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CONTENTS

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Original Article

Effect of Aerobic Exercise on Quality of Life in Stable Angina

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Abstract

Circulatory diseases, including myocardial infraction (MI) and stroke, kill more people than any other disease. Cardiac rehabilitation aims to restore patients who have suffered myocardial ischaemia or infarction to optimal health through exercise based rehabilitation or comprehensive cardiac rehabilitation (e.g., smoking cessation advice, diet and counselling as well as exercise). Evidence regarding comprehensive cardiac rehabilitation consisting with major components in one set are lacking.

This study was carried out to see the effect of a comprehensive Cardiac Rehabilitation (CR) programme comprising aerobic exercise, counselling and education on quality of life among patients of stable angina.

This prospective experimental study carried out in the Department of Physical Medicine & Rehabilitation, Bangabandhu Sheikh Mujib Medical University (BSMMU), Dhaka from May 2007 to August 2008. Eighty patients participated in the study; of which analysable data was obtained from 71 patients. Group B (control) patients were treated with counselling, education and usual drug treatment. Group A (study subjects) were given aerobic exercise in the form of brisk walking in addition to counselling and education and usual drug treatment. Each individual was observed at first visit, thereafter was assessed in succession for three more occasions at 14 days intervals each for quality of life using 'Cardiac Quality of Life Index' (QOL) that consists of 5 domains. Apart from baseline characteristics the outcome of fourth visit was compared between the groups for unveiling the difference statistically.

The highest numbers of patients were in the 41-50 years age group with male was predominating (ratio was 4:1.) The comparative study between group A and group B revealed a significant improvement in four of the five domains among group A; namely psychological well-being, physiological well-being, nutrition and worry than the control group B. No significant difference in improvement of the symptoms was evident.

Aerobic exercise programme as a component of CR has been found very effective and it should be necessary part of the treatment modality for stable angina patient in order to improve health and quality of life.

Key words : **Coronary artery disease, stable angina, aerobic exercise, cardiac rehabilitation, quality of life.**

Coronary artery disease (CAD) represents not only a healthcare burden by itself but also contributes to mortality and morbidity associated with other forms of cardiovascular disease[1]. The stress that a patient suffers physically and psychologically not only influence the physiologic function of the patient but also decline the quality of life (QOL). Lifestyle changes and medications are frequently used to treat stable angina. Invasive techniques such as angioplasty and stenting also have been used to reopen narrowed heart arteries.

Cardiac Rehabilitation (CR) is defined by the World Health Organisation (WHO) as "the sum of activities required to ensure patients the best possible physical, mental and social conditions so that they may resume and maintain as normal a place as possible in the community"[2]. Cardiac rehabilitation services are comprehensive, long-term programmes involving medical evaluation, prescribed exercise, cardiac risk factor modification, education and counselling. The programmes

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are designed to limit the physiological and psychological effects of cardiac illness, reduce the risk for sudden death or re-infarction, control cardiac symptoms, reduce intake of heart related medication, stabilise or reverse the atherosclerotic process, enhance the psychological and vocational status of selected patients[2]. Benefits of cardiac rehabilitation for patients with angina are many[3]. Regular exercise reduces the frequency of anginal symptoms, increases functional capacity, and improves endothelial function[4,5]. A randomised trial compared the effects of daily exercise with those of angioplasty and stenting among patients with chronic stable angina and single-vessel coronary artery disease demonstrated better outcomes (in terms of major adverse events and improved exercise capacity) at one year in the exercise group than in the revascularisation group[6].

Chronic stable angina is the initial manifestation of coronary artery disease (CAD) in approximately half of all presenting patients. During recent years persistent or refractory angina, i.e., angina that is unresponsive to both maximal drug treatment and revascularisation techniques has become increasingly more relevant and poses a problem of great magnitude[7]. So among the cardiac patients the one with stable angina pectoris is one of the most valuable candidate to have CR because attempt should be made to reverse or at least slower pathophysiological condition in its earliest stage possible and thus to prevent its consequences which leads to other worse cardiac problems.

In Cardiac Centre of Bangabandhu Sheikh Mujib Medical University (BSMMU), Dhaka, Bangladesh, a good number of patients with CAD are attending daily, but most of them without participating in a CR programme. This study has been carried out to see the effect of this set of aerobic exercise in quality of life among patients with stable angina in a tertiary care setting.

Materials and Methods

This prospective study was carried out in the department of Physical Medicine and Rehabilitation, BSMMU, Dhaka Bangladesh, from May 2007 to August 2008. Eighty established cases of stable angina were recruited from outpatient of the Department of Cardiology, BSMMU. Patients of both sexes with age range of 30-65 years were included with exclusion of patients with unstable angina, associated chronic obstructive airway diseases, diabetes mellitus (DM), hepatic impairment, and, severe renal impairment.

The selected patients were randomly allocated to two groups; group A (study group) and group B (control group). Group A was given aerobic exercise in addition to usual treatment, with counselling and education. Group B was given usual treatment with counselling and education. Counseling and education was regarding the disease and risk factors, control of risk factors (including counselling for healthy diet, weight management, smoking cessation, stress management), information about the symptoms of cardiac chest pain, orientation to emergency personnel. Aerobic exercises in the form of brisk walking 30 minutes each session for 5 sessions per week was advised. Intensity was based on the Borg numerical scale of Rate of Perceived Exertion (RPE). Patients were instructed to exercise at an RPE of 13 (somewhat hard) to 15 (hard)[8].

After informing details about the nature of the treatment and the study to the patient, written consent was taken prior to the enrollment in to the study. There was no involvement of privacy and no chance of physical or social risks.

All patients were examined initially at first visit, thereafter were assessed in 2nd, 3rd and 4th visit at 14 days interval. Each of the patient was assessed by the parameter – cardiac quality of life (QOL)[9] which is a multifaceted cardiac disease specific 20 item questions arranged in five domains : psychological well being, physical well being, symptoms, nutrition and worry. Visual analogue scale (VAS), which scores 0-10, was used to score QOL where 0 (zero) indicates best condition through 10 (ten) which indicates worst condition[10]. All the assessment was done by a third person (coinvestigator) who was not aware of the treatment provided.

Data obtained by the QOL questionnaire, and, regarding particulars of the patients, examination findings and investigation report was recorded and interpreted. After collection, the data were coded and compiled accordingly and processed by using computer based programme SPSS version13. Student's "t" test with 95% confidence interval and Chi-square test were done to see the level of significance as required. And the values were expressed mean ± standard deviation; p-value (level of significance) was calculated with 95% confidence interval.

Results

Total number of patients enrolled in the study was 80, out of which 71 (group A 37 and group B 34) patients completed the study. Majority of the respondents (50.70%) were aged between 41 and 50 years and then 33.80% were aged 51-60 and, 12.68% were aged 30-40 years. Of the patients completed study 81.69% were

male and 18.31% were female with varied occupations (Table 1).

Table 2 shows the comparison between group A (study) and B (control), at baseline and at completion of treatment.

Aerobic exercise programme resulted in a significant improvement (p-value <0.05) in four of the five domains of quality of life among the study subjects in comparison to the control group, they were: Psychological wellbeing, physiological well-being, nutrition and worry. The domain where significant improvement (p-value >0.05) was not evident was symptoms domain.

Discussion

In the domain of psychological well-being the subjects of both the groups achieved almost equal improvement may be due to effect of patient education and regular follow-up on them. Improvement to greatest extent is observed in the domain of physiological well-being in the question stem 3 (tiredness), 7 (health status), 11 (working capacity) but not in question stem 1 (strength). Statistically significant difference was revealed on each postintervention visit between the subjects received cardiac rehabilitation programme and those who didn't. Intensity and frequency of heart pain among none of the group improved significantly. Nutrition domain showed significant difference in improvement between groups (p< .05) at the last visit (V3). Marked improvement in the reduction of worry was apparent among the study subjects in comparison to their control counterparts (p<0.05).

Table 1 : ***Shows the Baseline Characteristics of 80 Study Patients***

Group	Age (years)	Sex		Weight (kg)	BP (mm Hg)		Occupation					
		M	F		SBP	DBP	Service holder	Sedentary	Business-man	Self employed	House wife	Others
Group A (study)	46.4	30	10	65.41	129.9	84.487	10	4	12	4	8	2
Group B (control)	48.67	30	10	62.074	132	86.125	10	3	10	3	8	6

Table 2 : ***Comparative Treatment Response between Group A (n=37) and Group B (n=34)***

Quality of life		Group	Mean	Standard deviation	P-value	95% Confidence interval of the difference	
						Lower	Upper
Psychological well being	V0	A	42.38	4.579	0.477	-1.413	2.993
		B	41.59	4.723			
	V3	A	32.76	4.752	0.000	-7.462	-2.436
		B	37.71	5.844			
Physical well being	V0	A	15.95	2.818	0.056	-0.030	2.157
		B	14.88	1.572			
	V3	A	9.89	2.536	0.000	-4.309	-2.260
		B	13.18	1.660			
Symptoms	V0	A	8.65	1.585	0.303	-0.300	0.950
		B	8.32	.945			
	V3	A	7.00	1.354	0.747	-0.632	0.455
		B	7.09	.866			
Nutrition	V0	A	7.73	1.446	0.349	-1.026	0.368
		B	8.06	1.496			
	V3	A	6.16	1.236	0.003	-1.949	-0.432
		B	7.35	1.921			
Worry	V0	A	14.00	1.546	0.938	-0.725	0.784
		B	13.97	1.642			
	V3	A	10.11	1.220	0.000	-2.761	-1.568
		B	12.27	1.281			

Although when comparing separately both control and study group patients showed marked improvement in all the five domains of quality of life, the comparative study between group A and group B revealed a significant improvement in four of the five domains among the study group (group A) than the control group (group B). In the symptom domain no significant difference in improvement was evident.

Other studies[11,12] reveal aerobic exercise consisting of upper limb, lower limb and trunk exercises resulted in significant cardiopulmonary fitness after 6 weeks. Dugmore *et al*[12], found that 12 months' weekly aerobic training programme revealed significant improvement in cardiorespiratory fitness, psychological profile and quality of life scores in comparison to their matched controls. These studies are in parallel of our recent study. Kennedy *et al*[13], found in their study that aerobic exercise and lifestyle modification resulted in all the 5 domains of quality of life, whereas our study resulted in significant improvement in all but symptom domains. This could be due to the fact that duration of our study was 6 weeks only but their study was of more prolonged duration-14 weeks, therefore exerted more intense effect on disease symptoms.

The present study revealed the beneficial effect of aerobic training at intensity of Borg scale 11-13 in overall quality of life of patients with stable angina and this outcome is in the line with the results presented by previous studies with stable angina by such intervention. The significance of this study is that, here the intensity of aerobic exercise was determined by individual's physiological response (perceived exertion) by Borg numerical scale. And, the intensity used here was 11-13 ('hard' to 'somewhat hard') which is equivalent to VO2 peak 40%-60% which again is equivalent to HR maximum 55%-70%.

Conclusion

A short-term comprehensive CR programme consisting of aerobic exercise, counselling and education, along with usual drug treatment on stable angina patients for a 6 weeks period is found effective. A significant improvement in quality of life occurred in 4 domains namely physiological, psychological, nutrition, worry domain but not in symptom domain. A very feasible mode of aerobic exercise was performed by brisk walking, and intensity was determined by Borg scale – a method easily detectable by patient of all status.

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PG Forum

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Platform Presentation

Suprascapular Nerve Block in Adhesive Capsulitis of Shoulder

Dr. Mrinal Joshi

Shoulder pain is a common complaint and may cause an important functional disability. An estimated 20% of the population will suffer shoulder pain during their lifetime. Shoulder pain is second only to low back pain in seeking care of musculoskeletal abnormalities.

The treatment of adhesive capsulitis is challenging because the problem and initial treatment is painful. The mainstay of treatment is physical therapy regimen which most of the patients find difficult to follow due to pain.

Suprascapular nerve block can help reduce pain thereby reducing the requirement of NSAIDs and allow patients to follow physical therapy properly.

Objective: To assess the efficacy of suprascapular nerve block for management of adhesive capsulitis shoulder.

Methods: Twenty people with adhesive capsulitis were selected for study who had persisting problem of movement restriction and moderate to severe pain after four weeks or more of physical therapy and medications. Selected patients received suprascapular nerve block while using anatomical landmarks and nerve locator. They also underwent a common standardised physical therapy program. Patients were followed for 15, 30, and 60 days after the nerve block.

Results: Clinically & statistically significant improvement was observed in range of movement, SPADI & SST. No adverse effects were observed during or after the procedure/nerve block.

Conclusion: Suprascapular nerve block is a safe & efficacious treatment for the management of adhesive capsulitis shoulder. It reduces pain & improves mobility and functions at shoulder.

Epidemiological Study of Prevalence of Backache in School Children *vis-a-vis* Weight of School Bag and Other Life Style Factors

Dr Virinder Singh Gogia, Dr Deepak Kumar

An epidemiological study is being undertaken in a Chandigarh high school to determine the prevalence of backache among school kids vis-a-vis weight of school bag. Other physical parameters, height, weight etc, of the children and lifestyle factors like physical activity, postural habits during prolonged constant posture activities, duration of such activities, type of uniform footwear, seating, bag carrying style are also being considered. In this interim report of the ongoing study, data will be presented on students corresponding to age range 13-15 years. Some preliminary take home messages are also suggested.

Outcome of Rehabilitation Exercises in BPPV Disorders

Dr. Jayanta Saha, Dr. Dipankar Mukherjee, Dr. Debasish Mukherjee

A large variety of patients with vertigo were referred to the department of PMR at Salt Lake S.D. Hospital & S.N. Pandit Hospital from the departments of ENT & Medicine from March 2008 to March 2011.

A majority of these patients were suffering from benign paroxysmal positional vertigo (34%).The rest of the other patients of vertigo were suffering from vestibular neuronitis and other vestibular diseases.

The present study was conducted to assess the role of Brandt-Daroff's exercises in BPPV vestibular diseases. BPPV was diagnosed by presence of positional vertigo and Dix-Halpike test and subsequently included in the study.

Advancement in diagnostic procedures enabled the diagnosis of the cause of vertigo with some certainity but still clinical features had an important role in the diagnosis.

Vestibular neuronitis and acute viral labyrinthitis were the commonest cause of self-limited inner ear conditions.

Meniere's disease, perilymphatic fistula and acoustic neuroma were other peripheral causes of vertigo though their incidence was far lesser.

Rarely vertigo of peripheral aetiology was also caused by impairment of proprioceptive and visual input.

In addition to the peripheral causes there were the central causes which came in the differential causes of vertigo.

Common causes include stroke and TIA which accounted for 35% of cases. In addition migraine related vestibulopathy, multiple sclerosis, postinfectious demyelination, temporal lobe seizure, Arnold- Chiari malformation, tumours of the brainstem and cerebellum and cerebellar degeneration were associated with vertigo.

After proper evaluation Brandt-Daroff's exercises were advised for vertigo of benign paroxysmal positional vertigo for a period of 2 (two) months.

Non -BPPV patients were excluded from the study.

Results were quite satisfactory.

Before advising the specific exercises the following criteria were ensured in a patient:

1) The patient was suffering from a true vertigo.
2) The vertigo was of the peripheral –labyrinthine variety. Exclusion of the central causes –by clinical examination was ensured.
3) BPPV as a cause of vertigo was established in the study.

It is important to note that management of vertigo is often a multipronged, multidisciplinary approach where rehabilitation exercises are a single cog of the entire wheel.

Key words : Vertigo, labyrinthine disorders, rehabilitation exercises.

