

Methodology: A double-blind randomized controlled trial was performed at Department of PMR, AIIMS, New Delhi with 10 participating adults with at least 3 months of refractory plantar fasciitis. The participants were randomized to either group using random number tables. Prolotherapy group received injection of 1ml P2G solution (phenol 1.2%, glycerine 12.5%, and dextrose 12.5% in sterile water). Steroid group received 1ml Triamcinolone acetonide injectable suspension 10mg/ml.

Outcome Measures: The primary outcome measures used were resting heel pain (0–10 Likert scale) and foot function index. Secondary outcome measure used was tablet count chart. Each was recorded at baseline, 4 and 12 weeks.

Results: The subjects who received prolotherapy reported to have improvement both in pain scores (7.32 ± 1.1 and 4.08 ± 1.0 versus 7.32 ± 1.2 and 5.75 ± 1.0 at baseline and 4 weeks, respectively) and foot function scores (48.21 ± 14.9 and 16.65 ± 5.6 versus 40.98 ± 12.1 and 26.85 ± 3.4 at baseline and 4 weeks, respectively) as compared to steroid group. Wilcoxon rank-sum (Mann-Whitney) test revealed a statistically significant improvement ($p < 0.05$) with prolotherapy injections alone as well as in comparison to steroid group among both outcome measures at 1 month. The prolotherapy subjects also reported to have reduced analgesic tablet intake ($p < 0.05$) as compared to steroid group. Results at 12 weeks are still awaited.

However, in both the treatment group there were no adverse events seen.

Conclusions: Prolotherapy with P2G solution was more effective in decreasing heel pain and improving foot function in subjects with refractory plantar fasciitis as compared to Steroid injections.

O30

ALS functional rating scale, pulmonary function tests and speech like tasks – a follow up study on 17 patients with sporadic amyotrophic lateral sclerosis (ALS)

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Introduction and Objective of the Study: Sporadic ALS is a progressive neurodegenerative disease wherein dysarthria is a common symptom. This study looks at a few measures related to speech in these patients in due course of the disease.

Method: 17 adults with ALS (11 spinal onset and 6 bulbar onset; revised El Escorial criteria) out of 76 patients came for a follow up for a period of one year. 10 parameters i.e. Speech related subdivisions of ALS Functional Rating Scale (ALSFRS-Speech, Salivation, Swallowing and Breathing), Pulmonary Function Tests (Forced Vital Capacity and Maximum Voluntary Ventilation; %) and Measures of maximum performance of speech like tasks {Diadochokinetic rate (syllables/sec): DDK [pa], [ta], [ka] and [pataka]} were assessed at entry (baseline) and during each of their follow-ups.

Results: Statistically significant difference ($p < 0.05$) between the baseline assessment (b/l) and the follow-up, with the follow-up having lower score, was observed on two parameters i.e. Speech score on ALSFRS and DDK [pataka]. The speech score on ALSFRS showed a significant difference ($p = 0.041$) when the performance at b/l was compared with performance after 12 months. On the task of DDK [pataka], two comparisons showed a significant difference i.e. in Comparison between b/l vs. 2 months post b/l ($p = 0.026$) and

in the comparison between b/l vs. 12 months post b/l ($p = 0.011$). Although statistical significance could not be established for the rest of the parameters, in most of them, the mean at any of the follow-ups was lower than at the b/l.

Conclusion: Reduction in DDK [pataka] rate suggests progression in dysarthria. Lesser score of speech on ALSFRS on follow up suggests that alternative and augmentative communication would be the need in due course for these patients as the relentless disease progresses.

O31

Indwelling catheter related pressure ulcer in groin in a tetraplegic patient: a case report

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Ulcer prevention and its management has been a challenge in the practice of Rehabilitation Medicine and more so, with the tetraplegic subjects. We herein report a case of a 42 year old tetraplegic male, who presented with multiple pressure ulcers and atypical Grade-II ulcer in the right groin due to mismanagement of indwelling urethral catheter. The primary aim of this report is to highlight an unusual and potentially preventable complication of indwelling urethral catheter in patients with SCI. Groin is extremely an unusual site for ulcer and no similar case has been previously reported with an ulcer in the groin in a spinal cord injury (SCI) patients. This case highlights the importance of proper positioning of indwelling urethral catheter, its care, and prevention of medical devices related (iatrogenic) complications in patients undergoing treatment.

Conclusion: An improperly positioned indwelling urethral catheter may result in ulcers from pressure or constant soiling over the thighs in patients with SCI. Absence of sensation, weakness of both the legs and lack of knowledge about indwelling catheter care contributed to this ulcer formation. Hence it is important to properly position the indwelling urethral catheters.

O32

Functional outcome of a new rehabilitation approach in severe cerebral palsy (GMFCS IV and V)

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Objectives of Investigation: Children with Cerebral Palsy (CP) with Gross Motor Classification System (GMFCS) levels of IV and V are non-ambulatory and at a greater risk of complications such as osteopenia, low energy fractures, hip displacement and musculoskeletal pain. Prevention of these complications requires that these children are made ambulant with or without support. However, the recommended rehabilitation strategy at present for these groups is wheel chair aided mobility leading to a “Catch 22” situation. The purpose of the study was to find out the outcome of Single Event Multilevel Lever Arm Restoration and Anti Spasticity Surgery (SEMLARASS) and rehabilitation in children with CP with GMFCS levels IV and V.

