی ہوں۔
- 6- میں کوئی ہلکی سی چیز بھی اٹھا کر یا نہ کر نہیں جا سکتا / کر سکتی ہوں۔

#### سیکشن 4: چلانا

- 1- دروکی وجہ سے مجھے کوئی بھی فاصلہ پیدل چلنے میں رکاوٹ نہیں ہوتی۔
- 2- دروکی وجہ سے میں 1 میل سے زیادہ نہیں چل سکتا/سکتی ہوں۔
- 3- دروکی وجہ سے میں آدھا میل سے زیادہ نہیں چل سکتا/سکتی ہوں۔
- 4- دروکی وجہ سے چوتھائی میل سے زیادہ نہیں چل سکتا/سکتی ہوں۔
- 5- میں صرف بیسایگی یا چھڑی کے سہارے ہی چل سکتا/سکتی ہوں۔
- 6- میں زیادہ تر بستر میں ہوتا ہوں/ہوتی ہوں اور گھٹنوں کے بل ہاتھ روم جاتا/جاتی ہوں۔

#### سیکشن 5: بیٹھنا

- 1- میں کسی بھی کرسی پر بیٹھتی بھی دیر چاہوں بیٹھ سکتا/سکتی ہوں۔
- 2- میں اپنی پسندیدہ کرسی پر بیٹھتی دیر بھی چاہوں بیٹھ سکتا/سکتی ہوں۔
- 3- دروکی وجہ سے میں ایک گھنٹے سے زیادہ نہیں بیٹھ سکتا/سکتی ہوں۔
- 4- دروکی وجہ سے میں 30 منٹ سے زیادہ نہیں بیٹھ سکتا/سکتی ہوں۔
- 5- دروکی وجہ سے میں 10 منٹ سے زیادہ نہیں بیٹھ سکتا/سکتی ہوں۔
- 6- درو مجھے بالکل بھی بیٹھنے نہیں دیتا۔

#### سیکشن 6: کھڑا ہونا

- 1- میں جتنی دیر چاہوں بغیر کسی اضافی درد کے کھڑا ہو سکتا/سکتی ہوں
- 2- میں جتنی دیر چاہوں کھڑا ہو سکتا/سکتی ہوں پر اس سے اضافی درد ہوتا ہے۔
- 3- درد مجھے ایک گھنٹے سے زیادہ کھڑا نہیں ہونے دیتا۔
- 4- درد مجھے 30 منٹ سے زیادہ کھڑا نہیں ہونے دیتا۔
- 5- درد مجھے دس منٹ سے زیادہ کھڑا نہیں ہونے دیتا۔
- 6- درد مجھے بالکل کھڑا نہیں ہونے دیتا۔

#### سیکشن 7: سونا

- 1- دروکی وجہ سے سونے میں کوئی رکاوٹ نہیں ہے۔
- 2- میں آرام سے سو سکتا/سکتی ہوں پر گولی لینے پڑتی ہے۔
- 3- گولی لینے کے باوجود میں چہرے سے کم سوتا/سوتی ہوں۔
- 4- گولی لینے کے باوجود میں چار گھنٹے سے کم سوتا/سوتی ہوں۔
- 5- گولی لینے کے باوجود میں دو گھنٹے سے بھی کم سوتا/سوتی ہوں۔
- 6- درد مجھے بالکل سونے نہیں دیتا۔

### سیکشن 8: ازدواجی زندگی (صرف شادی شدہ کے لیے)

- 1- میری ازدواجی زندگی ٹھیک ہے اور مجھے بالکل درد نہیں ہوتا۔
- 2- میری ازدواجی زندگی ٹھیک ہے لیکن مجھے اضافی درد ہوتا ہے۔
- 3- میری ازدواجی زندگی تقریباً ٹھیک ہے لیکن مجھے بہت درد ہوتا ہے۔
- 4- درد کی وجہ سے میری ازدواجی تعلقات میں کمی ہے۔
- 5- درد کی وجہ سے میرے ازدواجی تعلقات تقریباً ختم ہیں۔
- 6- درد مجھے ازدواجی تعلق قائم نہیں کرنے دیتا۔

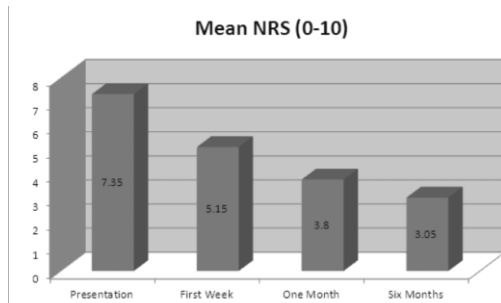
### سیکشن 9: سماجی زندگی

- 1- میری سماجی زندگی ٹھیک ہے اور اس سے زیادہ درد نہیں ہوتا۔
- 2- میری سماجی زندگی ٹھیک ہے لیکن اس سے میری درد میں اضافہ ہوتا ہے۔
- 3- درد کی وجہ سے میری سماجی زندگی ٹھیک ہے لیکن میں طاقت والے کام نہیں کر سکتا / سکتی۔
- 4- درد کی وجہ سے میری سماجی زندگی محدود ہو گئی ہے اور میں زیادہ تر باہر نہیں جاتا / جاتی
- 5- درد کی وجہ سے میری سماجی زندگی گھر تک محدود ہو گئی ہے۔
- 6- درد کی وجہ سے میری کوئی سماجی زندگی نہیں ہے۔

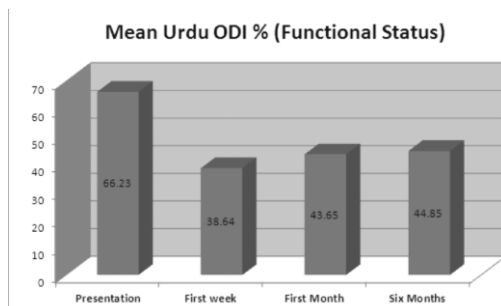
### سیکشن 10: سفر

- 1- میں کہیں بھی سفر کر سکتا / سکتی ہوں بغیر کسی اضافی درد کے۔
- 2- میں کہیں بھی سفر کر سکتا / سکتی ہوں لیکن مجھے اس سے اضافی درد ہوتا ہے۔
- 3- درد زیادہ ہے لیکن میں دو گھنٹے سے زیادہ کا سفر کر لیتا / لیتی ہوں۔
- 4- درد کی وجہ سے میں ایک گھنٹے سے کم کا سفر کر لیتا / لیتی ہوں۔
- 5- درد کی وجہ سے میں 30 منٹ سے کم کا سفر کر لیتا / لیتی ہوں۔
- 6- درد کی وجہ سے میں سفر نہیں کر سکتا / کر سکتی صرف ڈاکٹر کے پاس یا ہسپتال ہی جا سکتا / سکتی ہوں۔

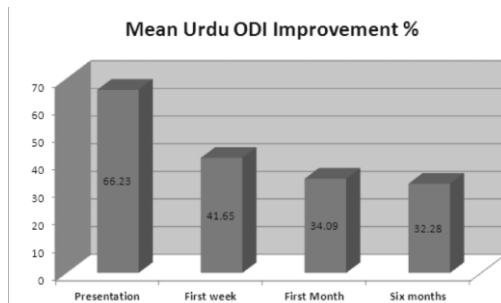
**Fig 2 Mean improvement in Numeric Rating Scale**



**Fig 3 Mean Functional Status Urdu ODI**



**Fig 4 Mean Urdu ODI Improvement**



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