An Interesting Case of Fixed Flexion Deformity of Hip & Knee Presented at PMR OPD : A Case Report

Dr Rajesh Pramanik

A 17 year old female patient presented to PMR OPD, IPGMER with FFD of left hip and knee and cachexia.

She was absolutely fine 5 year back. Suddenly a severe pain developed in her left knee and thigh which was investigated for juvenile inflammatory arthropathy and rheumatic arthritis. At that time all the serological markers (ANA, RF, ASO titre) and x-ray of knee were normal.

Subsequently left hip pain and restricted ROM developed which made it clear that the knee pain was actually referred from hip. A plain x- ray of hip was done to rule out Perthe's disease which was reported as AVN.

When the patient was examined at PMR OP , a CT Scan of hip, routine hemogram, CXR, Mantoux test were advised considering a provisional diagnosis of infective pathology like TB hip with a differential of neoplasia in or around hip keeping in mind about cachexia and weight loss. Surprisingly CT scan showed a big mass originating from glutei muscles evading back of the thigh and even left sphincter ani muscle. Fortunately patient was continent at that time.

Interestingly the pathological report suggests a relatively rare diagnosis which practically made the patient bedridden with commonly featured FFD.

Value of Sonographic Measurement of Median Nerve in a Referred Population of Suspected CTS Cases

Dr. Unnikrishnan Ramachandra

Aim : To assess the usefulness of sonographic measurements of median nerve cross sectional areas (CSA) in the diagnosis of Carpal Tunnel Syndrome (CTS) among a referred population of patients using electrodiagnosis as the reference Gold standard.

Materials and Methods : From a group of 55 patients referred with a clinical diagnosis of CTS to the electrodiagnostic and sonographic labs of a tertiary centre, a total of 47 patients and 84 symptomatic hands were selected for analysis. The symptomatic hands were classified according to Steven's classification by electrodiagnosis. Sonographic measurements of median nerve CSA at the inlet (CSA.I), tunnel (CSA.T) and outlet (CSA.O) of the carpal tunnel were measured and their mean value (CSA.M) was calculated. These values were statistically analysed using statistical programme STATA version 8.2.

Results : Symptomatic hands were grouped by electrodiagnosis as normal- 9 (10.7%), mild- 29 (34.5%), moderate- 26 (31.0%), and severe- 20 (23.8%). Since there was no clear cut off value for sonographic measurement of median nerve agreed upon for the diagnosis of based on available literature, we compared the CSA values against electrodiagnostic gradation of severity. There was a significant correlation between clinical severity and sonographic measurement of CSA of median nerve at all these levels, (Spearman $r=0.360$, $p=0.001$ for CSA.I, Spearman $r=0.439$, $p<0.001$ for CSA.T, Spearman $r=0.405$, $p<0.001$ for CSA.O, Spearman $r=0.430$, $p<0.001$ for CSA.M). The median cross sectional areas of the severe CTS group was significantly high when compared pairwise with the

moderate, mild, and normal groups, while the differences in CSAs were not significant between the other pairs. Using electrodiagnosis as the reference standard the diagnostic accuracy of the CSA measurements was determined by ROC curves, the highest area under the curve was for outlet - CSA.O, 0.75 (95% CI, 0.55-0.96); followed by mean - CSA.M, 0.74 (95% CI, 0.54-0.94); inlet -CSA.I, 0.72 (95% CI, 0.53-0.92); and tunnel - CSA.T, 0.71 (95% CI, 0.51-0.90). A value of $<8.5mm^2$ showed a negative LR of 0.09 (sensitivity 96 %, specificity 44.5%) and a cut off of $>12.3mm^2$ showed a positive LR of 4.08 (45 % sensitivity, 89% specificity).

Conclusion : Ultrasonography can be considered a cost effective, less time consuming and non-invasive modality for the diagnosis of CTS in a referred population of clinically suspected cases. These findings need to be validated by further studies including healthy controls.

Physical, Social & Economic Impact of the Jaipur Limb

Dr Pooja Mukul

Background : The amputee population worldwide is rising at an alarming rate. The Jaipur foot organisation – Bhagwan Mahaveer Viklang Sahayata Samiti, Jaipur serves a huge volume of the amputee population. Addressing amputee rehabilitation holistically, with the view that the prosthesis we provide is not an end in itself but a means to restore dignity, individual autonomy and social inclusion. A study was undertaken to quantify the varied facets of impact of the Jaipur technology.

Objectives : To study the pre and post-prosthetic status of the amputee with reference to their physical, social and economic situation. To also study patient compliance and longevity of the prosthesis.

Study Design : Personal interview.

Materials and Methods : The study tool was a questionnaire which comprised 108 questions under 5 domains. The 5 domains were demographic, amputation and prosthesis, functional impact, feedback on prosthetic service, economic impact. Four indices were prepared to facilitate the analysis Functional index, Prosthetic satisfaction index, Quality of life index and Emotional status index. The scoring was ordinal.

The data was processed using the statistical package for Social Sciences.

A total of 341 amputees were included in the study; 67.4% were transtibial and 32.6% and transfemoral, 69.8% of these were under 40 years of age. Less than 5% of the respondents were women. The educational background of 56.5% was secondary school or above. Ability to carry out ADL was adversely affected in 92.8% amputees pre-prosthesis. As many as 90.2% respondents were not doing any work prior to getting the prosthesis from BMVSS. QOL Index showed 60.5% amputees as having a low QOL. Emotional assessment revealed the emotional status of 55.9% to be low, 75.3% amputees reported good family support.

Results : Post-prosthetic use 91.4% of amputees felt medium to good improvement in mobility and ability to carry out ADL. There was a 6 fold increase in employability, the QOL and Emotional indices also showed a positive impact in proportion to the effect on physical performance.

The average distance walked per day was over 3 km. The average duration of use of the prosthesis was 9 hours per day. The longevity of the prosthesis was 3.89 years.

Conclusion : The study demonstrated that the Jaipur limb had a very significant effect on the lives of its beneficiaries.

However, despite the patient compliance and patient performance physical independence could not be translated into economic independence of the same scale.

Spasticity & Drugs

Dr Mrinal Joshi

Spasticity following spinal cord injury (SCI) is a common symptom which negatively affects quality of life. Despite its prevalence, spasticity as a syndrome in the SCI population is not always managed effectively because it has various presentations. Different drugs are used to manage spasticity.

A prospective study in 20 acute spinal cord injury patients has been done to find out the effect of various antispastic medications like Baclofen, Diazepam, Tizanidine, Gabapentine, on spasticity and results were measured clinically on Modified Ashworth scale (MAS), Penn Spasm Frequency scale (PSFS) and Hmax/Mmax ratio. Baclofen in dose range of 15-37.5 mg/day showed highly significant reduction in mean Hmax/Mmax ratio and significant reduction in mean PSFS. Mean MAS also showed reduction, but this was non-significant.

A Comparison Study of Endoskeletal *versus* Exoskeletal Prosthesis in Lower Extremity Amputees

Dr. Chitra G, Dr. V.K.Sreekala, Dr. Jayasree. M

General Objectives : To compare the factors associated with the daily use of endoskeletal and exoskeletal prosthesis among lower extremity amputees who have at least used the prostheses for a minimum period of 3 months.

Objectives :

1. To compare the mobility status of persons using endoskeletal and exoskeletal prostheses.
2. To study and find the difference in social and emotional aspects of persons using endoskeletal and exoskeletal prostheses.
3. To study and compare various other factor like utility, appearance, perceived response, residual limb health, sounds and well being.

Study Design : Cross sectional study.

Setting : All the lower limb unilateral amputees who have used the prosthesis for a minimum period of 3 months and who attended the OP of Physical Medicine and Rehabilitation Department attached to Medical College Hospital, Thiruvananthpuram are included for the study. These patients hail from the districts of Thiruvananthapuram, Kollam and Kanyakumari.

Study period : One year

Inclusion Criteria : Unilateral lower limb amputees who have used the prosthesis for a minimum period of 3 months.

Exclusion Criteria :

- Bilateral Transfemoral and Transtibial amputees.
- Patients with severe cardiopulmonary disease, mental illness and cognitive defects.
- Severe contralateral limb problems, scoliosis, bilateral visual impairment.
- Patient who have not given their consent.

Study Instrument : Mobility status, appearance, frustration, perceived response, residual limb health, social burden, sounds, utility and well being are assessed by using a validated self administered Prosthesis Evaluation Questionnaire (PEQ).

Most questions in the PEQ use a visual analogue scale format. Each visual analogue scale is scored as a continuous numerical variable measured as the distance in millimeters from the left endpoint of the line to the point at which the respondent's mark crosses the line. Each time is 100 mm long and is always measured from the left (0-100). The questions are all worded so that a higher number (toward the right) will correspond with a more positive response.

The PEQ Scales
Validated Scale Name Questions for each scale by page number and question letter
Ambulation (AM) - 13A, 13B, 13C, 13D, 14E, 14F, 14G, 14H
Appearance (AP) - 3J, 3M, 3N, 4O, 4P
Frustration (FR) - 10B, 10C
Perceived Response (PR) - 10A, 11D, 11E, 11G, 12H
Residual Limb Health (RL) - 4Q, 4R, 4S, 5T, 5U, 5V
Social Burden (SB) - 12I, 12J, 12K
Sounds (SO) - 3K, 3L
Utility (UT) - 1B, 1C, 1D, 2E, 2F, 2G, 2H, 2I
Well Being (WB) - 16C, 16D

To calculate the scale scores the average of all the questions which make up the particular scale was computed 4 to compare the tow prosthesis T-test done.

Base line information like age, address, income side of amputation, level of amputation, type of prosthesis used were collected using a pretested questionnaire

Materials and Methods : All patients who have used prosthesis for a minimum period of 3 months and who attend the Physical Medicine and Rehabilitation OP attached to Medical College Hospital, Thiruvananthapuram were interviewed using the Prosthesis Evaluation Questionnaire. PEQ consists of 82 questions. The PEQ is divided into nine scales computed from 42 of the questions. These scales include ambulation, appearance, frustration, perceived response, residual limb health, social burden, sounds, utility and well being. The 40 remaining items pertain to other evaluation and are not grouped into scales. Individual questions of the PEQ are answered with respect to the amputee's recollection of the previous 4 weeks. Answers are recorded on a visual analogue scale that records the amputee's response between two extremes of the scale.

Base line information like age, address, income, side of amputation, level of amputation, type of prosthesis used were collected using a pretested questionnaire.

Study Analysis : Descriptive analysis was done to find out percentages. Comparison was made using chi-square test and T-test.

Conclusion :

- In this study it was found that the new endoskeletal prosthesis and the conventional exoskeletal prosthesis both are having an almost equal acceptability among amputees.

- Both the endoskeletal prosthesis and exoskeletal prosthesis satisfied most of the requirements of the amputee.
- When utility of the 2 prosthesis were compared Exoskeletal prosthesis had better performance and it was also statistically significant.
- Regarding ambulation, appearance, frustration, perceived response, residual limb health, social burden, well being no statistically significant difference was noted between there two prosthesis.
- Compared to exoskeletal prosthesis, endoskeletal prosthesis produced less mechanical sounds during ambulation.

Could Early Emptying of Intrathecal Baclofen Pump in Patient with Spastic Paraplegia Lead to Baclofen Withdraw Syndrome, Intracerebral Bleed and Death?

Dr. Maheswarappa B M, Dr. Swaroop Gopal, Dr. Ullas Gopala Krishna

Objectives : To report early emptying of intrathecal baclofen pump in patient with spastic paraplegia leading to baclofen withdraw syndrome, intracerebral bleed and death

Case Report : Forty-one years old software engineer working in IT was been paraplegic from Oct 1990 following surgery of neurofibroma in posterior mediastinum. He had undergone intrathecal baclofen pump implantation for spasticity and severe flexor spasms in 2005 and on regular baclofen refilling and follow-up. On 20 April 2011 he was brought to the emergency department with history of severe headache, dizziness, shivering, severe spasms upper and lower limbs and followed by unresponsiveness. On initial evaluation, his airway, breathing and circulation were stable, BP 220/120 mmHg and pulse 180/minute, his pupils were 1 mm diameter on both sides and not reacting to light. He couldn't open eyes and was posturing to pain (GCS of E1, V1, M2). He was intubated and transferred to the multidisciplinary intensive care unit (MICU) for further care. Baclofen pump was found empty and immediately the refilling of the pump done with 40ml of baclofen and bolus dose of 150 mcg. CT brain was done which showed massive intracerebral bleed in the right caudate region that had ruptured into the ventricular system. The haematoma was evacuated through a right frontal burr-hole and an external ventricular drain (EVD) was placed. However, there was no change in his neurological status. The EVD had to be replaced later on, as it was blocked. In spite of evacuation of haematoma and continued supportive measures, his neurological status remained unchanged leading to death at the end of week.

Conclusion : In patients with intrathecal baclofen pump implantation for managing spasticity and spasms, the pump may empty early before the date of refilling due to pump malfunction. This can lead to baclofen withdrawl syndrome, very high blood pressure, massive intracranial bleeding and death.

Hand Splints in the Management of Upper Limb Spasticity in Hemiplegia

Dr. Bimal Naorem

Objectives : To determine the effectiveness of hand splints in the reduction of upper limb spasticity in hemiplegia.

Design : Randomised controlled trial.

Setting : Department of PMR, RIMS, Imphal.

Participants : Eighty-eight hemiplegic patients attending PMR Department, RIMS, Imphal during 1st August 2008 and 31st July, 2010 was included.

Intervention : Wrist hand orthoses was given in the intervention group. It has to be worn for 8 hours at night and 4 hours during the day for 12 weeks. Followed up was done at the end of 1st, 3rd and 6 months.

Outcome Measure : Spasticity measured by modified Ashworth scale.

Results : Forty-four were assigned to intervention and 44 to control group. The proportion of patients with biceps spasticity score of 2 was observed to be significantly more among controls 36 (85.7%) as compared to the intervention group 10 (25.0%) at first follow up. Flexor spasticity score of 2 was also seen more among controls as compared to intervention group. Similar finding was also observed at second follow up. Majority in the intervention group had lower finger flexor spasticity scores 20 (90.9%) at first follow up as compared to the intervention group 9 (56.3%). Similar findings are also observed in case of biceps spasticity. Duration of hemiplegia of less than two weeks was significantly associated with reduction in spasticity.

Conclusion : There is significant reduction in upper limb spasticity if hand splint is applied to the affected limb within two weeks of post stroke hemiplegia.

Key words : Spasticity, Wrist Hand Orthoses, Modified Ashworth Scale.

Feasibility of Robot-Assisted Motor Training with Motor Imagery-Based Brain-Computer Interface (MI-BCI) Combined with the Neuromodulatory Technique of Transcranial Direct Current Stimulation (tDCS)

Dr. Effie Chew, Dr. Irvin Teh, Ivan Chua, Dr. Prasanth

(Randomised control trial still going on up to 2012)

The primary aim of this study is to investigate the feasibility of robot-assisted motor training with motor imagery-based brain-computer interface (MI-BCI) combined with the neuromodulatory technique of transcranial direct current stimulation (tDCS) to facilitate functional motor recovery in the affected upper extremity of chronic stroke survivors with moderate to severe impairment of the upper extremity function.

We hypothesise that both MI-BCI combined with tDCS (tDCS-BCI) and MI-BCI with sham-tDCS (sham-BCI) will result in improved motor function in the stroke-affected arm; and that tDCS-BCI will be more effective than **sham-BCI to result in functional improvement**.