Methods Used: 170 children with GMFCS V & IV (mean age 9.68 ± 4.77) participated in this study. The surgical procedures were performed by a single Orthopaedic Surgeon which included Intramuscular Release and Controlled Tendon Lengthening using the principles of Orthopaedic Selective Spasticity Control Surgery and simultaneous restoration of lever arm dysfunctions and was followed by protocol based, sequenced multidisciplinary rehabilitation for an average of 6 months. The outcome measures such as component of GMFM-88, Functional Mobility Scale (FMS), Physicians Rating Scale (PRS), Manual Ability Classification System (MACS) were used to compare the functional status of the child before and after the surgery and rehabilitation.

Results: The results showed a significant improvement in all GMFM-88 components. The result of Pre-Post PRS evaluation showed a significant improvement for both sides (Right: $t=8.60$, $(P<0.001)$; Left: $t=9.21$, $(P<0.001)$). The improvement in the MACS (Right: $t=4.05$ $(P<0.001)$; Left: $t=5.74$ $(P<0.001)$) and FMS ($t=5.46$ $(P<0.001)$) were also significant among both GMFCS V and IV.

Conclusion: A well-planned and executed SEMLARASS, followed by intensive protocol based rehabilitation, in the context of a multidisciplinary team, provides the person with GMFCS levels IV and V a significant functional improvement.

O33

Study of correlation between neurological level of spinal injury and bladder functions as detected by urodynamic study

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Study design and subjects: Analytical study

Objectives: To study the correlation between neurological level of spinal injury and bladder functions as detected by urodynamic study.

Methods: Seventy individuals with traumatic spinal cord injury (SCI) admitted to the department of Physical Medicine and Rehabilitation, S.M.S. medical college and hospital, Jaipur, were included in the study. Detailed clinical, neurological evaluation as per American Spinal Injury Association Classification (ASIA) and radiological assessment were done along with clinical examination of bladder and urodynamic study for evaluation of bladder behavior.

Results: Out of sixty five patients with suprasacral injuries, 53(81.5%) demonstrated hyperreflexia with or without detrusor sphincter dyssynergia, 6(9.2%) detrusor areflexia, and 6(9.2%) had normal bladders, 28(43.1%) had low compliance (less than 12.5ml/cm H₂O) and 47(72.30%) had high detrusor leak point pressures (greater than 40 cm H₂O). Of the 5 patients with sacral injuries, 1(20%) had detrusor hyperreflexia, 4(80%) had detrusor areflexia, 1(20%) had low bladder compliance and all 5(100%) had high detrusor leak point pressures.

Conclusions: The correlation between somatic neurologic findings or spinal imaging studies and urodynamic findings in patients with spinal cord injury is not exact. Therefore, bladder management should not completely rely only on clinical bladder evaluation and neurological examination alone, but should always include Urodynamic studies.

Keywords: Dyssynergia, Detrusor, Bladder, Spinal cord injury (SCI), Urodynamic study

O34

Study to assess non-invasively the cardiac autonomic dysfunction in patients with chronic spinal cord injury (SCI)

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Abstract: The objective of the study was to assess non-invasively the cardiac autonomic dysfunction in patients with chronic spinal cord injury (SCI). 14 male patients with chronic SCI and a neurologically complete lesion with a neurological level of T₆ or above were included. An equal number of age and sex matched healthy individuals were the controls. Short term ECG recording for a duration of 5-min was done followed by offline analysis of the data. Mann-Whitney test was used to compare the patients with the controls and Wilcoxon matched-pairs signed-ranks test for within the group analysis. Heart rate variability analysis showed a significantly decreased absolute power in the low frequency and high frequency components in the SCI group in sitting position as compared to that of controls. No significant differences were noted in the frequency domain between SCI patients and controls in supine position, as well as within the SCI patients on changing of position from supine to sitting. The controls showed a significantly increased LF:HF (low frequency:high frequency) ratio on change of position from supine to sitting. The autonomic dysfunction in SCI patients was appreciated on provocation.

O35

Effectiveness of breathing exercises on pulmonary function of traumatic quadriplegic and high paraplegic patients

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Aims and objectives: The *primary* objective of the study is to test the effectiveness of breathing exercises in improving the pulmonary function of traumatic quadriplegic and high paraplegic patients.

The *secondary* objective is to assess the basal pulmonary function of traumatic quadriplegic and high paraplegic patients.

This is a *hospital based interventional study* conducted in a population of Traumatic Spinal Cord injured patients with lesions at/above neurological level-T₆, diagnosed clinically and/or radiologically (six weeks after the injury). Study population of sample size $n=10$, consisted of patients attending the Department of PM&R, MCH, TVM, during the period from July 2012 to December 2012. Informed consent obtained.

Initially the patients are evaluated by *history (using a proforma) & Clinical Examination using Bed side Pulmonary tests (Single Breath Count, Incentive Spirometer, Candle test) &*

-Objective assessment with Pulmonary Function Test (using Spirometer): the most important parameters used include FVC (Forced Vital Capacity), FEV₁ (Forced Expiratory Volume in one second) & MVV (Maximum Voluntary Ventilation)

Inspiratory breathing exercise using the Incentive Spirometer will be given to the study population (15 minutes thrice daily for 6 weeks). The change in the clinical and objective parameters of PFT will be assessed after 6 weeks.