We propose a randomized controlled study of 32 subjects who have sustained their first ever haemorrhagic or ischaemic subcortical stroke more than 9 months prior to study enrollment, with upper extremity impairment of 11-45 out of a maximum score of 66 on the Fugl-Meyer assessment scale. In addition to these subjects, we will recruit 12 age-matched healthy control subjects for the purpose of obtaining normative data for DTI comparison. Healthy subjects will be recruited as a sample of convenience from visitors to the hospital or staff.

Clinical outcome measures including Fugl-Meyer Assessment, Box and block test, modified ashworth scale, grip strength, Beck depression inventory, fatigue severity scale, forward and backward digit span.

Key words : Transcranial direct current stimulation, functional recovery in upper limb subcortical stroke, training with brain computer interface, cortical excitability measure by fmri, transcranial magnetic stimulation.

Is Rehabilitation Medicine the End of the Journey for Our Patients ?

Dr. Anupam Datta Gupta, Dr. David Wilson

Objective : This paper highlights the importance of diagnosis in rehabilitation medicine. Three patients were referred to rehabilitation unit – the first patient had neck pain on the background of postpolio paralysis of right upper limb and was diagnosed with postpolio syndrome. The second patient was operated for repair of ruptured abdominal aortic aneurysm (AAA) on the background of a Ankylosing Spondylitis. The third patient underwent conservative management for a compression fracture of the L1 following a fall at home.

Materials and Methods : The first patient had restricted neck movement – the open mouth view of the cervical spine revealed atlanto-axial subluxation. Subtle upper motor signs in the lower limbs and the MRI confirmed the diagnosis of Arnold Chiari malformation. The second patient was complaining of persisted back pain who had the history of collapse and a fall. The x-ray and the CT scan revealed unstable T10 fracture with spinal canal stenosis. Third patient developed lower motor weakness of the lower limbs along with up going plantar response and bladder symptoms which was eventually diagnosed with conus medullaris syndrome.

Results : All these patients were referred to the spinal surgical unit. The first patient had foramen magnum decompression. The second patient underwent open reduction and internal fixation of the T10 fracture dislocation. The third patient underwent decompression and internal fixation of L1. They were all referred back to the rehabilitation unit eventually recovered well and went home.

Implications/Impact on Rehabilitation : The patients are usually referred to rehabilitation medicine after the diagnosis has been made and primarily for overcoming the effects of disability and increasing functional ability. The rehabilitation physicians should not be anchored in assumptions and follow the same medical model of diagnosis i.e. detailed history, careful clinical examination, laboratory tests and radiological investigations. Rehabilitation can be the beginning of the journey for some of our patients as described in this series contrary to the popular notion that it is the end. This presentation will also discuss the biases the physicians are vulnerable to in making the diagnosis and how to address them.

Unusual Syndrome in a Child with Global Development Delay

Dr. C. Ramesh

Introduction : A 10 months old infant, third child of non-consanguineous marriage presented to our outpatient department with history of global development delay.

Evaluation : On examination there was no obvious external deformity, social smile present, baby could listen to sounds, sucking normal, moving all four limbs, neck control not attained and visually challenged.

Investigations including routine blood tests and metabolic screening were normal. MRI brain showed congenital cerebellar vermis atrophy, bat wing appearance, inverted molar tooth appearance and prominent cerebellar peduncle suggestive of Joubert syndrome.

Rehabilitation : Sensory stimulation programme started. Exercises to improve coordination may be needed in the future.

Conclusion : Global developmental delay may be associated with rare syndromes which needs active intervention.

Key words : Joubert syndrome, global development delay.

An Important Cause of Shoulder Pain and Weakness – Usually Overlooked

Dr. Ramita Sardana

A 30 years old painter developed pain in the right posterior shoulder region after 1 month of intensive work. Pain intensified as he continued his job and finally he noticed weakness of the involved shoulder which led him to seek medical advice. He was referred to PMR from orthopaedics as a case of rotator cuff injury. Examination was normal except for atrophy of infraspinatus muscle on the involved side and decreased strength of shoulder on abduction and external rotation. Routine X-ray were normal. Electromyographic examination demonstrated denervation of right infraspinatus and supraspinatus muscle. A diagnosis of right suprascapular neuropathy was made. The patient is being treated conservatively from the past 3 months and has showed significant improvement in power and relief in pain.

Key words : Suprascapular Neuropathy, infraspinatus atrophy.

Syndrome Associated with Transverse Myelitis – A Case Report

Dr. Sobee Krishna

Introduction : A 48 years old lady presented to our department with history of weakness of both lower limbs. She was investigated and since it was a documented case of transverse myelitis, clinical diagnosis of recurrent transverse myelitis was put forth.

Evaluation : On detailed investigations as to the cause of recurrence vasculitis profile showed anti Ro positive. So aetiology of vasculitis was entertained. On further evaluation since the patient had a history of persistent dryness of mouth and eyes, Schirmer's test was positive, awaiting minor salivary gland biopsy to confirm Sjogren's syndrome.

Discussion : MRI of brain and spinal cord showed hyperintensity signals which pertained to vasculitic aetiology. Along side the Sjogrens syndrome is also being followed up.

Conclusion : This is a single case study to report the rare association of Sjogrens syndrome with recurrent transverse myelitis.

Development of the Manipuri Version of the Health Assessment Questionnaire (HAQ) and Validation of the New Tool

Dr. Syrpai Karlukhi

Introduction : Over the course of time functional disabilities is common in rheumatoid arthritis (RA) patients and this is directly related with the control of diseases activity. For assessment, Health Assessment Questionnaire Disability Index (HAQ-DI) was commonly used. Translated and validation of the HAQ-DI has been done at various centres. A sensitive and valid instrument is needed for RA patients residing in Manipur.

Materials and Methods : Development of a Manipuri HAQ was attempted, and modifications were made in the domains of rising, eating, hygiene, grip and activity; this is done to suit the needs of our local people in this part in the country. Following the development of the Manipuri version HAQ, it was administered to a total 55 patients who fulfilled the inclusion criteria. The test-retest for reliability was done at baseline and 1 week follow-up. For construct validity, DAS score correlates with Manipuri HAQ at baseline and follow up.

Results : The mean age of our study population was 53.07 years; with mean duration of disease illness was 4.98 years. Female patients comprised 90.9%. Test-retest reliability of the Manipuri version HAQ was found to be acceptable with an intraclass correlation coefficient of 0.91, and with an internal consistency using Cronbach's alpha of 0.942. Pearson correlation coefficient for validity was found to be satisfactory with a score of 0.866 and 0.900 at baseline and follow up respectively. Also strong correlation was found between Manipuri HAQ and outcome measures disease activity with an average score of 0.73.

Conclusion : The Manipuri HAQ found to be reliable

and valid tool to be used in Manipuri speaking RA patients. It is also sensitive to changes in evaluation the functional status of patients suffering from RA in Manipur.

Hypokalemic Periodic Paralysis Associated with Hypothyroidism – A Case Report

Dr. Ngampa Sangme, Dr. Th. Khelendro, Dr. L. Nilachandra, Dr. A. K. Joy

Abstract : Periodic paralysis is also seen as one of the uncommon cause of quadriplegia in the Physical and Rehabilitation Medicine practice. Association of periodic paralysis with hyperthyroidism has been documented.

There have been anecdotal reports of periodic paralysis associated with hypothyroidism. However, there is no clear cut evidence of hypothyroidism causing hypokalaemia leading to periodic paralysis or vice versa.

A 21 years old male was admitted because of recurrent paralytic attacks involving all the four limbs with two similar attacks in the past in which, the symptom resolved without any interventions. There were no clinical features of hypothyroidism. Motor power was 2- 3/5 in all the key muscles of both upper and lower limbs without any sensory deficit when examined within 24 hours of the attack. Serum K^+ was consistently low (2.7 and 3mEq/l) in two consecutive readings with high TSH level and thyroid related antibodies in the serum. He was treated with potassium and thyroxine supplements and was able to walk and perform his duties within 72 hours of the attack.

This case report highlights the importance of keeping periodic paralysis as an important cause of the recurrent paralytic attack, importance of serum potassium and thyroid function tests and recovery pattern without active physical therapy intervention which may actually aggravate the disease process.

Comparative Study of Effect of Diclofenac Alone *versus* Diclofenac with Ultrasound Therapy in Patients with Plantar Fasciitis using Pedography

Dr. Sumalatha

Objectives : To compare the efficacy of two treatment modalities (Diclofenac alone vs. Diclofenac with Ultrasound therapy) using pedography and visual analogue scale.

Intervention : Comparison of the treatments with respect to pressure profiles using pedography and visual analogue scale in 23 patients with U/L plantar fasciitis.

Results : Comparison of various gait parameters in pre vs. post-treatment with both Diclofenac alone and Diclofenac with ultrasound therapy is done and the significance of the difference in outcomes in terms of pressure areas, gait parameters and VAS scale of the two treatment modalities is calculated. In the diclofenac alone group, there is significant decrease in VAS score post-treatment. Rest of the parameters is not significant. In diclofenac and ultrasound group, there is statistically significant increase in the rear foot pressure area and decrease in the VAS score post-treatment. Rest of the parameters is not significant. Comparison of the difference among the two treatment modalities with respect to pressure areas and VAS scale shows no significant value statistically.

Conclusion : Ultrasound therapy can be used as an add-on therapy along with other treatment modalities in plantar fasciitis. Use of pressure profile analysis gives an objective measure of the treatment modalities used and can guide for further management of plantar fasciitis.

Key words : Plantar fasciitis, pedography, ultrasound therapy.

A Descriptive Study on Sexual Functions of Vocationally Rehabilitated Persons with Spinal Cord Injury

Dr. Javed Anees

Rationale of Study : Vocational rehabilitation makes persons with spinal cord injury contributory members of the society. There is a paucity of literature regarding sexual functions (or dysfunctions) of persons with spinal cord injury who are otherwise healthy contributors to the society especially from nations like India.

Aims and Objectives : To assess the sexual functions of persons with spinal cord injury.

To assess the nature of dysfunction when sexual dysfunction is present.

Study Design : Descriptive cross sectional.

Study Setting : Department of Physical Medicine & Rehabilitation and home or working place of persons with spinal cord injury who are vocationally rehabilitated.

Study period : June 2011 to November 2011.

Inclusion criteria : Vocationally rehabilitated persons with SCI who are currently working and had been treated from outpatient / Inpatient departments of PM&R, Calicut Medical College.

Exclusion criteria : Persons with SCI who have not vocationally rehabilitated and persons with spinal cord injury who are not earning members at the time of this study

Study Tool : Sexual function questionnaire– internationally validated questionnaire.

Data Collection : After getting essential validated questionnaire, individual interview and provisional questionnaire, measures ensure privacy of patients.

Data Analysis : Data collected entered in MS Excel and analysed using SPSS software.

Results : Current trend shows persons with spinal cord injury having sexual dysfunctions including sexual desire disorders, sexual arousal disorders and sexual dysfunction due to medical condition, orgasm disorders and substance induced sexual dysfunction in the given order and detailed analysis awaits completion of the study.

Key words : Sexual dysfunction, vocational rehabilitation.

Effect of Intraarticular Corticosteroid Injection in SI Joint in Sacroilitis

Dr. Om Prakash

Design of the study : Prospective follow up study.

Objective : To see the therapeutic efficacy of intra-articular corticosteroid injection in sacroiliac joints (SIJs) of patients with Spondyloarthropathies.

Method : Eighteen SIJs were injected with long-acting corticosteroid (40 mg. methyl-prednisolone) in 9 patients of confirmed sacroilites. Needle placement was confirmed with CT scan in initial 3 patents. All 9 patients underwent clinical follow-up at 1, 4 and 12 week intervals after injection. The degree of subjective and objective outcomes before and after the intervention was recorded using BASFI (Bath Ankylosing Spondylitis Functional Index), BASMI (Bath Ankylosing Spondylitis Metrology Index), BASDAI (Bath Ankylosing Spondylitis Disease Activity Index), BAS-G (Bath Ankylosing Spondylitis Global Score) and ESR.

Results : Till date, out of 9, 2 patients have completed 12 weeks follow up, 4 patients have completed 4 week follow up and 3 patients have completed 1 week follow-up. At 1 and 4 week follow up period all out come measures (BASFI, BASMI, BASDAI, BAS-G and ESR) have improved but at 12 weeks follow up period BASFI, BASDAI and BAS-G tend to regress towards base line.

Conclusion : Intra-articular corticosteroid injection in sacroiliac joint may be of short term benefit and can be considered as one of the therapeutic options in acute care.

Key words : Intra-articular Corticosteroid Injection, Sacroiliac Joints.

Upper Tract Abnormalities in Neurovesical Dysfunction Secondary to Traumatic Spinal Cord Injury

Dr Anand V

Background : Abnormal urodynamic parameters-do they spell high risk for hydronephrosis in traumatic spinal cord injury (SCI), as in myelodysplasia?

Aim : To study the association between urodynamic parameters and upper tract changes on ultrasonography in persons with traumatic SCI.

Study Designs : Descriptive study.

Materials and Methods : Forty-one subjects undergoing urodynamic evaluation following traumatic SCI were recruited. Demographic data, serum creatinine levels and urodynamic parameters were collected and studied for association with upper tract changes on ultrasonography.

Results : Six subjects (14.6%) had upper tract changes, of which 5 had mild hydronephrosis and 1 had severe hydronephrosis. Fifteen (36.59%) had neurogenic detrusor overactivity (NDO), among which Detrusor external sphincter dyssynergia (DSD) pattern of EMG was seen in 10 (66.6%). Univariate analysis showed that NDO (p value 0.01) and DSD (p value 0.02) were associated with upper tract changes. Pdetmax did not show an association with upper tract changes. When considered in two groups, with pressures above and below 40cm H_2O, a statistically significant association was observed in the group with Pdetmax above 40cm H_2O (p=0.046).

Conclusion : NDO and DSD had strong association with upper tract changes, majority of which were mild hydronephrosis. Follow-up USG and urodynamic studies are necessary to assess the clinical significance of these findings in traumatic SCI.

Key words : Spinal cord injury, hydronephrosis.

Comparison of Intraarticular Corticosteroids with DMARDS Versus DMARDS Alone in RA

Dr. Nitin Menon

Design of the Study : prospective, Randomized, Case-controlled study.

Objective : To compare the efficacy of a combination of Disease Modifying Anti-Rheumatoid Drugs (DMARDs) with Intraarticular Glucocorticoids versus only DMARDs in a group of patients with early Rheumatoid Arthtitis (RA)

Methods : Fifty patients diagnosed as RA by American Rheumatic Association (ARA) criteria (1987) with disease duration less than two years were divided into two groups. The control group received a combination along with Intra-articular injection of triamcinolone acentonide (40mg.ml) in each of the swollen joints at the start of the study. Outcome was assessed in terms of Disease Activity Score (DAS-28), American College of Rheumatology (ACR) 20/50/70 criteria and number of Rescue medication used at the end of 3 months.

Results : The study group had significant reductions in DAS 28 scores (3.39 versus 4.99 in control group) and significantly more subjects achieved the ACR 20/50/70 criteria at the end of 3 months (100/60/36% versus 84/20/0%) also, significantly lesser rescue medications were needed in the study group.

Conclusion : Combination of DMARDs with Intra-articular corticosteroids is significantly better than DMARDs alone in early RA.

Key words : Rheumatoid arthritis, Intra-articular steroids.

Electrophysiological & Ultrasonographic Evaluation of Efficacy of Local Steroid Injection in Carpal Tunnel Syndrome : A Preliminary Report

Dr. Junis Ali

Introduction : Carpal tunnel syndrome (CTS) is the most common entrapment neuropathy and is caused by compression of median nerve at wrist. Patients usually present with numbness and paraesthesia in the hand. Most of the patients report worsening of symptoms at night often waking the patients. Most CTS cases are idiopathic but may be associated with a number of systemic conditions. Diagnosis is based on clinical finding and electrophysiological evidence. Both non-surgical and surgical treatment options are available for CTS. Local steroid injection is reported to be an effective non-surgical treatment option in these patients

Objective : To study the efficacy of local steroid injection on clinical, electrophysiological, ultrasonographic parameters in paitents with carpal tunnel syndrome.

Design : prospective follow up study.

Methods : 45 clinically diagnosed patients with mild to severe CTS were treated with 20 mg local Methyl Prednisolone injection after baseline electrophysiological and ultrasonographic evaluation. Follow up was done at one and three months after injection using clinical, functional, electrophysiological findings.

Results : 25 patients completed three months follow up. Improvements has been found in the parameters used at the end of three months. The improvement was less prominent at the end of one month.

Conclusions : From the preliminary findings of the study it can be concluded that local Methyl Prednisolone injection is an effective non surgical treatment option in the treatment of CTS. However a definitive conclusion can be made only after the completion of the study.

Key words : Carpal tunnel syndrome, Methyl Prednisolone, Electrophysiological evaluation, Ultra sonographic evaluation.

A Comparative Study of Suprascapular Nerve Block and Intra-articular Steroid Injection in Case of Adhesive Capsulitis of Shoulder Joint

Dr. Yesh Veer Singh

Study Design : Prospective study.

Objective : Analysis of the effectiveness of suprascapular nerve block to relieve pain and improve range of motion as compared to intra-articular steroid injection.

Materials and Methods : 60 patients with primary idiopathic adhesive capsulitis with <6 months of disease duration, age >18 years treated in PMR Department of S.N.P. Hospital kolkata-20, over period of 6 months. Patients were divided randomly into 3 groups after taking consent from patient. 1st group were treated with suprascapular nerve block and 2nd with intra-articular

steroid injection with Base line treatment given to both groups (home based ROM exercise + analgesic on SOS basis+heat therapy) and 3rd group with only base line treatment.

We were prospectively followed-up and clinically assessed pre and post-treatment (at 6 and 12 weeks) both objectively and subjectively. Objectively parameters-active and passive ROM(measured by goniometer) and subjective parameter-total SPADI and both pain and disability scale.

Results : Suprascapular nerve block produces faster and more complete resolution of pain and improvement of range of motion than intra-articular injection.

Conclusion : From this study it is concluded that suprascapular nerve block relieves the pain faster and complete and because of this fast and complete action, patient requires less analgesic and improve compliance for home based exercise and improve ROM. So that suprascapular nerve block is proved as a safe and effective treatment option for adhesive capsulitis of the shoulder joint. This study also justified to considered suprascapular nerve block should be an independent group in large multicentred trial.

Functional Evaluation of Paralytic Claw Hand after Stiles Bunnell's Procedure

Dr. Shikha Bhatnagar

Study Design : Prospective follow up study.

Objectives : To study the results of Stiles Bunnell's procedure for correction of claw hand deformity, increase in power of grip and motion and function of hand; and effect of new technique of attachment of the motor tendon.

Materials and Methods : Twenty-one patients of four finger claw hand, willing to participate in study and fulfilling inclusion criterion, were operated and followed up for one year. The results were graded into three groups-good, fair and poor. Good and fair results were considered as satisfactory.

Results : Satisfactory results were found in 100% of the patients. Correction of deformity was 100% satisfactory (85.7% good and 14.3% fair). There was a definite increase in grip strength with 100% satisfactory results (power increased in 85.7% and remained static in 14.3%). Motion and function of hand improved in 100% patients (76.2% good and 23.8% fair).

Conclusion : Stiles Bunnell's procedure is effective and predictable in correcting claw hand deformity, restoring synchronous pattern of finger flexion and it also improves grip strength of hand. With slight modification introduced in original technique, complications were minimal.

Key words : Claw hand deformity, Stiles Bunnell's procedure.

Traumatic Cervical Spine Injury Pattern – A Snapshot

Dr. Mahima Agrawal

Study Design and Subjects : Prospective descriptive analysis of data of patients with cervical spine injury admitted to S.M.S.M.C and Hospital, Jaipur from 1st December 2010 to 15th October 2011.

Objectives : To observe the demographic profile and injury pattern in cervical spinal cord injured cases admitted at a tertiary care rehabilitation centre.

Materials and Methods : One hundred and forty-one clients of traumatic cervical SCI were admitted from 1st December 2010 to 15th October 2011 at Department of Physical Medicine and Rehabilitation, R.R.C., S.M.S. Hospital, Jaipur. Detailed clinical evaluation and radiological assessment was done along with identification of mechanism of injury, mode of evacuation and presence of associated injuries. Data analysis was done in October 2011 and results were compiled and analysed.

Results : Rajasthan is the largest state of India in terms of area and comprises 5.67% (6,86,21,012) of total India's population share, of which 80% reside in rural areas dependent for their living on agriculture industry.

The mean age of our sample universe is 35.87 ± 14.38 years that comprised 11 females (7.8%) and 130 males (92.2%) of whom 78 (55.3%) fell in the age group of 25 to 55 years. Majority 64 (45.4%) of our clients were illiterate, 80 (56.8%) being farmers and labourers, 99 (70.2%) residing in rural areas having an average monthly income of Rupees 6000. Greater fraction had road traffic accidents 66 (46.81%) and fall from height 56 (39.72%) as the mechanism of trauma. None of our clients received any spinal trauma management as per standard protocols at the injury site from where only 69 (49.8%) could arrange for an ambulance transport leading to a delay in admission from the time of trauma to tertiary care centre of more than 24 hours. An interesting fact that came to light from our study was that majority of the injured 84 (59.57%) presented with neurologically

complete picture, most common involvement 103 (73.15%) being of cervical segments 5 and 6, as against the data in the west which suggests incomplete injuries to be the most common type. Most alarming fact is the poor recovery 17 (12.15%) seen at the end of 1 month.

Conclusion : The most unfortunate but avertable part was increased morbidity and bad prognosis that could be explained by the delay in provision of first aid and transport to a tertiary care centre and substandard evacuation techniques. Also, as most people continue to remain in the same neurological state, this further strains the already limited resources of the country. Rajasthan is a poor state, where 80% people live in rural areas, so there is a strong need to establish such primary and community health care centres with essential equipment and staff trained in primary management of spinal cord injured individuals. As most of the states now have 108 ambulance facility, so basic need of specialised evacuation teams can be easily met, the only obstacle being the need to realise the requirement for the same. Establishing a SCI registry in India will help a great deal towards realising the same. Even though this is a single hospital based study, giving only a snapshot of actual figures, it can help a great deal in predicting the real picture if extrapolated.

Evaluation of Upper Pole Release in the Treatment of Congenital Sternocleidomastoid Contracture

Dr. Ravi Kumar Prennja

Study Design : Combined prospective & retrospective study.

Objective : To analyze patients with congenital sternocleidomastoid contracture treated surgically at upper pole of sternocleidomastoid muscle in terms of:

a) Deformity correction, b) Cosmetic appearance, c) Complications of surgery

All patients who satisfied set inclusion and exclusion criteria were enrolled in the study. Cases were examined pre-operatively and post operatively at one, six and twelve weeks. The assessment of cases was done by scoring system of Cheng et al, which includes Rotational deficit, Lateral bending deficits, Facial asymmentry, Scar, Band, Head tilt & Subjective assessment.

Results : Twenty one patients were enrolled in the study and there was significant improvement in all the patients. The method proved to be safe and without complications and dangers associated with release at the lower pole.

Conclusion : The present study shows that upper pole release in the treatment of Congenital Sterno-cleidomastoid Contracture gives excellent results with minimal complications.

Key words : Upper Pole Release, Sterno-cleidomastoid Contracture.

An Innovative Instrument for Measuring Spasticity Quantitatively

Dr. Javed Anees

Relevance of the Study : Spasticity management is important and crucial part of rehabilitation care. Still we use subjective scales like Ashworth/modified Ashworth scale for measurement of spasticity. Measuring spasticity objectively will have varied implications in the field of rehabilitation care ranging from clinical drug trials to evaluation of rehabilitation interventions.

Aims : At present to our knowledge no such instruments are available in the world. Ours is an humble effort to create an instrument based on nature of spasticity and engineering technique. We would like to demonstrate the instrument before the august body of eminent physiatrists. Our instrument model is functioning well and still needs more stringent studies to validate it and make is more 'professional'. We are presenting the basic model of our idea before you and will try if needed to show how it is functioning, with the instrument.

Method : In this equipment, we are measuring the degree of spasticity by analyzsing the movement of hand. Here hand is kept and strapped on a handle which is connected to the shaft which is coupled with a stepper motor using a timing pulley. Here we are using a high precision motor ie, stepper motor which is having a holding torque of 18 kg-cm. The average weight of a human hand is about 1.5 – 1.6kg. So that the holding torque wouldn't be enough to lift it and move it in a path. So by using a timing pulley of ratio 1:4 is used which will provide a holding torque of 72 kg-cm. Here by this equipment, we are measuring the : Continuity of motion, Angular velocity, Angular displacement and Muscle pressure of the hand.

Continuity measurement : For measuring the continuity light dependent resistors are used. And on the movement of hand, corresponding signals will be received on the resistors and their combined output will give exact continuity of the hand movement.

Muscle pressure measurement : This is done by using a body muscle pressure sensor and the output of the sensor is fed through various instrumentation

amplifiers, filters etc. And is finally fed to the display unit.

Angular velocity and angular displacement measurement : These are done by analysing the displacement of the hand at various time intervals and continuously analyzsing it through a oscilloscope and by processing its output through various softwares. Finally a graphical presentation is shown on the screen. By changing/modifying/using different the handle (in various modes) we can measure spasticity of leg. Also we are finding out ways out to measure rigidity and dynamic spasticity based on same principle.

Limitations (at-present) : Though we have succeeded in getting a fully functional spasticity measuring machine in our dreams we are yet to conduct a large scale study to validate. We are displaying this interdisciplinary co-operation output to get the suggestions and well-wishes from the visionaries in the field of rehabilitation medicine. At present we are more concentrating on the instrument quality in results.

Intralesional Hylan GF20 Injection in Lateral Epicondylitis – A Pilot Trial

Dr. Antony D'Cruz

Study Design : Randomised clinical trial.

Objectives : The purpose of this trial is to study the efficacy of intralesional hylan GF 20 injection in lateral epicondylitis.

Materials and Methods : Patients with lateral epicondyilitis were injected 1ml hylan GF 20 intralesionally. They were assessed for four parameters namely pain before grip, pain after grip, pain free hand grip strength and maximum hand grip strength before injection and 15days, 1month and 3 months after the injection. Pain was measured using visual analogue scale, while grip strength was measured using Jamar's dynamometer.

This is a preliminary report of the ongoing study and results of 12 patients will be presented for a follow-up period of three months and 18 patients for a period of one month.

Key words : Hylan GF 20, lateral epicondylitis.

Organism Causing Urinary Tract Infections in Traumatic Spinal Cord Injury – Calicut Experience

Dr. Nasheeda. K

Background : Prevalence of urinary tract infections is high in spinal cord injury patients and also depends on the type of bladder management and any pre-existing renal problems.

Materials and Methods : Retrospective analyzing traumatic spinal cord injury patients admitted in Department of PM&R during the period of 1st July 2010 to 30th June 2011. The parameters looked into were type of injury, duration of injury, the bladder management and faulty technique of ICC, frequency of urinary tract infection and association with any pre-existing renal complications. Urine culture reports analysed including type of organism and sensitivity pattern.

Summary : An evaluation comparing the level of injury (paraplegia/quadriplegia), the organism grown on urine culture and sensitivity patterns and response to treatment.

Conclusion : This study has been done to analyse the prevalence of urinary tract infections and type of organism frequency of urinary tract infections and association with method of bladder drainage in traumatic spinal cord injury patients.

Key words : Urinary tract infections, spinal cord injury.

Effect of Epidural Steroid Injection in Symptomatic Lumbar Disc Herniation with Radiculopathy

Dr. Prem Anand

Settings : The clinical material comprised patients admitted in the Division of Physical Medicine and Rehabilitation in Rajah Muthiah Medical College, Chidambaram, for clinical features of lumbar disc herniation and radiculopathy from the period of 2009 Nov – 2011 Jan who met the following criteria.Thirty-four patients were taken up for the study**.** The MRI findings were as follows: 74% had multiple level of disc prolapse and 26 % had prolapse at single level. The most common presentation of disc herniation was protrusion (51%), followed by bulge (30%) and extrusion (19%).The most common levels of disc herniation was in the lower lumbar L4-L5 (41%) and L5-S1 (42%)

Inclusion criteria : Patients whose documented signs and symptoms met criteria for a diagnosis of long standing lumbosacral radiculopathy, which included the following:

Pain lasting greater than six months, not responding to Non-steroidal with or without physical modalities. Anti-inflematory drugs.

Lower back pain radiating down past the knee joint on one or both lower extremities.

Positive straight leg raising test on one or both lower extremities.

MRI findings of one or more levels of herniated lumbar disc.
Both sexes of ages from 20 to 80.
Refusal for surgical management

Exclusion criteria : Refusal for the procedure.
Allergic reactions to injecting solutions (corticosteroid, lignocaine, adrenaline).
Bleeding disorders.
Pregnancy.
Acute spinal cord compression.
Systemic infection or local infection at the site of a planned injection.
Uncontrolled diabetes.
Cardiac diseases.
Immune suppressed patients.
Patients who have had prior treatments with epidural steroid injections.
Patients with multiple pain syndromes which precludes a clearly defined source of pain.
Patients with multiple injures and congenital malformations.
Patients with prior lower back surgery.
Malignancy.
Recent trauma to the spine.

Materials and Methods :
After clinical confirmation consent obtained and 2ml of injection triamcinolone (80 mg) with 2ml of xylocaine + adrenaline (2%) is administered through the needle with the bevel tip facing downwards. Patient is rested for 30 minutes in the same position. Visual analog scale for low backache and radicular leg pain and straight leg raising test are assessed after 20 minutes, 1 week, 1 month, 4 months and 8 months. Statistical analysis was done by using Kruskal – Wallis one-way ranked analysis of variance which is a non-parametric test.

Results : In the study, the average intensity of back pain recorded before epidural steroid injection procedure is 6 and after the procedure at 1 week, 1month, 4 months and 8 months are 1.8235, 1.6471, 1.5294 and 1.4118 respectively.

The average intensity of sciatic pain recorded before epidural steroid injection procedure is 7.0882 and after the procedure at 1 week, 1month, 4 months and 8 months are 1.2941, 1.0294,1.0001and1.0002respectively.

The positive incidence of straight leg raising test reported in all 34 patients before the procedure become 100% negative, when assessed 20 min after ESI and only 12% remains positive while assessing at 1 week, 1 month, 4 months and 8 months after the procedure.

The equality of mean scores of pain has been tested using Kruskal – Wallis one way ranked analysis of variance which is a non parametric test. The Chi-square statistic is 77.386 with a corresponding **p = 0.** Hence there exists a significant difference between the mean levels of pain taken before and afterwards.

Again the same test procedure has been applied for the four time measurements taken after the treatment. It is observed that the value of the Chi-square is 4.013 with a corresponding **p = 0.26**. Since p is greater than 0.05, the difference between the average of pain scores taken at four time points are not significant different and so they are equal. This shows that the impact of the steroid application remains or persists the same for a period of eight months.

In the case of radicular pain also the efficacy of the steroid has been tested at different time periods after the treatment. The pain rating has been done before and after the application of steroid. It is observed that the Chi-Square value was 85.755 with a corresponding **p =0**. Hence, there exists a significant difference between the average values. Hence there is a positive impact of steroid in reducing the radicular pain.

The average of pain scores during the four time points,, after the use of steroid have been recorded. It is observed that the Chi- square statistic value is 4.794 with a corresponding **p = 0.1888**. Hence, difference between the average scores is not significant. Hence, the pain score on the average is the same thereby implying that the pain scores are low at different time points afterwards.

It may also be observed that, after the use of steroid, the average level of back pain is 1.6029. Similarly, in the case of leg pain the average level of pain is 1.1029. Hence it implies that the reduction in the level of pain is more pronounced in the case of patients with leg pain rather than in the case of back pain.

Effect of Peripheral Nerve Block with 5% Phenol on Modified Ashworth Scale (MAS) in Lower Limb Spasticity in Patients with Cerebral Palsy

Dr. Amalesh Basak

Aims And Objectives : To evaluate the effect of therapeutic peripheral motor nerve block of tibial and obturator nerves using 5% aqueous phenol on reduction of lower limb spasticity in children with spastic CP using modified Ashworth scale.

Sample Size : 40 subjects.

Study Area : Children of CP affecting lower limbs in the age group of 2-16 years who attended the PMR OPD

of IPGME & R, SSKM Hospital, Kolkata, and Dr. B.C.Roy PGI of Paediatric Sciences, Kolkata.

Study Population : Patients with CP who fulfilled inclusion and exclusion criteria.

Study Design : Before - after treatment trial.

Materials and Methods : The study was done for a group of 40 patients who were selected from PMR OPD according to inclusion and exclusion criteria. Modified Ashworth scale was measured at the base line (0 week), then after phenol neurolysis at 1wk, 3 week and 6 weeks.

After preparation of the master chart result analysis was done using Graph Pad Prism 5 software.

Study Duration : 12 months (July 2010 – June 2011).

Inclusion Criteria :

1) Spastic CP patients involving lower limbs causing difficulty in ADL.
2) Patients who are in trainable/educable IQ range.
3) Patients having adequate trunk control.
4) Patients in the age group of 2-16 years.

Exclusion Criteria :

1) Patients with fixed deformities.
2) CP associated with significant mental retardation.
3) Mixed variety of CP.
4) Patients with history of convulsion and sensitivity to phenol.

Result : Mean MAS before block (0 week) was 3.477. At the end of 1 week, 3 week, and 6 week after block, the mean MAS were 1.707, 1.461, and 1.492 respectively.

Comparison between before block after block at 1 week, 3 week, and 6 week were statistically significant with P value <0.001.

Conclusion : Most of the improvement in MAS occurring during the 1st week and this improvement is maintained through 6 weeks. However after the end of 3 weeks improvement in MAS score reached a plateau.

A Study on the Effectiveness of AFO in Children with C.P

Dr. Pampa De

Purpose : In children with cerebral palsy, orthoses, primarily ankle-foot orthoses (AFOs) are recommended to prevent or correct dynamic deformity by supporting joint alignments and mechanics. This study was done to determine the effectiveness of different AFOs in children with cereral palsy.

Methods : Over a period of six months, 23 cases (16 males, 7 females) were studied (hemiplegics excluded). Measurements of hip-knee ankle contractures, initial standing balance and assessment of Paediatric Balance Scale (PBS) score were done before and after giving the four types of AFOs (moulded AFO in neutral position, moulded AFO in 2-3 degrees of dorsiflexion, hinged AFO and floor reaction AFO).

Results : Hip-knee ankle contractures improved in all the cases with AFO. Initial standing balance improved in 13(56.5%) cases and was not affected in ((39.1%) cases. PBS score was found to increase in 12(52.1%), decrease in 6(26.0%) and unchanged in 5 (21.7%) cases.

Conclusion : AFOs are undoubtedly very useful in all those cases with abnormal joint kinematics at hip-knee ankle and help in improvements of Paediatric Balance Scale score. For minor degrees of recurvatum and crouch AFOs may correct the joint kinematics but impair dynamic balance to some extent. AFOs may also prove to increase the standing balance in cases where appropriate foot plate or Univesity of California Biomechanics Laboratory (UCBL) or Supra malleolar othoses are not available.

Key words : Cerebral palsy, orthosis.

Compressive Cervical Myelopathy due to Fluorosis – A Case Report

Dr. Priyavadhana. R

Spinal cord compression due to ossification of the posterior longitudinal ligament secondary to fluorosis is very rare. There are only a handful of reports, mainly from endemic areas where fluorosis has been implicated as a cause of myelopathy and none from Kerala, We present a case of compressive myelopathy due to fluorosis from Alappuzha district in Kerala. Excessive exposure to fluoride causes a bone disease called skeletal fluorosis. In the advanced stages of skeletal fluorosis, the spine may develop extensive ligament calcifications and bone spurs (osteophytes), which in turn can produce a narrowing of the spinal canal and damage to the spinal cord. Reddy DR *et al* (1993) has quoted that a sizeable number of patients suffering from ossified posterior longitudinal ligament (OPLL) may have fluoride intoxication as the underlying cause. Neurological sequelae in skeletal fluorosis manifest as radiculomyelopathy, principally due to mechanical compression of the spinal cord and nerve roots. Though the disease develops slowly with relentless progression, the neurological manifestations may sometimes be precipitated by minor trauma. The diagnosis of fluorosis is based on the residence in the endemic area and the radiological features of fluorosis, which included

osteosclerosis, calcification of the interosseous membrane/ligaments, periosteal bone formation, and irregular osteophytes (Misra UK, *et al.* 1988). The present patient is a 45 years old male, who presented with features of cervical myelopathy and diagnosed to have posterior ligament calcification in cervical spine. He underwent multiple laminectomy and decompression following which admitted in Dept of PMR, TDMC, Alappuzha for rehabilitation. He was further worked up for endemic fluorosis as he had history of living in fluorosis endemic areas and found to have both radiological and biochemical features suggestive of skeletal fluorosis.

Key words : Compressive myelopathy, fluorosis, posterior ligament calcification.

An Observational Study Identifying Gait Deviations in Transtibial Amputees

Dr Zachariah T. Zachariah, Dr. Sreedevi Menon. P, Dr. V. K. Sreekala

This is an observational study screening for gait deviations, conducted on a population of 20 transtibial amputees using PTB prostheses, attending the Artificial Limb Centre attached to the Department of PM&R, Medical College, Thiruvananthapuram. The study was conducted during a three-month period from August to October 2011.The subjects were evaluated using visual observation of gait parameters both anteroposteriorly and laterally. The gait deviations were noted and documented; probable causes were identified and remediation was done.

Key words : Gait deviations, PTB prostheses, screening.

Co-relation of Bladder Wall Thickness with Complications of Neurologic Bladder Dysfunction

Dr Minju George, Dr V. K. Sreekala, Dr Sreedevi Menon P.

This study is aimed at identifying the co-relation between bladder wall thickness and complications of neurologic bladder dysfunction like hydronephrosis, hydroureter, cystitis, calculi etc. Study is conducted on inpatients of Department of PMR, MCH Trivandrum over a period of three months. Bladder thickness is measured using USG and the presence of various complications are assessed by history, physical examination and investigations. The study is under progress now.

Surgical Intervention in Physiatric Practice – A Case Reports

Dr. N. Jungindro Singh

Physiatrist deals with different cases of rehabilitation patients who need surgical intervention at one or the other time, especially in India where locomotor disability accounts 57.50% of all the disabilities (NSSO 2002). Most commonly performed surgeries are tenotomy, tendon lengthening or transfer for CP, CTEV, PPRP, leprosy and even in poststroke hemiplegics to simple split skin graft or rotation flap transfer for pressure ulcers and intrathecal baclofen pump insertion in paraplegic/ tetraplegics. Some physiatrists also do bony procedures like osteotomy, arthrodesis, etc, for congenital or acquired bony deformities to laminectomy/discectomy for PIVD. Here we present two such cases, one with congenital and other acquired deformities wherewith simple surgical procedures change the quality of life dramatically, preventing/reducing disability.

Key words : Physiatrist, congenital dislocation of knees, amputee.

Case 1: A female child of 8 months old presented with grade III bilateral congenital dislocation of knees and congenital talipes equinovarus with hypoplastic patellae both sides. Manual manipulation and casting was tried but could not achieve correction. We decided of surgical correction. Surgeries were performed in four stages, each side at a time and each deformity at a time. Quadriceps plasty (lengthening of quadriceps muscle) was done on the knee followed by posteromedial soft tissue release (PMSTR) on the ipsilateral foot. After removal of the cast KAFO with drop locked knee unit was given. Exercise programme started with gradual flexion-extension to strengthening exercises. Gait training started with a wheeled walker. In two years follow-up she could walk independently with the KAFO.

Case 2 : A female child of 6 years old presented with bilateral below knee amputation and right radial nerve palsy following road traffic accident. There was anterior angulation of the tibia from tibial tuberosity downwards on the right side, which limits her from prosthetic fitment. The weakness of the wrist extensor on the right side also prevents her from driving wheel chair. Psychologically she was depressed and started neglecting social activities. So we decided to correct the deformity and did simple anterior open wedge osteotomy and fitted with BK PTB prosthesis on both side. Dynamic cock-up splint was given with electrical muscle stimulation for the wrist drop and in 6

months' time power improved. Gait training started with the prosthesis after one and half months of the surgery and she could able to walk independently with the prosthesis in 3 months of gait training.

Summary : In both the cases we did simple surgical procedures and followed the normal routine rehabilitation programmes which make them walk independently from a sessile life. But if the surgeries were not done we couldn't have been able to proceed further rehabilitation programme.

During our service delivery to the people as a Physiatrist/ Rehabilitation specialist we come across many such cases with locomotor disability where surgery is required at one or the other step of the rehabilitation programme. It's being on debate since long time whether Physiatrist should do/continue to perform surgeries or not and now it's high time to make a clear platform.

Correlation of Soft Tissue Changes in Different Stages of Hemiplegic Shoulder During Functional Recovery – An Ultrasonographic Evaluation

Dr. Pradeepkumar Kalathil, Dr. T. K. Vasudevan, Dr. S. Abdul Gafoor

Objectives : To study the correlation between ultrasonographic features of soft tissues in different stages of hemiplegic shoulder with functional and motor recovery.

Materials and Methods : Design - Prospective study.

Settings : Patients with stroke attending Dept. of Physical Medicine & Rehabilitation, Kozhikode Medical College.

Study Tool : Poststroke patients, irrespective of duration since stroke

Sample Size : 30 patients

Period of Study : 1st March 2011 to 30th September 2011

Inclusion Criteria :

1. First stroke resulting in unilateral hemiplegia
2. No history of shoulder disability within 6 months prior to stroke
3. Both males and females of any age

Exclusion Criteria :

1. History of shoulder disease within 6 months prior to stroke.
2. Cognitive impairment.
3. Neuromuscular disorders due to other causes resulting in shoulder disability.

Outcome variables :

1. Visual analogue scale, 2. Brunnstrom motor recovery stage, 3. Range of motion, 4. Spastisity grade, 5. Ultrasonographic findings

Procedure : Patients taken into study with written informed consent are given comprehensive stroke rehabilitation programme with periodic ultrasonographic examination at regular intervals. Changes in soft tissues like biceps tendon, rotator cuff, subacromial bursa, glenoidal labrum etc., are measured with USG. Results statistically analysed for correlation with other variables.

Results : Significant correlation exists between pathology of biceps tendon and supraspinatus with functional recovery of hemiplegic shoulder.

Conclusion : Periodic USG examination will help in individualised modification of shoulder rehabilitation in stroke patients.

Key words : Ultrasonogram, hemiplegic shoulder.

A Study on the Change in the QOL of Traumatic SCI Persons Following Rehabilitation

Dr. Rooru

A quesi-experimental study on the changes in the Quality of Life of Traumatic Spinal Cord Injured patients following rehabilitation. This study included 45 patients admited in our ward, Department of PMR, Medical College and Hospital, Thiruvanathapuram from the period October 2008 to June 2009. QoL was assessed with WHO Brief version prior to and after six months of rehabilitation and statistically analused.

Key word : Quality of Life Traumatic Spinal Cord Injured Persons, Rehabilitation.

A Short Study on Short Stature

Dr. Sindhuja. N.S, Dr. Sreedevi Menon. P, Dr V. K.Sreekala

If the height of a person is less than 2SD from the mean height for that person, the person is considered to be short in stature. This study is aimed at identifying a few persons with short stature and evaluating their previous growth data, diet history, antenatal, natal and postnatal history, family and socio-economic history, parental heights, and parental pubertal history. Physical examination aimed at identifying the impairments and

setting therapeutic goals is also done. If the diagnosis is not obtained by history and clinical examination, screening laboratory tests individualised for each patient are done. In some, specialised tests may be required. The problems of being short statured - musculoskeletal, psychosocial etc, are also addressed. The therapy which depends on the underlying aetiology is prescribed. Often, reassurance becomes all that is necessary. The study is under progress now.

Status of Neurogenic Bladder and Bowel Function and its Effect on Quality of Life in Persons with Spinal Cord Injury, One Year Post Insult

Dr. Davis J Paracka

Objective : To study the factors affecting quality-of-life (QOL) and status of bladder and bowel function in persons with spinal cord injury(SCI), 1 year after insult.

Study Design : Descriptive study.

Study Setting : Department of Physical Medicine and Rehabilitation, Govt Medical College,Trivandrum .

Study Population : Persons with spinal cord injury, one year after the event who were either admitted in our department or came for OPD follow up.

Materials and Methods : Structured questionnaire containing demographic, clinical details of the present bladder and bowel status and management techniques, along with Incontinence impact questionnaire to evaluate the effect of the current bladder and bowel status in the quality of life and Wexner Cleveland Clinic faecal incontinence severity scoring system to study the severity of bowel incontinence were used.

Results : The study population consisted of 42 subjects of which majority (55%) belonging to 40 - 59 years age group and with a period of 1 to 2 years post illness. Upper motor neuron neurogenic type bladder dysfunction was most common (62%)and intermittent clean catheterisation (57%)was the commonest type of bladder management technique used. Urinary tract infection (81%)was the most common neurogenic bladder related complication that occurred following the injury. Suppository (50%) was commonest bowel evacuation method used. Impacted stools (31%)and haemorrhoids (28%) were the most common neurogenic bowel related complications post injury. Majority had poor quality of life with regards to the neurogenic bladder and bowel dysfunction. Type of bladder management, frequency of intermittent clean catheterisation and presence of urogenital fistula were the major factors affecting quality of life with regards to neurogenic bladder, while presence of faecal incontinence and need of digital bowel evacuation were the major factors affecting quality of life with regards to neurogenic bowel.

To Study the Histopathological Changes in Various Stages of Pressure Ulcer and to Know Whether This Knowledge will Help in its Management

Dr. Sreejith. R

Materials and Methods :

Design – Descriptive study

Settings – Patients with pressure sore admitted in Department of Physical Medicine & Rehabilitation, Kozhikode Medical College

Study tool – Patients with pressure sore.

Period of study – 1st November 2011 to 31st Decmber 2011.

Inclusion Criteria : Patients with pressure ulcer of stages 2,3 and 4 who require tissue biopsy for culture and sensitivity.

Exclusion criteria :

1. Patients with stage 1 pressure sore.
2. Cognitive impairment.
3. Patients without significant caregiver.

Procedure : Patients are taken into study with written informed consent.Tissue is biopsied from the edge of the ulcer along with those taken for culture and sensitivity and send separately to department of pathology for histopathological examination.

Results : The salient histopathological features of stage 2, 3 and 4 pressure ulcers are studied.

Conclusion : Discuss if the knowledge of microscopic details help in improving management of pressure ulcers.

Key words : Pressure ulcers, histopathology.

Comparative Study of Oral Diazepam and Baclofen on Spasticity in C.P

Dr.Vinay Goyal

Study design : Randomized, Prospective follow-up study.

Objective : To prospectively compare the outcome of

reduction of spasticity after oral administration of Baclofen and Diazepam in terms of :

1) Reduction of Spasticity
2) Improvement on range of motion
3) Reduction in scissoring
4) Improvement in hand functions
5) Side effects

Method : Spastic cerebral palsy children who satisfied inclusion & exclusion criteria were enrolled in the study. Cases were examined before and after medication during follow-up at 1 and 3 months. Spasticity was assessed in elbow, wrist, knee and ankle using Modified Ashworth Scale and in adductor group by Grading of Scissoring on vertical suspension. Range of Motion at elbow, wrist, knee and ankle was recorded with help of a goniometer. Hand function was assessed objectively. Patients were randomly assigned to two groups by draw of lots. One group received oral Diazepam initially 0.1mg/kg/day in divided doses with weekly increment of 0.1mg/kg up to a maximum of 0.8mg/kg/day and other group received oral Baclofen increment initially 2.5mg t.i.d in children <8 years and 5mg t.i.d >8 years with weekly increment of 5mg to a maximum of 40mg/day in former and 60mg/day in latter group. At each follow up visit, patients were assessed on predefined assessment criteria. All adverse reactions were recorded.

Key words : Baclofen and Diazepam.

Clinical Appraisal of Spastic Diplegic C.P with Knee Hyperextension

Dr. Sumedh Narayan More

The prospective study was conducted to assess factors contributing to knee hyperextension in ambulatory patients with spastic diplegic CP. The objective and quantifiable data collected was used to select the best possible available modality of treatment.

Patients above 5 years, both male and female, having ambulatory potentials and those who were able to undergo instrumented gait analysis in motion laboratory were recruited.

10 patients of OPD, IPD & CP Clinic of AIIPMR satisfying above criteria were recruited. The detail history was elicited. Patients were clinically evaluated for range of movement. Also the tightness, contracture and deformity at the hip, knee & ankle joint was assessed with goniometer. Kinematic study in gait lab had six infrared cameras and two video cameras. All these findings were synchronized to obtain temporal and distance parameters of gait cycle.

Out of 10 patients 8 had rectus & gastrosoleus spasticity and among these 8 patients 4 had tendoachilles contracture and other 4 had gastrosoleus spasticity. 2 patients had only rectus spasticity out of these 2, one had tendoachilles contracture and other had hamstring weakness. Motion gait analysis in gait lab revealed that knee goes into hyperextension in late stance.

Identification and Management of Locomotor Problems in Children with Cerebral Palsy Aged 5 to 10 Years Attending CP Clinic

Dr. Reeba Sini Jacob, Dr. Sreedevi Menon P, Dr. V K Sreekala

The purpose of this study was to describe problems of children with cerebral palsy (CP) with special emphasis on locomotion. Data concerning demographic facts, locomotion, musculoskeletal problems, interventions done and present physical activity were collected during a period of 3 months from August to October 2011. Study population consisted of 20 children with CP aged 5 to 10 years, attending the CP clinic of the Department of PMR, Medical College Hospital, Thiruvananthapuram.

Key words : Cerebral palsy, locomotion.

Identification of Problems in Children with Ligamentous Laxity and Their Management

Dr. Sajeena. A. S, Dr. Sreedevi Menon. P, Dr. V. K Sreekala

This is an observational study conducted in a population of children attending the Department of PMR, Medical College, Thiruvananthapuram on outpatient-basis, with ligamentous laxity. Their problems/ complaints were identified and analysed and the appropriate management was given. The study population of sample size, n=50, consisted of children who presented with ligamentous laxity in OPD during a three-month period from August 2011 to October 2011.

The study population was evaluated using the parameters of age, sex, consanguinity, events during antenatal, natal and postnatal period, developmental milestones, most

common complaint, physical examination and appropriate investigations. The necessary management was given. The study is under follow-up now.

Key words: Observational study, children with ligamentous laxity.

Comparison of the Effectiveness of a Home-based Self-administered Exercise Program with that of Conventional Supervised Physiotherapy in Chronic Mechanical Low Back Pain

Dr. Sujith. K .R, Dr. Sreedevi Menon. P, Dr. V. K. Sreekala

This is an interventional trial for comparing the effectiveness of a home-based self- administered exercise programme with that of conventional supervised physiotherapy in chronic mechanical low back pain, conducted on a population aged 20-40 years, attending the Department of PMR, Medical College, Thiruvananthapuram on outpatient-basis.

After initial assessment, the patients fulfilling the inclusion criteria were assigned to 2 groups, A and B. Group A underwent conventional physiotherapy in the hospital. Group B underwent home-based exercise programme with specific exercises. The sample size of the study population was 104, and the period of study was one year.

Outcomes of the interventions were measured by the visual analogue scale, Oswestry Disability Questionnaire, Rolland Morris Low Back Questionnaire and Dartmouth COOP Functional chart. The analysis is under progression now.

Key words : Interventional trial, mechanical low back pain, conventional physiotherapy, home-based exercise programme.

Bilateral Spontaneous Rupture of Achilles Tendon

Dr. Asem Rangita Chanu

Study Design : Case report.

Objectives : To report a rare case of bilateral spontaneous rupture of Achilles tendon and discuss the possible mechanisms of its injury

Case : A 59years old milkman from a hilly rural background of Manipur reported on 5th February 2011 with the complaint of pain both ankles and difficulty in walking since 12th October 2010. There was no history of injury or local or systemic steroid use. Since then, he was able to walk only with a walking stick. Clinically, we diagnosed him as a case of spontaneous bilateral rupture of Achilles tendon.

Clinical diagnosis of bilateral spontaneous rupture of Achilles tendon was confirmed during the operation on 9th February 2011. End to end suturing was not possible. Repair was done using reinforcement technique.

By the end of 4th postoperative month, patient was able to walk without crutches.

Conclusion : Spontaneous bilateral rupture of Achilles tendon is very rare and surgery is indicated in majority of cases. Repeated microtrauma caused by moving up and down the hill slope could be the reason for spontaneous rupture.

Key words : Achilles tendon, spontaneous rupture.

Poster Presentation

Uncommon Presentation of Spastic Paraplegia – A Case Report

Dr. Arun Ram

Introduction : A 20 years old male with spastic paraplegia who was diagnosed to have transverse myelitis was admitted to our ward for rehabilitation. Since recent clinical history revealed an episode of seizure 8 months ago, an investigational outlay was planned.

Evaluation : Apart from clinical examination and basic clinical investigations further evaluation was needed, which included MRI of brain with spine screening, CT thorax, USG abdomen and specific serum assay. The differential diagnosis which were entertained included multiple sclerosis, HIV infection, paraneoplastic syndrome, tuberculosis and neurosarcoidosis.

Basic investigations were done to narrow down the diagnosis. The patient developed a skin lesion, but the tissue biopsy was deferred. Taking available clinical data and investigstions, including serum A.C.E. (Anti-Choline Esterase) levels, MRI with gadolinium contrast, USG abdomen, and CT thorax a presumptive diagnosis of neurosarcoidosis was made-although a definitive tissue diagnosis is pending.

Summary : This was a diagnosed case scenario of transverse myelitis, but a seizure episode paved way for a presumptive diagnosis of neurosarcoidosis

Key words : Neuro-sarcoidosis, A.C.E.

An Unusual Case of Unilateral Upper Limb Weakness – A Diagnostic Dilemma

Dr. Prajna Ranjani

A 21 years old male referred as a case of wrist and finger drop, from Neurology department to Physical Medicine and Rehabilitation for the purpose of "wrist drop splint", presented with asymmetric weakness and fasciculations in right upper limb for past 1 year without any sensory disturbances or other possible aetiological factors. By history and clinical examination, compressive myelopathy, motor neuron disease, monomelica-myotrophy, cervical spondylitis, myeloradiculopathy, traumatic myelopathy, syringomyelia were the possible differential diagnosis. Cervical spine radiography and routine blood parameters were normal. Cervical spondylitis, traumatic causes were ruled out. Magnetic resonance imaging (MRI) was showing cord atrophy with changes in signal intensities.Syringomyelia and compressive myelopathy were ruled out. Electro-physiological studies were suggestive of neurogenic involvement of C7, C8, and T1 segment bilaterally with evidence of reinnervation and no evidence of active denervation. With high suspicion, MRI with neck in flexion, was done and asymmetric unilateral upper limb amyotrophy, was diagnosed and confirmed, findings of which would be discussed in the presentation.

Key words : Asymmetric unilateral upper limb amyotrophy, Hirayama disease.

An Attempt to Discuss the Possibilities of Neuroplasticity in Rehabilitation with a Single Case Study

Dr. Sreejith R

Material and Methods :

Designs : Single case report.

Settings : Dept. of Physical Medicine & Rehabilitation, Kozhikode Medical College

Study Tool : A 15 years old girl with Sturge-Weber Syndrome admitted in the ward.

Period of study : 1st May 2011 to 15th May 2011

Procedure: A 15 year old girl with Sturge Weber syndrome and right hemiparesis was evaluated and her CT scan brain showed extensive calcification and marked atrophy of left hemisphere but with minimal and in some areas no functional impairments as expected in an atrophic

left cerebral hemisphere which strongly supports the neuroplastic changes in opposite hemisphere.

Discussion : To discuss how these Neuroplastic changes can be utilised in rehabilitation medicine.

Key words : Neuroplasticity, Sturge Weber syndrome.

Atypical Presentation of Pulmonary Tuberculosis in a Chronically Disabled Individual – A Case Report

Dr. Sobee Krishna

A 22 years old female, with Arnold Chiari malformation type 1, who underwent foraminal decompression 4 months back, with residual quadriplegia and old MRI showing extensive syrinx, presented with generalised weakness, low grade fever and weight loss. She was admitted with a goal of evaluation of fever and to rule out any new spinal pathology like syrinx extension or myelitis. She was evaluated to determine any focus of infection and any neurological deterioration. On clinical examination she was febrile, depressed, chest auscultation showed scattered crepitations and ronchi more on right hemithorax, and increased vocal resonance on right. Neurological examination didn't reveal any new neurological deficits except for a reduced recruitment and general apathy. Her urinalysis was normal, haematological examination showed anaemia, elevated ESR and neutrophilic leucocytosis. She had hypoalbuminaemia, normal renal function and negative serology for HIV. USG abdomen showed bilateral medical renal disease and no evidence of any intra-abdominal sepsis. Repeat MRI showed similar findings to the previous one. Her chest x-ray showed extensive opacities in the right lung fields. Her sputum examination showed high positivity for AFB in two consecutive samples. A diagnosis of pulmonary tuberculosis was made and patient started on antituberculous therapy. Her fever subsided, weakness improved and she became more active and started participating in rehabilitation program.

This paper highlights the importance of considering tuberculosis as a differential in a neurologically disabled individual, who presents with atypical features like functional weakness and low grade infection, and susceptibility for endemic infections like tuberculosis due to a general reduction in immune status.

Key words : Syringomyelia, tuberculosis.

Rehabilitation of a Neglected Case of Postpolio Residual Paralysis

Dr. Ammu Shanmugham

Objectives : To present the improvement in the mode of ambulation of a postpolio residual paralysis lady from bottom shuffling to bipedal gait.

Study Design : Single case report.

Method : A case of Behcet's syndrome referred from Department of Dermatology with complaints of inability to walk. Her mode of ambulation was bottom shuffling. Impairment and disability were assessed. There is flaccid paralysis of both lower limbs with differential involvement, FFD of both hips, left hip dislocated. Abduction deformity of left hip and 70 degrees FFD of right knee. Serial casting was applied to the right knee which was followed by stretching with wedging, and posterior PVC splint. Along with this we gave upper limb strengthening and parallel bar standing. FFD of knee was corrected.

Results : Patient is able to stand with support using AFO on left side and posterior PVC splint on right side. She has bipedal gait with the aid of walker.

Conclusion : Up gradation of mode of ambulation in a quadriped PPRP is possible with serial casting and orthotic measures.

Key words : PPRP, serial casting.

Comparative Study of Management of Osteoarthritis Knee Joint by Different Rehabilitative Measures

Dr. Nabaneeta Mahata, Dr. Jayanta Saha

Study Design : Prospective study.

Objectives : To determine the outcome of osteoarthritis knee joint patients after management by different rehabilitative methods which were classified in three groups as the following :

Deep heating in the form of short wave diathermy and rehabilitative exercises.

Anagesics and exercises : Exercises and disease modifying osteo-arthritic drugs in the form of fixed dose combination of glucosamine and diacerin.

Knee orthoses were advised according to necessity in all groups.

Materials and Methods : Forty five patients of osteoarthritis knee joint from S.N.P. Hospital, outpatient department of Physical Medicine and Rehabilitation were selected by symtoms, signs and radiological findings.

All patients who were selected were in early or moderate stage i.e., grade 2 or grade 3 stage of osteo-artritis knee joint according to Kellgren Lawrence classification.

Patients with varus deformity, effusions and other connective tissue disorders were excluded from the study.

Patients were followed up every 15 days for 3 months and assessment was done on the basis of improvement in:

Function by WOMAC scale,

Pain by VAS scale,

Other accessory features like decrease in anxiety, depression.

Results and Analysis : Improvement in all the 3 parameters i.e., functional status, pain and stiffnenss, freedom from anxiety and depression were found in all the 3 groups of patients but the maximum improvement was found with deep heat therapy in the form of SWD with exercises followed by DMOADS and analgesics.

Conclusion : Deep heating modalities like SWD along with rehabilitative exercises were conclusively proved as effective means of treatment in OA knee joint.

Key words : Short wave diathermy, radiological oa classification, rehabilitative exercises.

The Association of BMI and Joint Pain – An Institutional Study

Dr. K. Anupama

Background : Joint pain in obese individuals is a frequently encountered problem causing significant morbidity and difficulty in ADL. Obesity ,being an inflammatory condition, it may predispose to early development of degenerative joint disease. Hence we entered into a study assessing the clinical pattern of joint pain in obese individuals and its significance.

Study Design : Descriptive study.

Objectives : To study the pattern of joint pain in obese individuals and the association between BMI and joint pain.

Setting : Lifestyle disease management clinic, Dept. of PM&R, Medical College Calicut.

Materials and Methods : Subjects were classified as those reporting joint pain and those with no joint pain. They were then categorised according to their BMI. BMI categories were then compared with pain status.

Results and Conclusions : Joint pain was seen to increase with increase in BMI. Knee joint pain was the most frequently encountered pain amongst obese. Pain status increased with increase in BMI. As BMI is a modifiable factor; further longitudinal studies are warranted to assess improvement in joint pain with decrease in BMI.

Key words : Obesity, joint pain, BMI.

An Unusual Case of Amputation

Dr. Pradeep Kalathil

A 62 years old gentleman, an inmate of Leprosy Hospital for 12 years, came to us with feasibility of prosthetic fitting of (right) BK amputation. He is a deaf mute and has had an auto amputation of (left) foot 11 years back. He is a destitute and is being looked after by a distant relative.

He is having heterochromia of both iris and facial irregularities.

The case records at Leprosy Hospital revealed that he was not having Hansen's disease, but sensory neuropathy. He had auto amputation (left) foot after sensory neuropathy of both feet and hands. NCS revealed sensory motor neuropathy. He is also suffering from peripheral occlusive arterial disease. So, we looked up references and found out that he is a case of Waardenburg syndrome.

The Rehab challenges we are facing are:

1. Auditory and communication problem
2. Visual problem
3. Locomotor
4. Social isolation
5. ADL dependence
6. Sensory motor neuropathy
7. POAD.

An Interesting Case of Ankle Arthritis Presented at PMR OPD

Dr. Debayan Ghorai,

A 60 years old female patient presented with ankle arthritis without significant constitutional symptoms. She was investigated for ankle OA because she had OA knee with varus deformity and treated with NSAID, exercise, DMOAD. After that she became bed ridden due to severe ankle pain and swelling. Rheumatoid arthritis and septic arthritis were excluded. She was undergone for venous Doppler study because she was suffering from varicose vein with suspected venous oedema. Eventually a discharging sinus developed on her ankle. When we examined the patient we noticed erythema nodosum on her shin. She did not have any sore throat or h/o any drug intake causing erythema nodosum. X-ray was showing little bit of periosteal elevation with destruction of ankle architecture. A CT scan was advised which showed suggestion of chronic osteomylitis. Later on a biopsy was done that confirmed tuberculous pathology. She was much better with NWB followed by PWB, course of ATD and ankle rehabilitation regimen.

An Observational Study on Knee Instability

Dr. Ancy Joseph, Dr. Sreedevi Menon P, Dr. V. K. Sreekala

This is an observational study conducted in a population of patients attending department of PMR of Thiruvananthapuram Medical College on outpatient basis, with knee complaints who were screened for knee instability. Study population of sample size, n=25 consisted of patients with positive knee instability tests during a three months period from August 2011 to October 2011.

The study population is evaluated using the parameters of age, sex, diagnosis, most common complaint, disability and interventions done. The patients included in the study are under follow-up now.

Key words : Observational study, screening, instability.

Effect of Partial Weight Supported Treadmill Gait Training on Balance in Patients with Parkinson's Disease

Dr. Anupam Gupta, Dr. Ganesan Mohan, Dr. Pramod Kumar Pal, Dr. A.B. Taly, Dr. T.N. Sathyaprabha

Background : Impaired balance and gait is common in Parkinson's disease (PD). Partial weight supported treadmill gait training (PWSTT) is widely used in rehabilitation of gait disorders. However, its effect on balance in PD has not been established.

Aim : To evaluate the effect of PWSTT on balance in PD.

Materials and Methods : Sixty patients with idiopathic PD from Hoehn and Yahr stage 2 to 3, on stable doses of dopaminomimetic drugs were randomly assigned into 3 groups. Group I (controls) did not receive any specific intervention, group II underwent conventional gait training (CGT) and group II underwent PWSTT with 20% unweighing. Training was given for 30 minutes per day, 4 days per week, for 4 weeks (16 sessions). Both the groups were evaluated in best 'ON' state, using unified Parkinson disease rating scale (UPDRS) and dynamic posturography (Biodex, USA) which measured overall balance index (OBI), anterior-posterior index (API), medio-lateral index (MLI), and the limits of stability (LOS) in 8 directions. Evaluations were done before and after 4 weeks of training.

Results : After 4 weeks, significant group effect was observed between the groups in OBI ($F=6.57$; $p=0.039$), API ($F=5.17$; $p=0.009$) and MLI ($F=8.81$; $p<0.001$), LOS total score ($F=16.76$;$p<0.001$) and all 8 direction scores. Occasion effect was significant between the groups except backward direction. Bonferroni adjusted comparison showed improvement in all sub-components of LOS only in PWSTT group after 4 weeks. No significant improvement was observed in CGT group.

Conclusions : PWSTT improved dynamic balance and limits of stability in all direction in PD. Four weeks training was optimum.

Key words : Parkinson's disease, balance, partial weight support treadmill training.

The 'Internally Obese' Among Obese

Dr. Anit Antony,

Background : Modern science through improved sanitation, vaccination, and antibiotics has eliminated the threat of death from most infectious diseases. The lifestyle disorders causing cardiovascular disease (CVD) and cancers are now the primary causes of death. In India the situation is quite alarming. The WHO has warned that India is going to have the most number of persons with lifestyle disorders in the near future. Already considered the diabetes capital of the world, India now appears headed towards gaining another dubious distinction of becoming the obesity capital as well. Among obese, highest risk of CVD and cancers are for those with metabolic syndrome and the assessment of metabolic syndrome is more important than assessing obesity alone.

Study Design : Descriptive study.

Objectives : To study the prevalence of metabolic syndrome among obese individuals.

Setting : Patients attending lifestyle disease management clinic.

Methods : Obesity is defined by BMI (body mass index)>25. Among the obese, metabolic syndrome is diagnosed by the following criteria fasting venous plasma glucose ≥ 100 or on treatment for type2 diabetes mellitus systolic BP>130 or diastolic BP>85 or on treatment for hypertension waist circumference >80cm for females and >90 cm for males in fasting lipid profile (FLP), triglycerides >150mg% in FLP, HDL<50mg% for females and <40 mg% for males if three or more criteria are positive, the person has metabolic syndrome

Key words : Obesity, metabolic syndrome.

Impulsive Decision – A Life Long Regret

Dr Harleen Uppal

Introduction : Following is 'the strange case of a 33 years old married BSF Jawaan, resident of Assam, who was destined to suffer a lifetime travail after a self inflicted gunshot injury. This was a consequence of an attempt to suicide in order to obtain relief from a chronic and extremely unbearable abdominal pain, which seemed to be of psychosomatic origin. This impulsive decision left him with complete paraplegia! His rehabilitation was a monumental task as his psychological rehabilitation demanded special consideration apart from the usual rehabilitation goals.

Case presentation : Apart from complete paraplegia he presented with a diverse set of obstacles to his rehabilitation which incorporated medical problems like deep vein thrombosis, urethral stricture, anal fissures, spasticity, pressure ulcers, heterotropic ossification.

Discussion : It is difficult to find a solution for this group of patients, but as Kuhn *et al* pointed out, it is of the utmost importance that they receive specialist psychiatric care. According to Stanford *et al*, frequency of suicide following the index spinal injury due to an attempted suicide appears to be high.

Conclusion : In accordance with the available literature, it can be said that rehabilitation suffers a great deal due to the psychiatric condition of the patient as was the case in our patient and takes prime privilege especially in avoidance of self-destructive behavior.

Key words : Paraplegia, depression.

Comparative Evaluation of Quality of Life of Parents of Children with Disabilities with the Parents of Children without Disability – A Preliminary Study

Dr. Shweta Jain, Dr. Ritu Majumdar, Dr. Minati Acharjya, Dr. V. K. Gupta

Parents of the child with disabilities face lots of challenges in upbringing of their child. This increasing demand has an implication on the health of the parents. Therefore a study is being conducted with the aims to study the quality of life of parents of children with disability and to compare the quality of life of these parents with the general population.

Materials and Methods : Parents of all the children above three years of age with any form of disability attending PMR OPD in Kalawati Saran Children Hospital, Lady Harding Medical college & Associated Hospitals, New Delhi were included in the study. For control group, general population having children without disability and above three years of age were included. After taking informed consent to participate in the study, a

prestructured proforma including demographics, care given burden inventory, WHO-QOL BREF and hospital anxiety and depression scale was filled by interviewing the parents.

Results : The results will be discussed later.

Socialisation in PMR

Dr. Lakshmi Nair, Dr. Sreedevi Menon P, Dr. V.K. Sreekala,

In this poster we attempt to bring out the rehabilitation in the social aspect of our patients, who after a major catastrophic event in their lives have been through various stages of denial, anger, depression and withdrawal. Showcased is the kaleidoscope of the brighter, joyous moments that the patients had during their stay in our department. Celebrations uniting the doctors, students, nurses, staff, patients and their families have brought out the hidden artistic talents in many. One such event organised was the Christmas programme of 2010, with caroling by the doctors and patients including three angelic girls. Our MSW students posted in the department put up the Christmas tree and decorated the seminar hall with ornamental decorations. Our own Santa dancing to the tunes of Jingle Bells, distributed sweets. There was an exchange of gifts amongst the patients followed by games and a feast. Events as these have brought out the optimism, cheer and determination in our differently abled patients to live as enabled individuals.

Key words : Socialization, PMR.

Sexual Rehabilitation in Spinal Cord Injured, Disc Prolapse & Cardiac Patients

Dr. Vinod Prasad

Sexuality is the expression of a person's femaleness or maleness through personality, body dress & behaviour. There are four stages of physiological changes in human sexual response excitement state, plateau stage & orgasm and relaxation. Sexual dysfunction in SCI varies in different persons according to injuries. Sexual dysfunction may be at various levels i.e. difficulty in erection, vaginal lubrication, ejaculation. Various modes of treatment have been approved – mechanical, pharmacological, electrical etc.

Sexuality is also an important issues in Cardiac patients & disc prolapsed patients. Through there is no fixed rule, yet certain precautions e.g. rest before intercourse, avoidance of meal & alcohol before & certain preferred positions help achieve the purpose satisfactory.

It has also been noticed that while SCI patients (including wives) were least interested in their Sexual Rehabilitation Programme. But cardiac patients were very much interested. Cardiac patients specially males were much eager but their wives were very-very apprehensive. And they preferred other sexual modality than actual sex.

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Editorial

New Frontiers in Rehabilitation

New frontiers always emerge. Sometimes it is a new technology; sometimes it is a new application of an existing knowledge. And at other times new concepts evolve or new demands of care surface. During the last four decades all these have happened to PMR. The specialty has become an essential component of medical care and demand for physiatrists expands at a pace that surpasses availability of human resources.

Just look at the soft campaign 'Pick PMR' that we saw in Medscape recently. The IAPMR's yahoogroup had a nice little discussion in its forum. In the UK, PMR exists in discrete components like spinal injury, rheumatology and other sub-specializations. In the Eastern Europe, PMR is already a well established specialty and manages most problems of pain. In India however expansion of frontiers has been somewhat slow in the initial period of the development of the specialty. This could be because the initial generation of physiatrists gravitated from orthopedics and brought with them the idea that PMR is a full fledged surgical specialty; even today the MCI and the National Board classifies PMR under surgery. With the subsequent generations of physiatrists coming onto the central stage, exciting new developments did happen upon the areas established by their seniors.

Today, physiatrists are an integral part of teams working in the field of chronic musculo-skeletal pain, spasticity management, athletic medicine, strokes, cardiovascular diseases, spinal cord & brain medicine and obesity. Physiatrists do take keen interest in understanding impacts of permanent disablements upon individuals, their families and the society. They deal with disability management and accessibility in quantifiable terms and help clients achieve better quality of life. With most specialties getting divided into sub-specialties and disease level interventions, rehabilitation requirement has made tremendous increase in the recent past. This has forced new openings for the physiatrists in the public sector and of late the corporate and the private sector institutions feel the need to have a vibrant PMR unit.

Planning and designing Assistive Technology (AT) in rehabilitation is a vast area of study. AT is in use for improving vision, hearing or movement and this needs a careful study into the functional levels of clients and their ability to use them with advantage. Computer interfaced devices can give a game like world where through a support system for the upper limb patients can use their self motivation to get trained in innumerable functional activities. Some studies on functional improvement try to look at similarities between cognitive function of ADHD and TBI and whether molecules like Ritalin might induce favourable changes in TBI as well. The newer SSRIs, human enhancement technologies, and stem cell research offer real exciting opportunity for the emerging physiatrists.

Standardization of rehabilitation interventions is another area that is receiving attention. Research actively pursues as to how protocols can be established in various strategies in rehabilitation. Indications, planning interventions, outcome measurements, costing, insurance and QOL assessments are domains of current interest. When such scales become universally implemented, better spread of rehabilitation medicine would result.

This year's National Conference of the IAPMR takes place when lots of new things are happening in rehabilitation. The conference showcases some of the emerging fields of interest in PMR and brings physiatrists across India and overseas to come together to present their work and share thoughts, concepts and experiences.

U. N. Nair
Associate Editor

PG Forum

REHAB CHALLENGES

A 59 year old lady attended PMR OPD with severe low back pain with radiation to outer aspect of right leg for 2 weeks. Actually she was suffering from gradual onset low grade LBP without radiation for last 6 months. For that she was advised to wear a lumbosacral brace and to do spinal flexion group of exercise by an orthopaedician. When she attended PMR OPD her pain score in VAS was 7 out of 10. On examination there was local tenderness in L3 – L5 spine with muscle spasm. On thorough neurological examination there was paraesthesia over right L5 distribution without any motor deficit or cord compression.

Her x-ray of lumbosacral region showed a degenerative grade 2 spondylolisthesis of L3 over L4. She was advised to take rest for 48 hours, to wear brace, NSAID and muscle relaxant and static spinal group of exercise. She was also advised to undergo for a MRI scan of lumbosacral region.

Interestingly MRI scan showed a PIVD in L4 and L5 region with lateral recess stenosis of right L5 and nerve root compression. Now the dilemma starts regarding stepping up of the exercise programme.

Please opine regarding the further exercise schedule apart from lumbosacral stabilization exercise.

Medical Philately

International Day of Persons With Disabilities - 2008

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PG Forum

REHAB QUIZ

1. **When patient begins to activate muscle selectively outside the flexor or extensor synergy pattern due to stroke, the patient is in**
   A) Brunstorm stage of motor recovery 2
   B) Brunstorm stage of motor recovery 3
   C) Brunstorm stage of motor recovery 4
   D) Brunstorm stage of motor recovery 5

2. **All are the treatment options for incontinence caused by bladder except**
   A) Scheduled voiding
   B) Clean intermittent catheterization
   C) Tricyclic antidepressant
   D) Alpha adrenergic blocker

3. **All are treatment options of heterotrophic ossification except**
   A) Bisphosphonate
   B) Radiation therapy
   C) Indomethacin
   D) Vigorous stretching exercise

4. **Which part of GI tract is compressed between superior mesenteric artery and aorta in case of superior mesenteric artery syndrome after SCI**
   A) D1
   B) D2
   C) D3
   D) Jejunum

5. **All are contraindications of Exercise Tolerance Testing except**
   A) Active stable angina
   B) Acute pericarditis
   C) Endocarditis
   D) Severe aortic stenosis

6. **All are indications of supplemental home oxygen therapy (LTOT) in rehabilitation of COPD patients except**
   A) Arterial PaO2 < 55 mm of Hg
   B) Arterial SaO2 <88%
   C) Arterial PaO2 56-59 mm of Hg with pulmonary hypertension
   D) Arterial PaO2 60-64 mm of Hg with corpulmonale

PG Forum

7. Non fluent speech with good comprehension and intact repetition but poor naming is called as

A) Broca's aphasia
B) Trans cortical motor aphasia
C) Trans cortical sensory aphasia
D) Conduction aphasia

8. K- Code classification is helpful in

A) Prosthetic prescription
B) Orthotic prescription
C) Speech therapy
D) Cognition assessment

9. In bilateral upper limb amputee, the dominant limb is determined by

A) Muscle power
B) Previous dominance
C) Length of the residual limb
D) All of the above

10. Osseo integration prostheses is made up of

A) Carbon fibre
B) Alloy steel
C) Titanium
D) Molybdenum

ANSWERS

June issue:

1-D; **2**-B; **3**-C; **4**-B; **5**-B; **6**-A; **7**-D; **8**-D; **9**-C; **10**-B

Right responder (7 out of 10): **Dr. Harleen Uppal,** Junior Resident, AIIMS

September issue:

1-A; **2**-B; **3**-D; **4**-C; **5**-B; **6**-C; **7**-B; **8**-C; **9**-A; **10**-C

Right responder (8 out of 10): **Dr Tanvir Ahmed,** 3rd year post graduate trainee, IPGMER, Kolkata

Case Report

Terson's Syndrome : Experience of Two Patients in Acute Neurorehabilitation Ward

Ganesh Bavikatte[1], M Eshiett[2], A Hassoon[3]

Abstract

Terson's syndrome refers to the combination of intra-ocular haemorrhage and subarachnoid haemorrhage (SAH). We had two cases of Terson's syndrome at the same time with different rehabilitation challenges recently. Although it is not very uncommon, can be missed easily or diagnosed late due to many reasons. This can complicate/ delay ongoing neurorehabilitation process. The possibility of Terson's syndrome should be considered in every patient with SAH. All post SAH admission must be screened for visual acquity at the time of admission to neurorehabilitation ward. This helps for early diagnosis, prompt appropriate actions to achieve better outcome and prevent complications.

Key words **: Tersons syndrome, vitreous haemorrhage, subarachnoid haemorrhage, rehabilitation.**

Terson's syndrome refers to the combination of intra-ocular haemorrhage and subarachnoid haemorrhage (SAH) due to aneurysmal rupture, most commonly arising from anterior communicating artery. Haemorrhage can also occur following subdural or increased intra-ocular pressure from other causes. Terson's syndrome occurs in 4-27% of cases of aneurysmal SAH[1-3]. The haemorrhage is frequently bilateral, often missed in initial examination, however it may develop as late as 12 days post SAH and may be associated with rebleeding[2-5]. Patients must be followed up for complications like raised intra-ocular pressure, retinal membrane formation, retinal detachment and retinal folds[6]. Mortality rate may be higher in SAH patients with vitreous haemorrhage than in those without.

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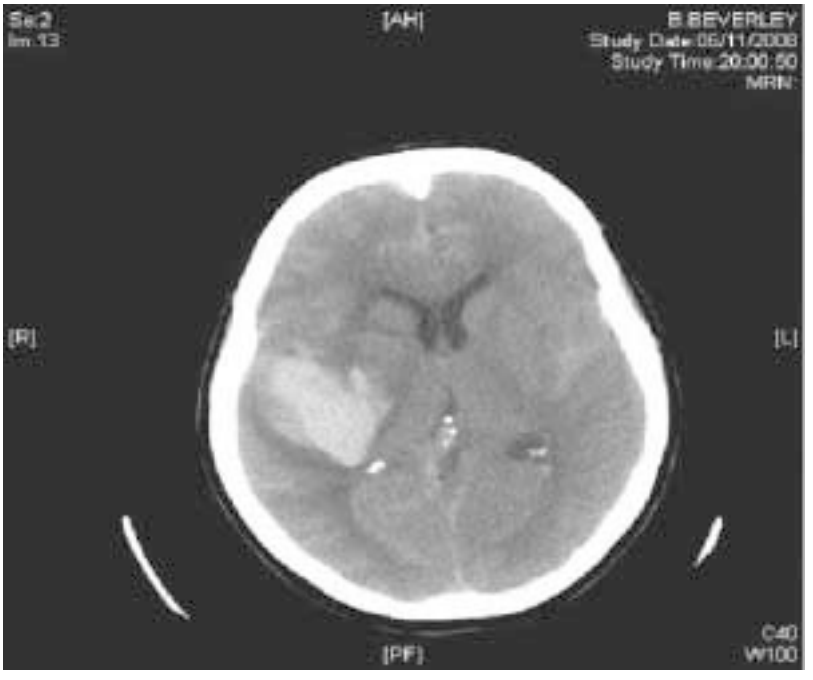
Case - 1

Mrs B, 45-year lady admitted with right MCA aneurysm with temporo parietal intracranial haemorrhage (ICH)/ SAH with raised intracranial pressure (ICP), underwent right frontotemporoparietal decompressive craniotomy and followed by clipping of right middle cerebral aneurysm. She then transferred to acute neurorehabilitation ward after 4 weeks. Visual examination at the time of transfer revealed patient only retaining vision for perception of light in her both eyes. On ophthalmologic examination and B scan of eyes confirmed of having bilateral vitreous haemorrhage. As complete blindness affecting her rehabilitation she underwent early vitrectomy and her vision improved. She could participate in therapy and discharged home successfully in few weeks time.

Case - 2

Mr M, 52-year gentleman who had ongoing severe headache for 2 weeks found unconscious by his wife at home. Computed tomography (CT) scan brain showed subarachnoid haemorrhage with large amount of blood in ventricles consistent with grade 4 SAH. On CT angiogram 8mm anterior communicating artery (ACOM) aneurysm found, which has been treated with coiling.



His Glasgow coma scale (GCS) remained 13-14 for next couple of weeks. He needed ventriculoperitoneal (VP) shunt for hydrocephalus after 3 weeks. At the time of transfer to acute neurorehabilitation ward after 5 weeks, he was independently mobile, conscious, confused and had deficits in cognitive function. His vision in right eye was found to be reduced to perception of light and left eye vision was normal. Ophthalmologic examination revealed unilateral vitreous haemorrhage. As he had normal vision in one eye which enables him to participate well with rehabilitation. We decided to manage him conservatively.

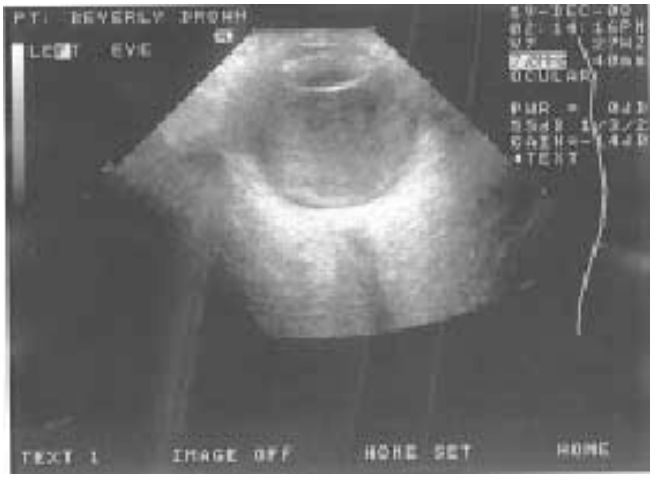
Discussion

The Greater Manchester Neurorehabilitation network provides service to a population of 3.2 million people. We receive more than 230 cases of SAH/year in our acute neuroscience centre and about 80% of them are secondary to aneurysmal bleed. Vitreoretinal consultants operate about 4-8 cases per year at our Manchester Royal Eye Hospital.

Cerebro-ocular syndrome which entails the findings due to intra-ocular haemorrhage in association with increased intracranial pressure following SAH. The first known report of the association was by the German Ophthalmologist Moritz Litten in 1881. French ophthalmologist Albert Terson's name is more commonly associated with the condition after a report by his hand from 1900[7]. Estimated aneurysmal SAH is about 6 per 100 000 population per year and up to one in four people with such aneurysmal bleed can have Terson's syndrome and is associated with more severe SAH [higher Hunt-Hess score, Fisher grade, high world federation neurosurgeons (WFNS) grade, low GCS][8].

Pathomechanics may be due to compression of central retinal vein and retinochoroidal anastomosis by elevated CSF pressure causing venous hypertension and disruption of retinal veins[9]. Visual acuity is often diminished and in some cases is the first sign of trouble. The amount of acute vision loss is related to the extent of the bleeding. Some patients suffering from ruptured intracranial aneurysms may exhibit vision loss secondary to the associated vitreous haemorrhage while not demonstrating any headache, neurological deficits or signs of meningeal irritation. Complications include elevated intra-ocular pressure, retinal membrane formation, retinal detachment and retinal folds. Mortality rate may be higher in SAH patients with vitreous haemorrhage than in those without vitreous haemorrhage (3- to 9-fold)[10]. Fundoscopy reveals vitreous opacity and B scan of eye is useful for confirmation of diagnosis.

Vitreous haemorrhage usually resolves spontaneously within a few months and long term visual prognosis is good in the majority of cases. Most cases clear spontaneously in 6-12 months. Vitrectomy should be considered in patients who fail to improve[11], if more rapid improvement is desired[4,11] or in cases of bilateral vitreous bleeding. The long term prognosis for vision is good in



about 80% of cases with or without vitrectomy. In unilateral cases if vitreous haemorrhage not clearing by 3 months, surgical options can be explored to hasten recovery. Even in cases without these significant complications, occasionally some degree of visual acuity loss may persist indefinitely because the subretinal haemorrhage or the injurious event itself disrupted the optic nerve, retinal pigment epithelium or the retinal tissue. When the vision remains decreased, it is typically secondary to persistent vitreous haemorrhage or retinal pigment epithelial disturbances and/or epiretinal membrane formation.

Key Points

- The possibility of Terson's syndrome should be considered in every patient with SAH
- All post SAH admission must be screened for visual acquity at the time of admission to neurorehabilitation ward
- This helps for early diagnosis, prompt appropriate actions to achieve better outcome, prevent complications

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Case Report

Bilateral Spontaneous Rupture of Achilles Tendon - A Case Report

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Abstract

Spontaneous bilateral rupture of Achilles tendon is usually associated with underlying systemic disease and concomitant corticosteroid therapy. This is a relatively rare condition, with very few cases reported in the English literature till date. Patients with this affliction frequently present weeks to months after the rupture occurred because there is no succinct traumatic event. This case is unusual as the spontaneous rupture occurred in a patient who had never taken steroid and without any history of injury. We discussed the mechanism of injury and other possible causes.

Key words : **Bilateral spontaneous rupture, Achilles tendon, corticosteroid therapy.**

The Achilles tendon is the thickest and strongest tendon in the body arising from the confluence of the gastrocnemius and soleus tendon[1]. The rupture of the Achilles tendon does not occur commonly. But it is the most frequently ruptured tendon in lower limb; and accounts for approximately 20% of all large tendon injuries[2]. Simultaneous spontaneous bilateral rupture of Achilles tendon is even rarer. Most injuries of the Achilles tendon occur as a result of accidental trauma or athletic activities such as lunging and jumping[3].

The case is reported as it is unusual because the spontaneous bilateral rupture of Achilles tendon occurred in a healthy man who did not give any history of taking steroid,injury and significant systemic illness.

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Case Report

A 59 years old male, milkman by occupation, from a hilly area reported in PMR OPD in February 2011 with the complaint of pain at both ankles and difficulty in walking since October 2010. He suddenly felt pain on the right ankle in the morning in early October 2010, followed by similar pain on the left ankle in the evening of the same day. After that he had difficulty in walking and was unable to lift the heel. Since then,he was walking using a stick. He was treated with analgesics for the pain as prescribed by local doctors.

There was no history of thyroid diseases, rheumatoid arthritis, gout and or any history of taking oral steroids and substance abuse. Also, there was no history of injury or local steroid injection.

Physical examination revealed palpable gap in the continuity of tendo-achilles about 4 cm above the insertion. Thompson test was positive. Heel raising test was negative. Biochemical investigations like thyroid function test, KFT, LFT, lipid profile was all within normal limits. Radiologically x-ray of both ankles were normal, but MRI was not done since the patient belongs to a poor family.

Surgical repair of both ruptured tendons was done on 9th February 2011. Excision of the degenerated segment of tendon was done. End to end suturing was not possible. Repair was done by using peroneus brevis tendon re-enforcement technique.

Specimen of the rupture Achilles tendon showed degenerative changes.

Postoperatively the lower limbs were immobilised with long leg casts with knee flexed at 45º and maximum planter flexion for 4 weeks. After that the cast was changed to below knee cast while reducing planter flexion to about 30º. This was kept for another 4 weeks.

After removal of cast the patient could achieve 20° equinus at the ankle. He was treated with paraffin wax bath of both ankles and range of motion exercise of ankle and stretching exercises of plantar flexors. After 3 weeks of therapy, ankle dorsiflexion of 10° was achieved and gait training was started using bilateral axillary crutches. Toe raises, progressive resistance exercises and proprioceptive exercises, in combination with a general strengthening program was also instituted. By the end of 4th month the patient was able to walk independently without crutches and ankle dorsiflexion was 15°.

No protective orthosis was prescribed, as repair was done using vascularised muscle.

Discussion

Risk factors for spontaneous rupture of tendo-achilles include use of corticosteroid, anabolic steroid, fluroquinolones and previous TA rupture and systemic disorders like rheumatoid arthritis, systemic lupus erythromatosis, gout, thyroid disorders, etc[4]. Habusta[5] reported that such spontaneous ruptures were common in degenerated tendon. He also reported that the incidence of Achilles rupture was around 0.02% in the western population. Less than 1% of them had bilateral spontaneous rupture[6]. A study by Raunest *et al*[7] reported that patients with hypercholesterolaemia had higher risk of rupture. In study by Shukla[8], a rare case of bilateral spontaneous rupture of Achilles tendon of non-traumatic origin was reported and he opined that poor arterial circulatory status of both lower limbs of the patient was the only factor found to be a possible cause of this rupture. Another study by Jain and Dawson[9] also reported a spontaneous rupture of Achilles tendon secondary to exercises for limb ischaemia. The mechanism of injury was probably sudden dorsiflexion of the plantar flexed foot. Hypothyroidism causes decreased synthesis and degeneration of collagen. Transient hypercalcaemia resulting from hypothyroidism causes calcification of tendon and small vessels thereby decreasing vascularity of the tendon and further reduces the tendon strength[2].

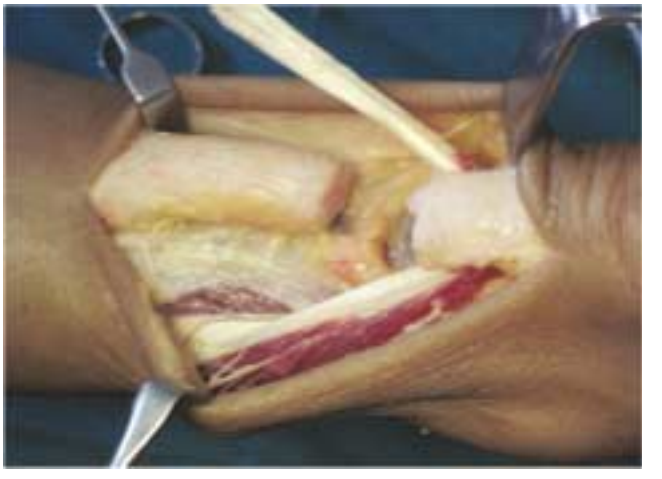
Patients with this affliction frequently present weeks to months after the rupture had occurred as there is no succinct traumatic event[6]. In our case also, the patient reported after 5 months.

The patient is 59 years old male, milk-man by profession who belonged to poor socio-economic strata and used to climb the hill up and down to deliver milk. Histopathologic examination of surgical specimen showed degeneration. Eccentric loading of the muscle-tendon unit due to hill walking with poor running shoes and negotiating uneven terrain for many years might have caused repeated microtrauma to tendo-achilles. This is probably most important cause of structural failure of the tendon; over above likely insufficient vascularity as reported by others.

Conclusion

Spontaneous rupture of tendo-achilles is rare and it is usually presented many months after incident. This

Bilateral Rupture of Achilles Tendon Showing Palpable Gap



Repair of the Tendon with Peroneus Brevis Reinforcement Technique

presents a formidable challenge in surgical repair. The post-operative rehabilitation programme needs to be exhaustive and meticulous to achieve satisfactory ambulation.

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